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# Arising: Hurricane (Superstorm) Sandy's Impact on Design/Planning Professionals

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Arising: Hurricane (Superstorm) Sandy's Impact on Design/Planning Professionals

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Dissertation Committee

- Elizabeth Holloway, PhD, Committee Chair

- Laurien Alexandre, PhD, Committee Member

- May Joseph, PhD, External Committee Member

- Ronald Shiffman, FAICP, External Committee Member

## Acknowledgements

*Land Acknowledgement*

Manhattan has always been a gathering and trading place for many Indigenous peoples, where Nations intersected from all four directions since time immemorial. It was a place to gather and sometimes to seek refuge during times of conflict and struggle.

I, Maxinne Rhea Leighton pay respect to all of their ancestors' past, present, to their future generations. We acknowledge that this dissertation defense is situated on the island of Manhattan (Menohhannet—On the Island) traditional lands of the Munsee Lenape, the Canarsie, Unkechaug, Matinecock, Shinnecock, Reckgawanc and the Haudenosaunee Confederacy. We respect that many Indigenous people continue to live and work on this island and acknowledge their ongoing contributions to this area.[1]

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[1] Vetted by and courtesy of the Safe Harbors Indigenous Collective, an arts initiative that focuses on the development and production of Native Indigenous Theater in New York City and within the broader American theater, combating stereotypes to support vibrant Native communities. The collective seeks to build an understanding of Indigenous methodologies.

always with compassionate direct feedback, was a source of strength when I couldn't find it any longer in myself.

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**Dedication**

Dedicated in loving memory to Deirdre Francis Maguire and Peschka Levine. Two elders whose

wisdom and love continue to guide me as the waters rise.

**Abstract**

*Standing by my bedroom window, looking out at the ocean, a huge wave comes and swallows up my building. Everything around me is gone, including me. I wake up. I am 13 years old and living in the Coney Island Houses on Surf Avenue, Brooklyn, New York.* With ongoing anthropogenic changes to the natural environment such as sea level rise and intensifying storms, coastal communities, especially ones segregated by class and culture, are particularly vulnerable in this context that challenges a way of life, and in some instances, threatens that life's survival. This dissertation focuses specifically on what one massive storm—Hurricane Sandy (Superstorm Sandy)—left behind. This research explored how these experiences impacted the design/ planning professionals' (architects, planners, landscape architects, engineers) approaches to future climate-related events, as well as the impacts upon them personally, professionally, and societally. A single, embedded case study with narrative inquiry was used to gather first-person accounts and insights into the work, thoughts, and feelings of professionals whom society relies on increasingly as climate-induced crises proliferate. Data were classified into three pillars: Personal (impacts on the self/individual, psycho-social challenges, empathy/stress), Professional (impact to professional practice, reflection on strategies post-Sandy, impact on future events), and Societal (local and global impacts, leadership). Prominent themes under the personal pillar were impermanence, emotional resilience, and dignity. Professionally, Sandy left the study participants looking toward a more reflective design practice. The societal pillar described the broader social issues that emerged from the interviews. Two significant findings were lack of equal attention to marginalized communities and lack of diversity and inclusion within the design/planning profession. As more populations are being impacted by Hurricane Sandy-like events, designers/planners will need to become leaders in changing to both a reflective and

proactive stance to professional practice in the context of climate, economic and social justice. This dissertation is available in open access at AURA: Antioch University Repository and Archive, http://aura.antioch.edu/, and OhioLINK ETD Center, https://etd.ohiolink.edu/.

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**Chapter I: Introduction**

This dissertation is about what a massive storm left behind. Hurricane Sandy hit the New York region in fall of 2012. The storm's damage and process of recovery, while certainly the most obvious, was in the aftermath coupled with many more questions than answers. Did this mark the beginning of a new normal in the Northeast? How would the storm and its recovery impact the built and natural environments? How would design/planning professionals, (custodians within the built environment) address these challenges? Will these challenges change this profession? How will this impact both the individual practitioner and larger societal issues that either pre-dated or were the result of a storm of this magnitude?

Since the massive storm occurred, part of its legacy has been to not only rebuild and recover but to investigate, act, and reflect upon these much larger questions. Although each in its own right deserves research and study, this dissertation focuses specifically on the impact of Hurricane Sandy (Superstorm Sandy) on design/planning professionals. Within the context of this study, the phrase *designers/planners* is used as a generic phrase that encompasses architects, planners, landscape architects, and engineers. While each is independent in nature, there is an interdependency between them all which is further underscored in the aftermath of a climate-impactful event.

There are almost innumerable scholarly and literary accounts of the impacts of great storms through history: tales of the destruction of the works of humanity and of untimely deaths, of natural environments—already weakened by human meddling—smashed into unrecognizable shadows of the protective ecosystems they once had been. However, this story is about a different array of effects that are not well discussed in academic or other literature: how Hurricane Sandy changed the social context, the lives and the professional practice of people

who are sorely needed to help humanity confront such storms and global climate impacts: designers/planners.

**The Genesis of the Research Question**

Design/planning professionals respond to post-Sandy-like events in a myriad of different ways that range from targeted short-term solutions for immediacy to long-term solutions. This trajectory is the genesis for the following primary research question: In what ways did post-Hurricane Sandy experiences impact the design/planning professionals' approach to future climate-related events personally (individually), professionally, and societally?

**Design/Planning Professionals—Who They Are and Why It Matters**

In New York State, a "Design Professional" is defined in the New York State Business Corporation Law as someone who is licensed in New York as an architect, landscape architect, professional engineer, land surveyor, or geologist. All of these services are related to the design and construction of buildings and the spaces around them. (New York State Education Department, Office of the Professions, n.d.-a, n.d.-b).

According to the National Council of Architectural Registration Boards the definition of an *architect* is**:**

> Licensed professionals trained in the art and science of the design and construction of buildings and structures that primarily provide shelter. An architect will create the overall aesthetic and look of buildings and structures, but the design of a building involves far more than its appearance. Buildings also must be functional, safe, and economical and must suit the specific needs of the people who use them. Most importantly, they must be built with the public's health, safety, and welfare in mind. (as cited in Hubbard, 2018, para. 3)

*Planners* by definition provide services that are related to the work of these other professionals. Planners' work as explained by the American Planning Association (n.d.) is as follows:

> The goal of planning is to maximize the health, safety, and economic well-being of all people living in our communities. . . . Planning helps create communities of lasting value. . . . planners take a broad view while architects often focus on a single building or the structures themselves (paras. 1–2).

*Landscape architects* are defined by the American Society of Landscape Architects (n.d.) as follows: "Landscape architects analyze, plan, design, manage, and nurture the built and natural environments. Landscape architects have a significant impact on communities and quality of life" (para 1).

*Consulting engineers*, as defined by the American Council of Engineering Companies of New York (n.d.), are,

> Licensed professionals . . . who provide design services . . . integral in shaping our communities and our world—designing our highways, bridges, tunnels, and transit systems . . . buildings . . . energy-efficient mechanical, electrical and fire safety systems; and water and wastewater treatment plants. (para. 1)

The American Society of Civil Engineers (n.d.) explains *geotechnical engineering* as follows: "Geotechnical engineering utilizes the disciplines of rock and soil mechanics to investigate subsurface and geologic conditions. These investigations are used to design, and build foundations, earth structures, and pavement sub-grades" (para. 1).

While there are other practices within the profession of engineering, such as structural for example, the ones defined above are represented by the participants in this study.

Given the interdependent trajectories and the direct societal impact design/planning professionals have on the built and natural environments, part of what this study shows is how they are more than custodians but are in many instances the conscience in collaboration with the community during the planning of or recovery from a storm like Hurricane Sandy.

**A Personal Journey to Sandy and the Dissertation Topic**

> Standing by my bedroom window, looking out at the ocean, a huge wave comes and swallows up my building. Everything around me is gone, including me. I wake up. I am

13 years old and living in the Coney Island Houses on Surf Avenue, Brooklyn, New York.

As a young girl, I dreamt of becoming a mapmaker—not because I lived in a world that felt global or vast but because I lived in a world that felt small and constricted. I desperately wanted to redraw the lines that defined my neighborhood, so I could make it bigger, wider, longer. I was inspired to do this by the natural world I saw outside my window: the ocean. Its vastness and movement knew no boundaries. Even when it met the limits of the shore, it could just as easily move back out and join the bigger part of itself. This was the world I wanted to become a part of, but short of becoming a mermaid, I took to the urban landscape and began, with great obsession, drawing lines on the sidewalk with big chunky colorful chalk, block-by-block up and down Surf and Mermaid Avenues. If I could only draw fast enough, far enough, long enough, then maybe I could break this spell of isolation by redrawing a world that separated people by street names, building numbers, racial diversity, and economic disparity. As time progressed, so did I, and I moved from drawing lines on sidewalks to using words to create place-based narratives at the crossroads of the individual and the societal. I learned that when these were contextualized, they did, in fact, become the collective stories upon which cities and communities are built.

Surf Avenue, Coney Island, and the Projects left a powerful imprint that not only translated to the city as a very active protagonist in my life but became the foundation for a dialectical relationship between the natural and built environments. Post-Sandy, the child who once dreamt of disaster and the adult who wanted to do something about it met in a timeless space along the shoreline, a foreshadowing of what was yet to come. Figure 1.1 shows me as an adult standing in front of the apartment complex where I grew up.

*Figure 1.1.* The author in front of her childhood home at Coney Island (Brooklyn). Photograph by Gretchen Bank. Used with permission.

Coney Island was called a war zone during my childhood. Burned-out buildings, arson, random drug-related and gang-related shootings were part of daily life as was a strong sense of neighborhood identity and local activism within this multi-racial community. As a graduate student, I wanted to understand what a war zone was like outside the urban inner city. I studied the writings of urban planners, many of whom lived in Bosnia during the ethnic cleansing. They wrote about how the destruction of architecture was used as a weapon of war. By systematically destroying aspects of urban life that held the greatest cultural and historical memory of its people, the built environment, once seemingly impenetrable, was reduced to an abstraction. Writers and urbanists alike described being haunted by the ghosts not just of the people they lost

but also of the buildings destroyed, communal and familial—a church, mosque, synagogue, library, theater, school, park.

When I went to Bosnia after that semester, the brutality of the loss of urban geography on the human psyche was something I saw first-hand. As I watched people in deeply wounded cities try to adapt and recover, the urban environment took on an eerily human element of vulnerability and fragility.

On September 11, 2001, while on my way to work, a low-flying plane traveling up University Place in New York's East Village looked as though it had gone off-course and was going to crash into the building directly in front of where I was walking. Instead, it raised its altitude and continued toward what was to become its ultimate destination, the Twin Towers of the World Trade Center.

Months later, as a writer on one of the earlier proposals for the site master plan for Ground Zero, and later as a liaison with the initial design team and the victims' families, I experienced how the recovery and rebuilding were far outpacing one's ability to process the level of trauma and grief. It was during this time that people in New York became increasingly sensitized to a professional community—the planning and design community—that most did not think much about—their impact on our shared, built environment. The terms "architecture," "planning," "structural integrity," and "progressive collapse," moved into the collective zeitgeist along with design charrettes and public hearings.

Not only did 9/11 provide the public with an understanding into the role of these professionals in response to disasters, it also galvanized the voices of design/planning professionals within their own community, along with civic and grassroots organizations. This response was the result of design decisions being made by government officials that did not

always take the public realm and those of the families and city dwellers into account. Designers/ planners found themselves in the role of helping the city and the country move forward through the design and rebuilding, but it was also being done in the most traumatic and tragic of circumstances.

Close to four years later, Hurricane Katrina hit the Gulf Coast and devastated New Orleans, Louisiana, and along the coast to Gulfport, Mississippi. Close to a year later, I was engaged with a team in Iberville, New Orleans, to study an art deco low-income housing complex as the researcher and custodial storyteller for the people who had lived there and had been evacuated. It was a short-lived assignment.

While Hurricane Sandy was not an act of terrorism like 9/11, nor as catastrophic as Hurricane Katrina, lives and homes were lost, and it did have massive economic and physical impacts.[2] Hurricane Sandy also brought into question a different kind of vulnerability from 9/11, but not so much different from Katrina, in which the boundaries of the built environment and the natural world blurred with devastating results.

**A Dissertation Turning Point in Coming Home to Sandy**

After distributing hot meals to displaced people from the parking lot of the Cyclone Baseball Stadium in Coney Island, post-"Superstorm Sandy" as the media had dubbed it, I walk along the fractured boardwalk to the building where I grew up. Right below the window that was once my bedroom, there was a waterline from Sandy's surge. Sands had shifted from the beach's flat grade to mountainous hills in the middle of the streets. Pieces of the boardwalk were dismembered by the sheer force of the 14-foot storm surge; homes, schools, houses of worship,

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[2] Although the total reach of economic effects of both catastrophes are difficult to determine overall, September 11 terrorist attacks in New York City are estimated to have cost between $10 billion and $13 billion in property and infrastructure damage (Institute for the Analysis of Global Security, n.d., para 7), while Superstorm Sandy's were approximately $19 billion (PlaNYC, 2013, p. 5).

businesses penetrated by the ocean or the nearby creek. As I walked from Surf to Mermaid to Neptune Avenues, the smell of mold permeated the air; possessions lay in wait for the taking on the sand. Water seized memories and life with velocity and an incomprehensible roar. The force was merciless.

Walking along the shoreline on that day, trying to help people clean up the debris, the beach seemed so much smaller than I remembered it to be. The ocean was that odd green color, more than blue, that it gets in the winter, and the smell of the salty sea air, usually intermingled with Nathan's Famous hot dogs and fries, was uncomfortably absent.

It was sobering.

Hurricane Sandy was sobering.

Sea level rise, with an increase of climate-impactful events is sobering.

Sandy was an act of nature. Nature creates a home for all life to exist. Standing on the shore in the aftermath of Sandy's wrath, I could not demonize the very thing that had given me an understanding of hope, beauty, and the vastness of the world. However, I could not deny its explosive power and how humanity fared in the face of it.

So, where does one go with this preservation of human community and, yet, the changes in the natural world? The answer will, in part, be determined by the work of design/planning professionals, in collaboration with communities, governments, and other actors. For this reason, the research on how those professionals have been impacted by Sandy, needed to be explored.

New York City had never experienced a storm of this size that had caused so much damage and affected so many lives (PlaNYC, 2013; see especially Chapter I, "Sandy and Its Impacts"). Central to this dissertation's purpose, Sandy is also an instance where design/planning

professionals, after the first responders, were the ones literally on the front lines of planning, rebuilding, and reimagining along with the impacted communities, the narrative for their future. Many of them were also personally impacted either directly or tangentially by the events of Sandy themselves. How that affected them personally and professionally, and the implications for coping with future climate change and the disasters it can bring societally, is this dissertation's subject and purpose.

**Changing Realities Impacting Design/Planning Professionals**

Today, New York is a city with 520 miles of coastline, home to more than eight million people living within five boroughs: Manhattan, Brooklyn, Queens, the Bronx, and Staten Island, all within one of the largest natural harbors.

> Nearly half of the world's population lives within 60 miles of the sea, and hundreds of millions more reside in river valleys. In Hong Kong and Singapore, New York and Shanghai, thousands of acres of new waterfront land have been created by landfill. Seas are rising, land is sinking. The soil under Jakarta, Indonesia, for instance, drained steadily of groundwater, is collapsing four inches a year. (Chu, 2013, para. 6)

Perhaps the place to start in trying to come to terms with what is increasingly becoming our new reality is at the very core of the human psyche, that we as human beings tend to look at life as something that goes on forever, until the moment when one realizes that it does not. That realization is the gateway to enter the paradoxical juncture between the finite—one's life span—and the infinite, which includes being part of something bigger than oneself, such as God, eternity, or the earth itself. It is an existential passage that brings one to a moment of reckoning and reassessment. From my perspective, this is where we as a society are now standing.

With the increase of climate-related events impacting people across the global community on a more regular basis, it is not just human beings facing into this paradox but the natural world as well. It is a planetary message that has gone viral.

A key question is: Are we listening? And if we are, what are we going to do about it? And, instrumental to that question is another: Who are the leaders on the front line of this movement to bridge the natural world with the human-built environment as changes continue to unfold? And what can they achieve?

How post-Hurricane Sandy experiences impacted the design/planning professionals' approaches to future climate-related events, as well as the impacts upon them individually (personally), professionally, and societally, was the basis of this research. The hope is that this exploration will contribute to the design/planning field and how designers/planners can help lead communities through disaster to recovery, fully mindful that they, too, are humans who not only strive to shape events but who also are shaped by them.

**About Hurricane Sandy and Climate Change Related Disasters**

With ongoing anthropogenic changes to the natural environment, such as sea level rise, there is a pattern of growing interdependency between the natural world and the human-scale built environment. Coastal communities are particularly vulnerable in this context that challenges a way of life, and in some instances, threatens that life's survival, with relocation strategies becoming sometimes mandatory options for residents from Newtok Village, Alaska, to Vunidogoloa Village, Fiji, to Oakwood Beach, Staten Island (post-Hurricane Sandy).

Hurricane Sandy[3] made landfall in the New Jersey–New York City area on the evening of October 29, 2012. From satellite photos, its power and enormity were unmistakable (Figure 1.2).

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[3] Hurricane Sandy, as it struck New York, was frequently called Superstorm Sandy, in reference to the fact that while the system was designated a hurricane during its early formation east of the Caribbean Sea, it had been downgraded, technically to a tropical storm, then upgraded back to a hurricane and back down to a storm, all within a matter of days (see Blake, Kimberlain, Berg, Cangialosi, & Beven, 2013, especially p. 1). For consistency, I refer to it as Hurricane Sandy in this dissertation, except when quoting sources using the term "Superstorm."
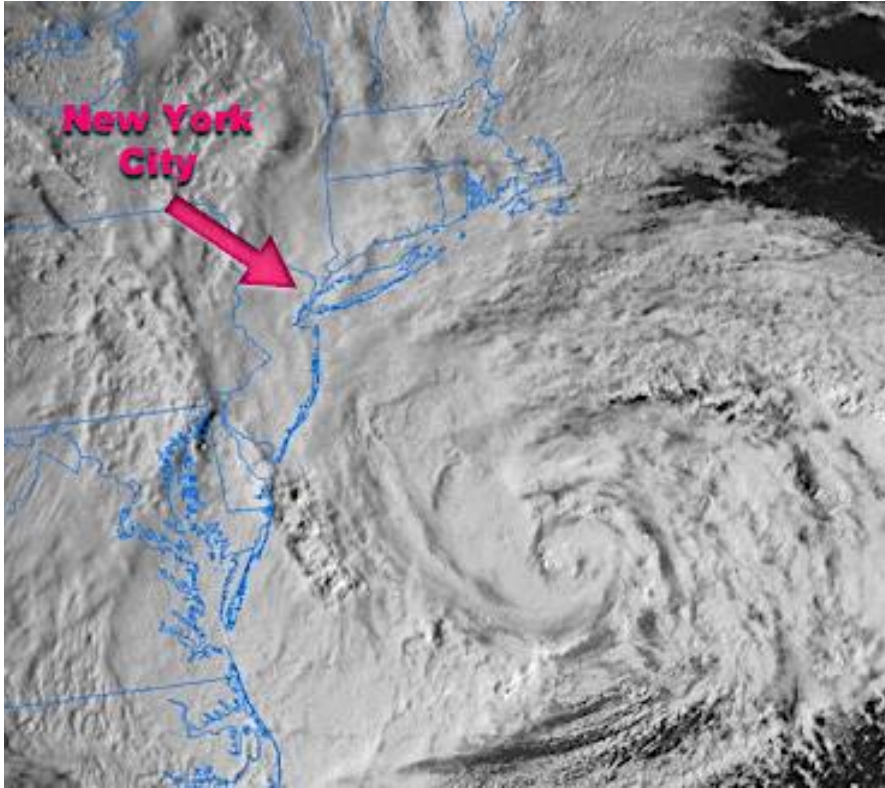
*Figure. 1.2.* Satellite photo of Hurricane Sandy as eye moves towards New Jersey–New York shore. Adapted from "Hurricane Sandy," United States Geological Survey, (https://www.usgs.gov/media/images/hurricane-sandy). In the public domain.

When Sandy was downgraded from a hurricane to a post-tropical cyclone, people of the region thought they had dodged a bullet, particularly when there did not seem to be a lot of rainfall. Nevertheless, there was a powerful wind field that extended for 1,000 miles with winds topping 90 miles per hour. It was the strength of the wind, in combination with the angle of the storm, which gave rise to a fast-rising storm surge. These factors were in addition to a full moon that brought on one of the highest tides of the year in combination with the New York bight and bathymetry and a disturbance in the jet stream that resulted in the storm's unanticipated turn west into New Jersey.

In the National Oceanic and Atmospheric Administration's (NOAA) post-storm report (Sullivan & Uccellini, 2013), Sandy caused significant damage in both the Caribbean and the

continental United States. While the highest storm surge and greatest inundation was in New Jersey, New York, and Connecticut, the water levels rose along the entire East Coast of the United States from Florida up to Maine. In many of these locations, especially along the coasts of central and northern New Jersey, Staten Island, and southward-facing shores of Long Island, the surge was accompanied by powerful waves with storm surge in some areas exceeding eight feet above ground level. Some coastal communities in New Jersey were without power for months. The late October timing of the storm also resulted in heavy snows across portions of the central Appalachians, most particularly in West Virginia and the mountains of western North Carolina. Snowfall totals were up to 36 inches in these areas. Closer to the coast, more than 12 inches of rainfall resulted in river, stream, and creek flooding over portions of the Mid-Atlantic.

**Sandy's immediate impacts**. During Sandy's surge, the East River was more than nine feet high. The seawall was overcome by water, and low-lying parts of Lower Manhattan were hit with a storm surge that rose to 14 feet (Kluger, 2012). Areas became inundated with water including New York's Financial District, Battery Park City, eastern parts of Chinatown and the Lower East Side, and farther north in Chelsea and Greenwich Village. In Chelsea, a four-story building's facade crumbled and collapsed, leaving the interior on full display during the height of the storm.

The New York Stock Exchange was closed for two weather-related days, something that had not happened since the blizzard of 1888. Brooklyn's Red Hook, Navy Yard, Coney Island, and Brighton Beach were under several feet of water. Red Hook, with 70% of its community living in public housing, and surrounded by water on three sides, was devastated by the storm.

In Queens, Long Island City and Jamaica Bay were severely flooded. Breezy Point, a private community on the far west end, had fires break out and destroy parts of the community

due to salt-water inundating electrical equipment in homes prior to the Long Island Power

Authority and National Grid turning the power off (Sobel, 2014). While the Bronx was impacted

in areas across Long Island Sound, if the storm had hit at a slightly different angle, it could have

heavily damaged Hunts Point in the South Bronx, New York's primary food distribution center.

Staten Island, especially along its southern shore in communities such as Oakwood Beach,

Midland Beach, Ocean Breeze, and South Beach, that are built on swamp land with only low

dunes to protect them, had the highest rates of fatality.

There were 6,500 patients who had to be evacuated from hospitals and nursing homes;

1.1 million children were unable to attend school for a week; nearly 90,000 buildings flooded

with water (K. H. Jacob, 2015; PlaNYC, 2013). There were 650,000 homes damaged or

destroyed; 200,000 small business closures due to damage or power outages (Ovink &

Boeijenga, 2018). Insurers said that New York suffered $19 billion in damages (PlaNYC, 2013),

and insurers say the total loss was $65 billion, of which $30 billion were insured losses (Munich

Re, 2013).

With the entrances of tunnels being close to sea level, there was an attempt to keep the

water out. The Metropolitan Transportation Authority (MTA) shut down the entire subway

system—all 660 miles of track and 468 stations—impacting more than 5.3 million commuters at

the time (Kluger, 2012). Specifically, air vents and station entrances were covered; for example,

"The impromptu plywood dam they threw up to protect the 148th Street tunnel in East Harlem,

saved the No. 3 line from flooding" (Sobel, 2014, pp. 147–148). PATH trains were also shut

down. Seven other subway tunnels were flooded along with the Brooklyn–Battery Tunnel,

Midtown Tunnel to Queens, and Holland Tunnel to New Jersey. The Lincoln Tunnel was the

only one not flooded. Runways at both LaGuardia and JFK airports were also submerged, with

flights cancelled at LaGuardia, JFK, and Newark International airports, and the airports were closed during and immediately after the storm.

Subways were shut down for an unprecedented amount of time, coming back on-line within a week. The power station at the East River and 13th Street was shorted out by the salt-water inundation and caused a huge transformer explosion. In addition, two other lower Manhattan substation outages resulted in blackouts that lasted for days from downtown Manhattan with a dividing line in midtown above 30th Street where residents had power. There were no traffic lights, no working cash machines, and nowhere to get a hot cup of coffee or a meal. Places that had their own generators set up recharging stations so that people could charge their phones. There were impromptu ice cream parties and makeshift barbeques in backyards and on building stoops as people salvaged what they could from a defrosting refrigerator to share with neighbors and passing strangers. Power was out to 1.1 million people in New York City and within the New York–New Jersey region, more than 8.5 million people were without electricity. Countless trees, and subsequently power lines, were brought down by the rain and heavy winds. Over one hundred million gallons of raw sewage was released into Hewlett Bay on Long Island, two days after Sandy (Ovink & Boeijenga, 2018).

In New Jersey, Sandy's core hit near Atlantic City, and the damage was extensive along a coastline that is composed of mostly flat barrier islands (Figure 1.3) When the peak surge hit, the sea split Island Beach, located in Mantoloking, in two. Seaside Heights, known for its amusement park, had ruptured gas lines, and the small community of Camp Osborne went up in flames.

*Figure 1.3.* Damage from Hurricane Sandy at Mantoloking, NJ. From "Aerial photograph of Hurricane Sandy storm damage at Mantoloking, New Jersey coastline," United States Geological Survey (2012). Photo by Greg Thompson, USFWS (https://www.usgs.gov/media/images/aerial-photograph-hurricane-sandy-storm-damage-mantoloking-new-jersey-coastline). In the public domain.

Hoboken, an island until the 20th century, lies predominantly below sea level. More than half of the city flooded, either from the surge or sewers backing up. (Sobel, 2014, p. 154). Gas shortages also developed, and New Jersey Governor Christie, later followed by New York City Mayor Bloomberg, began an odd–even day rationing. Figures 1.4 and 1.5 capture but a minute sense of the vast destruction wrought by the storm in residential areas.

*Figure 1.4.* Debris scattered about a Brooklyn shorefront. Photo by MCC J. Ryan, U.S. Marine Corps. (https://www.marines.mil/Photos/?igphoto=2000001214). In the public domain.



*Figure 1.5.* House on Brooklyn shorefront after Sandy. Photo by "Proud Novice," 2012. (https://commons.wikimedia.org/wiki/File:Damage_from_Hurricane_Sandy_to_house_in_Brooklyn,_NY.jpeg). Creative Commons License BY-SA 3.0.

Sandy did not discriminate between areas of privilege and those areas that were less privileged and therefore more vulnerable. However, in the aftermath of Sandy the impacts were experienced differently. Household income had a huge impact on how quickly people could build back their lives. Thirty percent of homeowners and 65% of renters who registered with the Federal Emergency Management Agency (FEMA) had household incomes that were at or well below the federal poverty level for a family of three. Sandy destroyed over 300,000 housing units in New York City, many of which were home to economically disadvantaged households. There were 402 New York City Housing Authority (NYCHA) buildings that lost electricity and access to elevators, and many lost heat and water. In total, over 77,000 residents were heavily impacted due to storm. The Housing Authority was unprepared to deal with the extent of destruction and the consequential needs of its residents, especially those most vulnerable, including the elderly and disabled (New York Women's Foundation Strategic Learning Department, 2015).

The direct death toll from Hurricane Sandy—including as it changed into what came to be called Superstorm Sandy—was estimated to be a total of 147 people (Blake, Kimberlain, Berg, Cangialosi, & Beven, 2013) including 43 in New York; 12 in New Jersey; nine in Maryland; six in Pennsylvania; five in West Virginia; four in Connecticut; two in Virginia; and one in North Carolina. One person died in Canada, and at least 67 people were killed in the Caribbean, including 54 in Haiti. Blake et al. (2013) pointed out that at the time this was the deadliest hurricane to hit the United States, outside the South, since Hurricane Agnes in 1972.

Residents and government officials did not anticipate that the storm would breach the vulnerable areas marked by FEMA on their flood zone map with such veracity. Certainly, no one expected that its extent would invalidate FEMA's mapping by moving beyond what was

considered a vulnerable location. It should be noted that in this reference, the term *vulnerable* is

defined as the actual physical location of a site. It is not meant to infer the use of vulnerable areas

in the sole context of economic vulnerability. Yes, people believed that an event like Sandy

would happen someday, just not in their lifetime. In fact, according to a report done about Sandy

by the Natural Resources Defense Council, it was noted that "the record-breaking flood height

and storm surge that accompanied Sandy was on par with the New York City Panel on Climate

Change projections for the 2050s" (Knowlton & Rotkin-Ellman, 2014, para. 4). In 2015, updated

FEMA flood maps were produced that expanded the areas of risk based upon the flooding from

Sandy which New York City's current Mayor de Blasio appealed. New FEMA flood maps are

not expected until 2024. Without a common set of flood maps, more people are left exposed,

especially those in vulnerable communities.

      **Implications of Sandy for designers/planners**. In the aftermath of Hurricane Sandy, the

long-term objective that ran through many of the planning initiatives is to develop communities

that are more sustainable in the face of climate impacts. The phrase *sustainable communities* has

a variety of different meanings. In their sustainability framework, The American Planning

Association (2016) relied on a common definition of sustainability, developed by several NGOs

and UN agencies in 1991.

> Given the rise of sustainability as a concept over the last decade, there are many different
> versions of definitions of sustainability. Most definitions reference the need to respect
> environmental, economic, and social conditions. Another common element is managing
> resources for both current and future generations. For the purposes of the Policy
> Framework, the following definition of sustainability is used: *Sustainability means
> improving the quality of people's lives while living within the capacities of supporting
> natural and human systems*. (p. 5)

      Tackling these issues in a comprehensive way requires systemic solutions of frameworks

and leadership that shift the current thinking, perceptions, and values. An outgrowth of this

expansion in thinking is a fundamental change in our collective moral compass where inclusion, respect, and dignity are interconnected as part of a complex system of people, place, profit, and planet. While each of us may be called upon to embody these ideas in our own unique way, the professional planners, architects, engineers, landscape architects, and builders are on the front line. Not only are they the front lines for reimagining solutions in response to these events, but they are the ones by the very nature of their responsibilities who will be impacted in terms of evolved elements of their professions and mapping their own personal and professional experiences. According to one summary report prepared by a climate change network of megacities from around the world: (it should be noted that the definition of a *megacity* from the Cambridge Dictionary is "a very large city, especially one with more than 10 million people living it" (Megacity, n.d.).

By 2050, over 570 low-lying coastal cities will face projected sea level rise by at least 0.5 meters.

- Over 800 million people will be at risk from the impacts of rising seas and storm surges.

- The global economic costs to cities, from rising seas and flooding, could amount to $1 trillion by mid-century.

- Local factors mean that cities will experience sea level rise at different paces. Cities on the east coast of the United States, along with major cities in Asia, are particularly vulnerable.

- Sea level rise and flooding can impact essential services such as energy, transport, and health. When Hurricane Sandy struck New York in 2012, coastal floods impacted

an estimated 90,000 buildings; 2 million people lost power, which caused extensive

damage and disrupted commercial activity to a cost of over $19 billion.

- Resilience strategies, strengthened coastal protection, upgrades to existing buildings

and infrastructure, relocation from the most at-risk areas as well as community

engagement and preparedness can help cities adapt to sea level rise and coastal

flooding. (C40 Cities, n.d., paras. 1–6)

The final bullet in this overview cues a central role and a need for designers/planners

whose work centers on decisions and approaches to building for resilience and engaging with

leaders and options such as rebuilding and relocation. The readiness of these professions and

their ability to guide these decisions, will depend on how previous experiences with climate

crises have affected these groups of people.

**The Study's Purpose**

When disasters strike, people are strongly affected, often harmed, but always changed.

Understandably, impacts on affected communities and their citizens have been the primary focus

of aftermath studies along with the broad-scale effects on natural ecosystems (Erikson, 1976;

Friesma, Caporaso, Goldstein, Linberry, & McCleary, 1979; Lindell & Prater, 2003). Literature

on the social, psychological, economic, and cultural impacts of disasters related to climate

change are reviewed in Chapter II. However, when it comes to professionals whose work is vital

dealing with the short- and long-term effects of such disasters, especially after the immediate

emergency subsides, studies tend to be about their work as a mitigating factor, not about how

they themselves have been impacted and changed by the disaster and by what they have had to

do as a result of disasters. Those impacts are the subject of this dissertation. By gathering and

analyzing the narratives of designers/planners in relation to Hurricane Sandy, I have garnered

first-person accounts and insights into the work, the thoughts, and the feelings of professionals who society will rely on more and more as climate impactful events proceed.

Clearly, the ability of the New York/New Jersey coastal region, and other urbanized coastlines worldwide, to deal with the complex and uncertain future against a backdrop of heightened effects of global warming, will require a wide array of professional work under conditions that are far from normal. Medical professionals are an obvious example who are bound to be in unusually high demand when catastrophes strike, whether these are climate-related or not. Other professions who become engaged to their capacity when hurricanes, floods, and forest fires strike include fire fighters, law enforcement, as well as a wide variety of rescue workers, some professionally trained, but many not. These practitioners are collectively referred to as first responders and researchers have undertaken an increasing amount of study over the last several decades on how first responders and their effectiveness is impacted.

While these and other professions take leading roles in dealing with the acute phase of disaster recovery, societies need to plan mid- and longer-term responses—and the ones who are central to such initiatives as recovery, rebuilding, relocation, adaptation, mitigation, and prevention, like first responders—do their work amidst highly traumatic situations and distraught fellow citizens and neighborhoods.

For designers/planners, professional responsibility especially relates to the mid- to long-term. Like other professionals, they are likely to be placed in situations of tragic choices that have the characteristics of what in medicine is called triage: "the selection and categorization of the victims of a disaster with the view to appropriate treatment according to the degree of severity of illness or injury, and the availability of medical and transport facilities" (Domres, Koch, Manger, & Becker, 2001, p. 53).

Making these kinds of choices, whether in a makeshift medical tent or in considering who will be helped and listened to, for example, the relocation of physically vulnerable communities, will be stressful; if the disaster is huge, it may be stressful enough to incapacitate helping professionals temporarily or long-term. In preliminary discussions about this doctoral research, several design/planning professionals referred even to post-traumatic stress disorder (PTSD) as something to consider among those who have been most deeply involved in dealing with such events as Hurricane Sandy (2012); Hurricane Katrina (2005); and more recent disasters including Hurricane Matthew (2016), and Hurricanes Harvey, Irma, Maria (all of which struck in the late summer of 2017); Hurricanes Florence, Michael (2018); and Hurricanes Barry, Dorian and Humberto (2019).

These practitioners must do this amidst stresses also unforeseen and perhaps unforeseeable. Thus, we need to understand how professionals will cope, adapt, and successfully face the unknown, if possible. There are few professions that will not be affected. Having gone through Hurricanes Katrina, Ike, Sandy, and a growing steady number of other climate-related catastrophes, such as wildfires in California, has been a reminder of the diversity of professions whose ability—and equanimity—will be needed and yet jeopardized by the uncertainty and the scale of events. This new zeitgeist of natural disasters will include medical professionals whose facilities will be severely strained at the very time that a spike of physically and mentally traumatized patients need them; it will include police, fire, and other emergency workers; it will include engineers who are called upon to restore infrastructure. My focus is on a group that has a special role to play in facing climate change and catastrophic events: designers/planners, including architects, landscape architects, planners, and engineers. There is some scholarly and related documentation about the role that planners face in disastrous events generally (e.g.,

Litman, 2006; Schwab, Topping, Eadie, Deyle, & Smith, 1998) and climate change in particular

(e.g., Dubois, Cloutier, Rosenkilde-Rynning, Adolphe, & Bonhomme, 2016). But, to repeat,

there appears to be very little research on how these professionals are impacted by experiencing

disasters on which they will be later working.

One of the leading authorities of cities in the 20th century, Lewis Mumford (1960), wrote

in *The Culture of Cities*: "Cities are a product of the earth, whereby people transform a

nature-based reality into a place of physical form that supports human growth and sustenance"

(p. 3). Though not an architect or planner, Mumford became a spokesperson for the Regional

Planning Association of America—a leading professional organization of practicing planners and

designers. Environmental degradation and its impact on our cities and their social fabric became

a main focus of his professional and personal discourse.

Today, designers/planners are facing their own kind of critical examination of their role

in the context of the transformation of the built and natural environments.

> In 2016, an estimated 54.5 per cent of the world's population lived in urban settlements.
> By 2030, urban areas are projected to house 60 per cent of people globally, and one in
> every three people will live in cities with at least half a million inhabitants (United
> Nations Department of Economic & Social Affairs, 2016, p. ii)

A later report from the United Nations Department of Economic and Social Affairs, predicted

68%—2.5 billion more people—could live in urban areas by 2050 (Lardieri, 2018).

In this highly vulnerable stage after a climate impactful event, the design or planning

professional is, in fact, addressing a situation where not only the physical but the psychosocial

has changed (Mooney et al., 2011). The psychosocial was defined by an advisory group

following the 2011 New Zealand Canterbury Earthquakes during the disaster recovery phase, as

"encompassing cultural, psychological, social, economic and physical (including housing,

infrastructure and physical health) dimensions that are part of the regeneration of a community

that has experienced adversity" (Mooney et al., 2011, p. 3). That begins to give a sense of just how complex and wide an array of issues and considerations designers/planners need to be taking account of in aftermaths of climate change related disasters.

**The Research Context, Questions, and Focus**

  **The problem context in brief.** Philosopher Takashi Uchiyama, in talking about recovery in the context of Japan, a country that has had more than its share of natural and human-made disasters, states:

> The main subject for the recovery is neither "people," nor "nature." It is not granting from the government, or experts who instigate the process as "recovery from zero." What shapes the recovery processes are relations: relations between human beings and nature, relations between people, relations between us and those we lost, including our ancestors, relations between our lives and local cultures and histories. (Uchiyama as cited in Murakami & Murakami-Wood, 2014, p. 238)

  What became increasingly clear through the body of the research and the narratives of the professionals that were interviewed for this study, is that recovery and planning in advance of any future events is not in isolation, nor is it pre-prescribed. It is a shared approach done for an agreed upon common purpose. It follows that designers/planners—whether architects, planners, landscape architects, or engineers—are in relationship-based professions in which they create or enhance place and space within the built environment. The work is technical, but it is also inescapably about relationships. That inclusive approach is especially critical when designing or planning for climate-vulnerable communities or in response and rebuilding in communities, post-disaster. This was underscored post-Sandy, when many of the efforts, later described within this chapter, focused on moving beyond negotiating solutions and toward building even better results. To accomplish this type of approach requires transparency and trust developed from a relationship-based perspective that Uchiyama so eloquently described. More often than not, designers/planners may be working within a community where they have no previous

on-the-ground history. While this presents its own set of challenges, the narratives in Chapter IV

describes how these challenges have been approached from a variety of perspectives.

Designers/planners are not regularly exposed to disaster-related events, so there is no

direct correlation as part of the professional expectation of working with the psychosocial

dynamics of people within communities when they are planning for or implementing plans for

recovery and rebuilding.

Consider this dynamic following the experience with Hurricane Sandy. Immediately after

such a disaster, there is a period of shock followed by the global awareness that what had just

happened was even worse than anyone had initially anticipated. This juxtaposition creates an

understandable amount of disorientation and emotions that include fear, confusion, and loss. This

disorienting dilemma is often where designers/planners are entering when they begin to work

with communities in the recovery and adaption stages. A disorienting dilemma (Mezirow, 2000)

is part of a transformative learning theory in which an individual confronts situations that

challenge professional and personal paradigms of assumptions, beliefs, and values. Experiencing

such a dilemma can result in a discourse that is more relational and inclusive. In light of this, the

study focused on the ways in which design/planning practitioners have coped, were personally

impacted, and how they would approach the next climate-related event based upon their

experiences.

**Main and interrelated research questions**. Recognizing these challenges through the

primary research question, in what ways did post-Hurricane Sandy experiences impact the

design/planning professionals' approach to future climate-related events personally,

professionally, and societally, a number of other potential foreshadowed questions have been

explored as relevant to the participants' stories, including the following:

- As a result of Hurricane Sandy and other climate impactful events, how have designers/planners developed solutions that reshape thinking and behavior around two of the most challenging issues that we will have to face in the coming decades: sea level rise and drought?

- How are designers/planners addressing controversial adaptive measures such as managed retreat?

- How do or will they cope with the impacts and use the learning inherent in working in a crisis situation in charting the new course for New York and, by implication, other human communities in the face of the changing global climate?

- As a result of what they experienced during and after Sandy, have they or their practices changed?

- How did Sandy's impact on marginalized or economically challenged communities impact their perspective and approach personally, professionally, and societally?

- Have designers/planners evolved a more nuanced appreciation for their role amidst the greater complexity, uncertainty, instability, uniqueness, and value conflicts of this extraordinary context?

- Does this new and often shocking context for their work and their lives, test their limits personally, professionally, and societally? Has there been an emergence of professional paradigms that recognize certain limitations and the resultant need for designing and planning for contingency and surprises?

In effect, designers/planners are walking into situations that are atypical—which is, in essence, at the core of the research for this study. Some would say that atypical contexts are, paradoxically, the rule and not the exception for the professions of design/planning. Schön

(1983) in *The Reflective Practitioner*, wrote, "The institutional context of planning is notoriously

unstable" (p. 204). Many others before and since have stressed that the designer/planner, perhaps

more than most other professionals, is always working with issues in contexts that are wrought

with—again in Schön's (1983) words—"complexity, uncertainty, instability, uniqueness, and

value conflicts" (p. 14). In a post-Sandy scenario, designers/planners enter a space of

disequilibrium with individuals whose very community and personal wellbeing has been

threatened. Heifetz, Grashow, and Linsky (2009), in the context of leadership, state of such

situations:

> You have to help people navigate . . . as they sift through what is essential and what is
> expendable, and as they experiment with solutions to the adaptive challenge at hand. This
> disequilibrium can catalyze everything from conflict, frustration, and panic to confusion,
> disorientation, and fear of losing something dear. This is not what you are paid to do and
> will certainly not be as well received as when you are mobilizing people to address a
> technical issue that is within their competence or requires expertise that can be readily
> obtained. Consequently, when you are practicing adaptive leadership, distinctive skills
> and insights are necessary to deal with this swirling mass of energies. You need to be
> able to do two things: (1) manage yourself in that environment and (2) help people
> tolerate the discomfort they are experiencing. You need to live into the disequilibrium.
> (pp. 28–29)

This perspective on leadership was particularly insightful when evaluating participants'

approaches to design and planning challenges post-Sandy and what changes need to be made in

the future, based upon both their professional and personal experiences.

**Framework for interpreting planning and design practice after Sandy: The three**

**pillars.** To organize the approach to this intricate and daunting knot of questions, the normative

work of Lederach (1997, 2003) was most inspiring. He focused on peacekeepers rather than

designers/planners, but the settings within which these practitioners work bear strong

similarities. Both are caught up in "repair and prevention" work in contexts where traumatic

human suffering and physical destruction surrounds them. Both peacekeepers, on one hand, and

designer/planners, on the other, are expected to both solve critical immediate issues, yet lay the

ground for better societal futures where the sorry conditions do not recur and, hopefully, better

worlds exist for deeply impacted human beings.

Lederach (2003) proposed four categories of adaptive response for peacekeepers to grasp

and strengthen their crucial work and working lives:

- *Personal*: Changes affected in and desired for the individual;

- *Relational*: Changes in face-to-face relationships;

- *Structural*: [Coming to understand] the underlying causes of conflict;

- *Cultural*: Changes produced by conflict in the broadest patterns of group life. (pp. 23–26)

From Lederach's (1997) perspective, effecting such changes is the key intended outcome

for peacekeepers in these contexts: reconciliation.

> Reconciliation, in essence, represents a place, the point of encounter where concerns about both the past and the future can meet. Reconciliation-as-encounter suggests that space for the acknowledging of the past and envisioning of the future is the necessary ingredient for reframing the present. (p. 27)

In looking at the work and mission of designers/planners post-Sandy, I believe that

reconciliation also describes the ideal towards which they work. There are more than enough

interpersonal and social divides for them to reckon with as traumatized people struggle to resume

and be protected in good lives in the wake of disasters. Social conflict abounds and is

accentuated after disasters, as was seen nowhere more dramatically than in New Orleans,

post-Katrina. But in the aftermath of climate-driven catastrophes, there is renewed urgency as

well, for a broader reconciliation between humans and the natural environment (cf. Ashby,

1978).

The research has drawn from Lederach's (1997, 2003) agenda for peacekeepers in his

work on reconciliation, broadly speaking, as a means of looking at the core issues being faced by

designers/planners in terms of three pillars—related to, though not quite commensurate with his

four categories of adaptive response to conflict. The pillars for breaking down and understanding

the strategy and impacts are:

- *Personal*—Impacts on the self/individual; psycho-social challenges, such as

  empathy/stress

- *Professional*—Impact to professional practice, reflections on strategies

  post-Hurricane Sandy, and impact on future events.

- *Societal*—Local and global impacts, leadership.

Figure 1.6 figuratively summarizes this framework. These categories of impact have been

the way to "step in" to the undoubtedly bewildering complexity of the experiences of

designers/planners as they were impacted by and continued to respond on society's behalf to

Hurricane Sandy and other climate impactful events. The pillars differ from what one expects of

literal pillars, which include a solidity and something that will persist as they are when first

created. Instead this structure is my way of organizing questions and the data that this

dissertation yields. The questions from what I had initially planned did change in the course of

my research. These changes were informed by the "talk back"[4] to my initial formulations of this

work.

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[4] The notions of "stepping in" to problematic situations and then listening to the "talk back" of what
results from studying them, are drawn from Schön's (1983) view of research as a "reflective
conversation" (p. 268) with the research problem.

## Methodological Approach
### *Three Pillar Framework*

**Sandy's Impact on Designers/Planners**

**Personal**

Self/Individual Psycho-social challenges, empathy/ stress

**Professional**

Impact to professional practice, reflection on strategies, post-Sandy impact on future events

**Societal**

Local and Global Impacts, Leadership
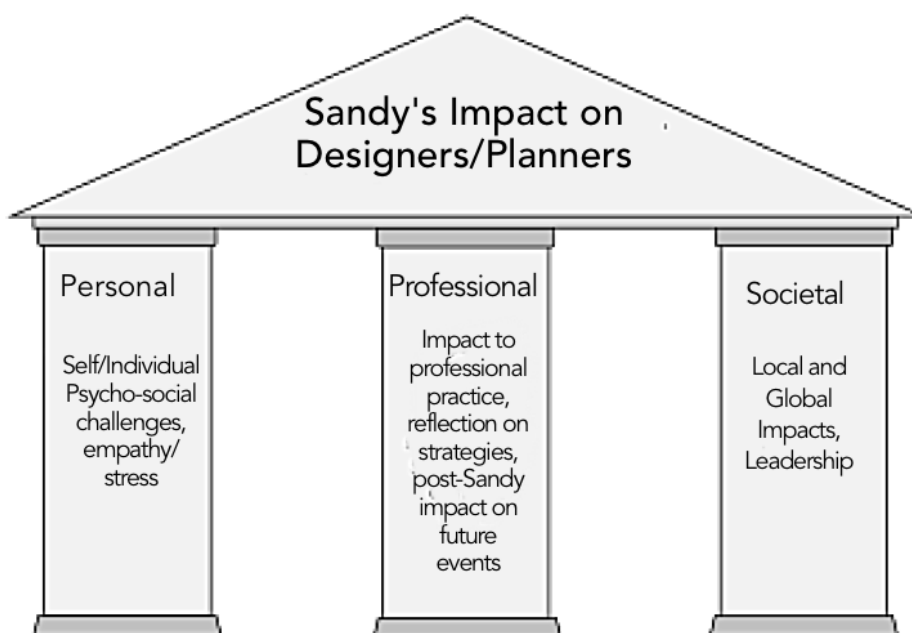
*Figure 1.6.* Three pillars used as the framework for understanding the impacts on and strategies developed for post-Sandy challenges by designers/planners.

In addition to Lederach's (2003) work with and for peacekeepers, there are a number of other professions by which designers/planners can be informed. By the nature of a longer history of this type of disaster-related work, these professions bring much insight into multi-disciplinary challenges the design community may need to address with an increase in "Sandy-like" impactful events. This cross-professional pollination is essential because the entire way that professional activity has been understood, both post-disaster as well as planning for vulnerable communities, has had to undergo significant change in the recent past. At a seminar convened by the Woodrow Wilson International Center for Scholars in 2011, Leonard Doyle of the International Organization for Migration in Haiti observed:

> Quite honestly, I think a little over three decades ago we did fairly well in bringing communities back into recovery and then moving into rehabilitation. But things have obviously changed . . . I must admit I really thought that we could handle pretty much anything . . . But we've come to the conclusion recently that we don't have all the

answers. Two things have happened. One, very healthily, we have recognized that disaster management is just not a health discipline, it is the first multidisciplinary discipline including social sciences, anthropology, religions, etc. Increasingly we are looking to those elements of society to come up with the answers that we can no longer supply. Things are a lot more complex. We have to move outside of our traditional disaster management assets, look much more, not only with [other disciplines] but certainly the community. (Doyle as quoted in Scribner & Herzer, 2011, pp. 33–34)

This quote underscores the importance of having aligned professional disciplines outside the immediate study area as part of the research. The following four professionals who had worked on the ground beside design/planning professionals were interviewed as part of this study:

- a communication specialist, who underscored how the impact of the narrative post-Hurricane Sandy impacted design/planning professionals;

- a social activist from Occupy Sandy who worked in conjunction with design/planning professionals during the recovery;

- an activist/storyteller who provided insights into some of the challenges being faced by designers/planners; and

- an urban strategist who refers to herself as a "community activator," and was instrumental as a consensus builder with designers/planners in the aftermath of Sandy.

Designers/planners can learn much about the changes they will be affected by from other practitioners who work in the aftermath of climate-intensified storms. There is a further body of literature that is examined in Chapter II on such changes, both for designers/planners, and from other areas of intervention from which much can be learned.

**The Methodological Approach Previewed**

Given that the methods and research plan are outlined in Chapter III, an initial overview of the research approach is offered here. An embedded case study research design was chosen, due to the complex and contextualized nature of the object of study (Scholz & Tietje, 2002; Yin, 2014). This approach allowed for the exploration of the impact of Sandy on design/planning professionals from different perspectives and integrated multiple data sources (Scholz & Tietje, 2002). Within this structure, the study utilized biographical narrative inquiry (Chamberlayne, Bornat, & Wengraf, 2000) and focused on the stories of designers/planners engaged in those initiatives. One of the key reasons for using a narrative inquiry methodology is because it provides a structure for parsing out the struggle between the aspirational aspects of the profession and the practicality of the actual ground action over a period of days, weeks, months, years, and even decades. This requires a structure where complex, seemingly conflicted realities can co-exist in the mind of the interviewee; their narrative must prevail, however odd it may seem to the researcher, and can only do so if it has space, rather than the researcher-imposed categories. Narrative stories are the best way to hold and convey the depth of this experience and information. The stories these professionals shared are critical to understanding not only what the best approaches are for going forward to meet those challenges, but also, in parallel, the impact of those narratives within themselves and each other.

For this portion of the study, professionals who were engaged post-Sandy, and who may have also participated in similar type of events prior to or since, were interviewed, focusing on their first-hand accounts within the larger societal context, alongside the personal and professional impact of the three pillars: Personal, Professional, and Societal.

The findings of the study are organized into two components using a research procedure of two-tiered sampling. Details are further described in Chapter III, but in summary, the first part centered on interviews approached and aimed at drawing forth 28 robust stories. This consisted of architects, planners, landscape architects, engineers, and several associated professionals that worked closely with designers/planners. Therefore, four of these narratives included an urban strategist, communication specialist, activist/storyteller, and social activist. A focus group, which tested the study's findings, included one architect, one architect/planner, and one landscape architect/architect.

The general method of data gathering was biographical narrative interviewing in which fairly minimal questioning or prompts from the researcher were used, leaving the participant wide latitude to structure his or her "stories of Sandy" in his or her own way. Some questions about each participant's professional background were asked so that there was a foundational base of information prior to delving into more personal experiences. This yielded a range of insights based directly on the design/planner's lived experience. While the focus was on the post-Sandy experience and the effect on the design/planning professionals, the participants did bring up other places they worked before or after Sandy as a further means of expanding upon their response to Sandy. The second part of this two-tiered research approach was in the form of a focus group, which consisted of three professionals, who were given a series of questions with the intent of triangulating the research and testing the viability of specific responses from the study with them. Details on the plan for this focus group discussion and on the subsequent analysis of the recorded discussion are described in Chapters III and IV.

**An Overview of Post-Sandy Strategies Engaging Design/Planning Professionals**

In the aftermath of a major disaster striking one of the world's largest and most prominent urban regions, an array of different initiatives with the broad intent of reconstruction and prevention of recurrence were put into place.

This section provides an overview of the main post-Sandy initiatives on which designers/planners worked. Participants in this study have participated significantly in one or more of these initiatives:

- NYC Special Initiative for Rebuilding and Resiliency,

- Department of Housing and Urban Development's (HUD) Rebuild by Design,

- New York Rising/Buy It Back (a New York State initiative),

- Build It Back (a New York City initiative), and

- Occupy Sandy (a grassroots initiative that overlapped with a number of these programs).

Political and agency leaders strove to plan and act in ways that could support residents and communities with short-and long-term responses to the effects of the storm. They vary in several important ways based upon the extent to which affected communities' perspectives were central or not, and in the larger view of the storm as a rare catastrophe versus a symptom on longer-term "permanent white water" (Vaill, 1996, book subtitle). Vaill defines a fast-changing reality that pervades an existing paradigm as a permanent white water. He goes on to stress the importance of life-long learning within this context: "The presence of permanent white water demands that we look anew at the challenge of continued lifelong learning—what it involves, what the barriers are, and whether we even understand it well enough to practice it (Vaill, 1996, p. 20).

This concept of permanent white water and life-long learning not only pertains to the challenges political and agency leaders may have been facing post-Sandy, but it also pertains to the narrative interviews during the research phase of the dissertation. Many of the design/planning professionals post-Sandy were faced with certain technical challenges that made them feel as if they were engaging in a level of learning for which even decades in the profession had not prepared them.

**NYC Special Initiative for Rebuilding and Resiliency.**

"I think we're deluding ourselves," says Ron Shiffman, a veteran city planner. "There's only so far you can kick the can down the road. We know sea-level rise will be six feet by the end of the century. That's an *enormous* amount; we need to be able to plan for it." (Murphy, 2015, para. 8)

In December 2012, Mayor Michael Bloomberg announced the development of the NYC Special Initiative for Rebuilding and Resiliency (SIRR) to address creating a more resilient New York City, post-Hurricane Sandy. The focus was on developing plans to prepare and protect more than a dozen communities throughout New York. Organized by public officials and stakeholders and design/planning professionals, meetings were set up within the heavily impacted communities, to share ideas and to listen to community concerns about the rebuilding and resiliency process. As a result, relationships were built and people who had a "big stake in the challenge, whatever their perspectives, were listened to and their interests and voices were taken into account" (p. 135), as Heifetz et al. (2009), in discussions of adaptive leadership described. This gave those in positions of authority, alongside the stakeholders, the opportunity to look at some of the technical aspects that were being suggested (sea walls, for example) and discuss these within the context of the adaptive challenge.

The final SIRR report, *A Stronger More Resilient New York*, was released in June 2013 (PlaNYC, 2013), resulting in an array of recommended pilot projects for rebuilding the

communities impacted by Sandy and increasing the resilience of infrastructure and buildings

citywide. This new effort preceded a number of other programs and frameworks that advanced

the work with which NYC SIRR initially began. As a result, for example, New York City with

the U.S. Army Corps of Engineers replenished beaches in vulnerable areas like Coney Island and

Rockaway as well as rebuilt dunes on Staten Island.

**Rebuild by Design.**

"We didn't want to just build barriers; we wanted to build an ecosystem," said Henk
Ovink, a Dutch water-management expert who also served as a senior adviser to the
Presidential Hurricane Sandy Rebuilding Task Force, a group within the Department of
Housing and Urban Development, which earmarked billions for the program. "For that to
happen, we have to live with the water, to understand it, while still understanding our
vulnerabilities." (Feuer, 2014, para. 4)

Rebuild by Design (RBD) began as part of former President Barack Obama's Hurricane

Sandy Rebuilding Strategy led by a task force. The President signed an executive order in

December 2012 that created the task force, with work that began in February 2013, culminating

in a detailed, multi-faceted report by August of the same year.

RBD began in June 2013, "to promote resilience in the Sandy-affected region by

attracting world-class talent to develop innovative projects" (Hurricane Sandy Rebuilding Task

Force, 2013, p. 4). This resulted in an international design competition led by HUD with a

high-ranking planning official from the Netherlands, Henk Ovink, on loan to the United States

from the Dutch government. The intended outcome was that this would become the model of

working with communities in post-disaster recovery, one that was more holistic in nature so that

the model of recovery was not dictated, but done in concert with each specific community, and

with sources of funding and leadership that involve design/planning professionals as well as

non-profit organizations with a history of  community-based change locally and world-wide. The

organizations in partnership with HUD for the competition included The Municipal Art Society

of New York, Regional Plan Association, Institute for Public Knowledge–NYU, Van Alen Institute, and support from The Rockefeller Foundation and other philanthropic partners.

**New York Rising/Buy It Back.** The NY Rising Community Reconstruction (NYRCR) Program described itself as a "participatory recovery and resiliency initiative that supports the planning and implementation of community-developed projects to 124 communities severely damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee" (Governor's Office of Storm Recovery, n.d.-b, para. 1). Unlike Rebuild by Design, NYRCR was not an international design but administered at the state level by the New York State Governor's Office of Storm Recovery (GOSR). NYRCR was overseen by a planning committee that assessed storm damages, risks, community needs and opportunities, and developed strategies that encompassed both recovery and resiliency. As part of the post-Sandy initiative, the GOSR also managed the State's voluntary Buyout and Acquisition Programs (Buy It Back) in which homeowners could ask the state to buy back properties that were substantially damaged or destroyed. A similar buyout program was developed by Governor Christie of New Jersey.

This state program was a departure from the NYC SIRR plan in that it refused to entertain withdrawal or a strategy that has been attracting considerable attention—managed retreat—which means acceding to there being some impacted areas that are never to be rebuilt (cf. Agyeman, Devine-Wright, & Prange, 2009).

The NY Rising Acquisition Program was created by GOSR to offer individual homeowners whose property was in the floodplain and have suffered substantial damage, the opportunity to sell their homes to GOSR to be auctioned for redevelopment and elevation. The NY Rising initiative focused on developing reconstruction plans in 124 New York State communities well beyond the immediate New York metropolitan area.

A press release from the Governor's Office of Storm Recovery (2017) about the Acquisition Program, stated that the goal of this program was to give storm-impacted owners in affected neighborhoods a chance to sell their uninhabitable homes, allowing the properties to be redeveloped in accordance with local codes as new, resilient housing to replace vacant storm-damaged properties. Over the course of three auctions, beginning in May 2015, GOSR auctioned 470 properties for a total of $73 million; 466 of these are now in private hands, and 44 properties have completed reconstruction. Projects included in the planning ranged from community-wide infrastructure improvements, retrofits of critical community facilities with emergency backup, and training programs.

**Build It Back.** The Build It Back Program of the NYC Mayor's Office of Housing Recovery Operations has been by far the most controversial of all the post-Sandy programs. It was announced seven months after Sandy to help New Yorkers in the five boroughs—Manhattan, Bronx, Brooklyn, Queens, and Staten Island—to rebuild their homes and also to improve the resiliency of their homes in communities impacted by Sandy. It was described to potential beneficiaries as follows:

> If your home was demolished or destroyed as a result of damage caused by Hurricane Sandy, Build It Back may provide you with the construction funds necessary to help you rebuild what you had before Sandy. You may choose to rebuild using the City-selected Developer who has pre-approved plans to start rebuilding your home. Or you may choose your own contractor to build one a home for you, following program guidelines and within cost restrictions. In both rebuild options, NYC Build It Back will make payments directly to the contractor. (New York City Housing Recovery, n.d.-b, para. 1)[5]

In the days following the storm, New York City helped families return to their homes through the Rapid Repairs program, which was described in self-congratulatory language as:

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[5] Note that some of the websites that the City and its agencies established to assist with recovery after Sandy have been revised after programs came to an end. The wording here is no longer on the website cited in the references.

A first-of-its-kind pilot program to provide free, government assistance to thousands of homeowners left without heat, power and hot water after Hurricane Sandy. No other city has ever responded to a natural disaster by offering emergency repairs to allow homeowners to shelter in their own homes. *Rapid Repairs* restored essential, emergency services and served as a critical first step in helping residents rebuild their homes more quickly. (New York City Housing Recovery, n.d.-a, para. 1)

This program was different from the approach with Build It Back, which focused more on long-term rebuilding.

As noted, the Build It Back program has become widely criticized with suggestions that,

to some New Yorkers whose homes were destroyed by Hurricane Sandy, the phrase Build It Back has come to sound like a perverse taunt. Across the flood zones of Brooklyn, Queens and Staten Island, hundreds of homeowners are still doing battle with the troubled city program that was created to put them back on their feet quickly and efficiently. (Blau & Durkin, 2017)

Reflecting on Build It Back, as well as post-Hurricane Katrina rebuilding initiatives, Brad Gair (2016) the Director of Housing Recovery Operations in the New York Mayor's Office at the time of Hurricane Sandy, referred to both as "categorical failures" (as cited in Wachs, 2016, para. 2).

**Occupy Sandy**. Unlike the aforementioned four initiatives, Occupy Sandy was entirely a volunteer grassroots disaster relief organization. It grew out of the well-known Occupy Wall Street collective, shifting, as Sandy struck, from protest to relief work. Eventually the Occupy Sandy initiative worked in partnerships with local communities, FEMA, the Red Cross, and design/planning professionals in short-term needs and long-term rebuilding efforts. However, like Occupy Wall Street, it maintained an anti-establishment credo, based on the idea that everyday people had to be the leaders in public action and the sometimes implicit, often explicit, presumption that large, formal, top-down-run organizations, such as government agencies or more established non-profits, cannot be relied on. Instead the philosophy is one of "mutual aid"

(Occupy Sandy, n.d.-b, para 1), a phrase that recurs in Occupy movements seemingly inspired by

anarchist thinkers such as Kropotkin (1902).

Occupy Sandy raised well over $1 million and played a leading though collaborative role

in supporting a wide array of rebuilding actions in the first several months after Sandy. The

movement worked on the following initiatives in their post-Sandy funded program of activities:

> Worker Owned Rockaway Cooperatives: . . . an initiative to rebuild after Sandy in a way that addresses both the storm's impact and the long-term systemic issues in the neighborhood. The program's goal is to equip Far Rockaway residents with the skills and financing to launch small, worker-owned businesses that fill a need in their community . . .

> Rockaway Wildfire: . . . geared toward community empowerment and activism through learning in action, in light of Superstorm Sandy. We aim to strengthen the community, create alternatives, engage in political education, and be involved in the redevelopment and planning in the Rockaways.

> FLO Solutions: FLO Solutions for Disaster Relief  is a project that brings the best free/libre/open-source tools and techniques to New York City-based disaster relief groups and helps them document their best practices and share them with people around the world.

> Occupy Sandy New Jersey: From the Delaware Bay to the Hudson River, OSNJ strives to help communities drive their own recovery.

> SI Unity Hub: Occupy Sandy Staten Island is a volunteer-based group helping to rebuild and support the Staten Island community in the wake of Hurricane Sandy. We are actively interested in building relationships with other grassroots community organizations and sharing our network of legal aids, medics, translators, skilled tradespeople and volunteers with donation drop off/pick up spots, volunteer hubs, and community groups in need.

> YANA . . . which stands for "You Are Never Alone," is a community resource center devastated by Sandy which re-emerged as a relief hub before a gut renovation was completed with an eye towards green technology and sustainability.

> [Sandy] Storyline: StoryLine is a collaborative documentary for us to share experiences of Hurricane Sandy and relief efforts.

> Respond & Rebuild: [an] on-the-ground effort coordinating relief workers, residents, resources, and volunteer power to communities most affected by Hurricane Sandy. (Occupy Sandy, n.d.-a, paras. 1–8)

Each of the major post-Sandy initiatives undertaken by governments and non-government organizations are multi-faceted with diverse components in terms of physical and social actions. My research demonstrated that each required the significant involvement of a wide range of design/planning professionals—the focus of the present study. In the course of my work, I identified the array of professionals associated with each initiative and then explored, through interviews, their involvement and how this impacted them personally and professionally.

**Significance of the Proposed Research**

There is little research on how designers/planners (as individuals and as professionals) are affected at the personal, professional, and societal level by their engagement in post-disaster and pre-planning/design. The scant efforts to discover such published assessments are presented in Chapter II. By way of contrast, many studies have looked at how working amidst catastrophes and their aftermaths, the impacts of disasters on first responders and front-line workers, such as police (Alexander & Wells, 1991), fire fighters and rescuers (Berger et al., 2012), paramedics (Durham, McCammon, & Allison, 1985), and medical and mental health workers (Dyregrov & Solomon, 1991). There has been especially broad attention to PTSD for emergency workers (e.g., Figley, 2013; Regehr & Bober, 2005). However, this framework has not been applied to design/planning professionals. Neither have other broader impacts—positive as well as negative—been examined for those whose work extends long beyond emergency response, to assisting in preparedness and adaptation for future climate events.

The research is intended to provide a significant contribution to understanding professionals that are not, by the very nature of their work, trained to deal with disaster and trauma as part of their discourse. With the greater frequency of these climate impactful events, design/planning professionals will need to address these challenges in the long-term. This

challenge is not dissimilar from professionals who work in areas of conflict where issues around rebuilding in traumatized communities take their toll not just on the people who have experienced the loss but those who are helping to facilitate the rebuilding and reclamation process.

This equally complex set of voices and approaches interviewed for this study required a methodology that allows for a structured yet nuanced approach which is evidenced in the use of the case study. As defined by Yin (2014), "a case study investigates a contemporary phenomenon (the 'case') in its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident" (p. 2). More specifically, the use of an embedded single case study, meaning that within the single case there are several embedded units of analysis, addresses the six related but conceptually distinct initiatives the design/planning professionals would have encountered during Sandy that were previously mentioned.

A key variable among these initiatives is the extent to which and the means by which the design/planning professionals engaged with non-professionals, which is an important feature because climate change adaptation and mitigation arguably should be based on a constituency of involvement from those most affected by the storm. Otherwise the individual and collective change and learning that climate-impactful events necessitates will not take hold. Further, as stressed in Chapter II, there are difficult ethical issues of inequality that become inescapable in urban areas impacted by disasters—a theme that the Katrina experience indelibly underlined. Thus, one of the principal impacts of Sandy on design/planning professionals that may be uncovered is an altered disposition toward the public and its role in what has long been seen as exclusively professional work. Therefore, the use of the embedded single case study relied on

biographical interviewing for data about how design/planning professionals were impacted and, possibly, changed by the Sandy experience. It also entailed looking at documents, broadly speaking, that recount the events and responses to them (especially by design/planning professionals) during and after Sandy.

**My Positionality**

Revelation of a researcher's positionality is about much more than bias but rather about telling readers as much as possible about the lens through which she/he sees the story that is told. A large part of how I looked at Hurricane Sandy was revealed at the beginning of this chapter, as I showed more than told about what it is to grow up, work, and live in a great world city that is imperiled by a storm and, more broadly, by massive changes in the world's climate.

The qualitative researcher's perspective can be a paradoxical one: It is to be acutely tuned-in to the experiences and meaning systems of others and at the same time to be aware of how one's own biases and preconceptions may be influencing what one is trying to understand. (Dwyer & Buckle, 2009; Maykut & Morehouse, 1994).

Therefore, while I am neither a designer nor a planner, I have worked within the profession of the built environment as a writer, researcher, in communications, and as marketing specialist with designers/planners (architecture and engineering) for more than two decades. I was a researcher, writer, and editor for the American Institute of Architects (AIA) Post-Sandy Initiative report; a communications liaison on one of the Rebuild by Design teams during the initial competition; participated in public meetings for New York Rising; worked as part of Occupy Sandy; participated in and organized and facilitated post-Sandy symposia; a member of the AIA New York's Design for Risk and Reconstruction working group, and a member of The Municipal Art Society's post-Sandy roundtables, as well as one of the co-editors for *The Future*

*of Cities: An Integrated Approach to Urban Challenges* (Çelik, Leighton, & Yurtseven, 2016), based on the February 2015 conference at UN Headquarters in New York City.

In Coney Island, I was one of the volunteer facilitators as part of the New York City SIRR report as well as a visiting professional in one of the design studios focusing on Coney Island post-Sandy for Pratt Institute's RAMP (Recovery, Adaptation, Mitigation and Planning). Additionally, I worked on a preliminary study for Iberville, New Orleans, post-Katrina, a WPA[6] affordable housing complex.

As noted in the introduction, with my deep roots in New York and having grown up in NYCHA affordable housing does give me a depth of understanding that could contribute to a level of bias particularly in relation to marginalized communities because of my own experience. This means that while I listened to designers/planners' experiences, I needed to be able to view my work from a place of discovery rather than on inferences from previous personal experiences, and to not direct the participants' attention to a particular area that I would want to study (Hollway & Jefferson, 2000; Josselson, 2007).

Given these significant and diverse involvements, it was important to acknowledge this to the participants to maintain transparency and be cognizant of any potential bias that may have arisen.

**Ethical Considerations**

Any research that heavily relies on people to share their experiences, especially when those experiences have stressful, possibly even traumatic undertones, requires the utmost care to protect participants. For this topic, many of the key participants either still are working in

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[6] WPA stands for Works Progress Administration, an initiative from the 1930s by the Franklin D. Roosevelt Administration as a measure to alleviate the Great Depression. Numerous public works in New Orleans and other U.S. cities are still identified as "WPA."

contexts that they can be asked to discuss or have moved to other sensitive positions. Their reputations and the confidentiality requirements of their positions, past and present, needed to be respected. Further discussion of the ethical issues and how they were addressed are at the conclusion of Chapter III.

**The Study's Limitations**

Any qualitative study must face a number of challenges to both validity and to its applicability to other settings with broadly similar issues. In regard to the latter, generalizability is not a primary intent in a qualitative study. Such research cares about relating information and knowledge that can be useful to others, but that is not the same as aiming to infer general theories that can be transferred to other cities and their design/planning professionals who cope with climate change. Using cases (examples) is an ancient, time-honored way humans use to transfer understandings between settings. Embedding lessons from experience is as old as hunter/gatherer elders relating stories of past tribal events, not to tell their listeners what will happen in the future, but to familiarize them with adaptation to always-changing, ever-uncertain events. It is in that spirit, that this research studied the experiences of design/planning professionals as they coped with an event that will not be the same, not only in some other urban settings, but the next time in the New York region. Stake and Easley (1978) suggests that qualitative case studies should aim for "naturalistic generalization" (p. 6) whereby the researcher maximizes the richness and thoroughness of detail about a context and events, thereby giving others in roughly parallel situations, the responsibility to take what they will from the case. They state that naturalistic generalization is,

> arrived at by recognizing the similarities of issues in and out of context . . . naturalistic generalizations develop . . . as a product of experience. They derive from the tacit knowledge of how things are, why they are, how people feel about them and how these things are likely to be later or in other places . . . They seldom take the form of

predictions but lead regularly to expectation. They guide action, in fact they are inseparable from action. (Stake & Easley, 1978, p. 6)

To repeat the objective for this study's usefulness is not in being able to predict what might be the case with design/planning professionals facing disasters later or elsewhere. Rather it is in providing some guide for action here and for other regions facing similar and potentially inevitable negative consequences.

A second possible limitation of this work was more particular to the interactions with some of the participants. There was a challenge, and thus a potential limitation in this study, with participants too readily reverting to "plannerese" (Stephens, 2005)—such as "we need to change our paradigms"—and other truisms common to the profession. The narrative could have ended up with a lot of flowery forward-looking idealism rather than creating a bridge between the aspirational and the practical. Therefore, questions were created that discouraged platitudes and got deeper into real, perhaps sometimes politically incorrect perspectives. Another limitation to the study was that there were a few participants who were either unable or unwilling to decouple the personal pillar from the professional pillar. When questions designed to open up that conversation failed to produce any results, rather than pushing the issue, I looked to see if that would be a pattern throughout the study. It was not.

It was very difficult to find a significant number of engineers for this study. Many of the individuals I queried declined participation in this study when they learned I worked for an engineering firm that they viewed as a competitor.

It was very important to leave room for a breadth of responses since both personally and professionally there is the need for a different idea of what designers/planners have historically experienced. Climate-related events may in fact be the great disruptor that will have lasting impact upon the profession. It was also important to avoid imposing my own experience or to

access that experience when asking the same question in different ways did not bear any results. It was important to allow participants to tell their stories and to act in the role of facilitator but to listen from the space of the observer.

Design/planning professionals who did not want to be openly identified because of the current political climate and the country had the option to participate in these interviews anonymously with their stories included under pseudonyms. However, after completing the interviews, and reviewing the transcripts, and noting the volume of deeply personal comments, I elected to use pseudonyms for all the participants.

Additionally, there were limitations as to the degree to which the experiences of professionals post-Sandy were or were not applicable or transferrable to other design/planning professionals in small urban environments or in communities where there was greater discussion about managed retreat.

**Outline of Succeeding Dissertation Chapters**

Chapter II, the literature review, presents a critical look at relevant theory, research, and practice. It addresses historically climate-impactful events, the increasing frequency of these events, most specifically focusing on rising sea levels and coastal cities and what the research is showing in terms of future impacts. This next area of reviewed research focused on the actual Sandy event, its damage and how at the time it was the second costliest hurricane in U.S. history, after Hurricane Katrina. To further this study, literature from other areas of the world were explored, examining how global communities and professionals elsewhere have addressed issues, whether arising from a specific climate-impactful coastal event or as seen in the proactive steps taken in areas known to be vulnerable to sea level rise where there is evidence of change without a specific precipitating threatening event. The chapter is also comprised of highlights

from the literature about stress and other responses by responders to major disasters, whether human-caused or natural. The literature review chapter also explores ideas about mitigation, risk, adaptation, recovery, resolution, resiliency, and transformation, as applied to the physical impact of the aftermath of disasters or advancing ideas in vulnerable areas ahead of any impactful events.

Chapter III, on methodology and research procedures, provides insight into how I gathered and analyzed the data for this dissertation. The research points to a methodology of inquiry that can provide empirical knowledge of situations not hitherto well explored. To achieve this end, the method of this study utilized an embedded singular case study with narrative inquiry. Chapter III defines the case being studied, the methods employed (embedded singular case study and narrative inquiry) along with their foundational history. The connection was also made that the case study approach is commonly used in the profession of design/planning for the study of places, processes, and events impacting the built environment—but more rarely to look at the professionals themselves.

Chapter IV presents the findings and results of the study. It draws upon major themes from the interviews in terms of how interviewees described the impact through the structure of the three pillars on the personal, the professional, and the societal context. These interviews are enriched with documentary and archival research that was uncovered. Findings from the narrative research were presented in a series of questions to a focus group of three, with the intention of testing the validity of some of the major themes that came from the interviews with them.

Chapter V, the conclusions, places the findings into the context of the literature about the professional facing disaster-related events. Findings are interpreted as well as the impact on the

design/planning professionals and the implications for climate-impactful events in the context of

leadership and change in the profession. Additionally, there are recommendations for actions and

further study. This chapter also includes my reflections on the experience with the process: what

was learned in doing the research, and its personal impact as a scholar–practitioner and leader

committed to cities and sustainable change.

**Chapter II: Literature Review**

The literature that examines the impacts of Hurricane Sandy and climate change-induced storms, on the changing nature of the work of design/planning professionals in those communities, is vast and complex. The extensive array of works that were reviewed, assimilated, and analyzed in this dissertation set the stage for this study. Moreover, by the very nature of the topic, the literature highlighted the harsh realities that lie within the context of designers/planners' complex roles in preparing for future climate-induced events.

The bottom line is that we as a civilization are facing an array of threats and problems well beyond what have been variously dubbed over the years "meta-problems" (Chevalier, 1969), "wicked problems" (Rittel & Webber, 1973), "messes" (Ackoff, 1974), and "climacterics" (Ashby, 1978). Global climate events reach into every realm of human life and concern, including cities, complex organisms that exist with a framework of interdependency between both the ecological and human communities (Hallegatte, Henriet, & Corfee-Morlot, 2011).

> Disasters have a disproportionate effect on urban places. Dense by definition, cities and their environs face major disruptions in their complex, interdependent environmental, economic, and social systems. Weaknesses not readily apparent in pre-disaster times surface as longstanding structural and substantive problems become prominent; environmental abuses are exposed; the local economy falters; municipal services collapse; social and political rifts widen. (Birch & Wachter, 2006, p. 1)

This litany of breakdowns, seen from a long-term perspective, calls on no professional group as much as it does designers/planners. It is almost as if many of the inequities and behaviors that we as a society could not self-correct must now be faced or dealt with by a force greater than our own. This is not meant as a punishment, in the biblical sense, by some angry patriarchal God or some cruel matriarchal force of nature but as an awakening, as an opportunity to rethink how we live with nature and with each other in a more equitable manner. The impact

and the road to travel there is a challenging one; how we meet it will depend on how deep we can enter into the conversation and the solutions.

I remember as a little girl, my Polish immigrant grandmother sitting me in front of a globe and telling me that the world is round, not flat, so nothing falls off or goes away. With a twig in her hand from a tree outside her kitchen window, she showed me where she had grown up and how the land she farmed there was related to the earth in which she planted seeds for flowers in America. My grandmother wanted me to consider that there was a great underground system that connected all the roots in nature in the world together, and that even if we could not see it, we should imagine and feel it. That is the conversation I am engaged in with all of the voices from within this literature review, connecting all these systems into one coherent storyline from the underworld to the outer world of design/planning professionals. My grandmother's statement is accentuated in the words of an architect interviewed in Chapter IV. There, Roberta describes the interconnectedness of all living things, as putting your finger on the map—a manner in which to gain insight into people and places within and outside your own experience.

**Flow of the Review**

The topics needed as background to this dissertation are as diverse as the challenges are broad. The fundamental driving force behind the increasing storms with which we all—but of central interest here, designers/planners—will need to cope with and confront climate change. The main focus here amidst this enormous subject and literature is the connection between the phenomenon of climate change and the increasing intensity and threat of major storms. The second section is about those storms and their impacts, beginning with and focusing on Hurricane Sandy. I briefly noted the technical reports that have delineated the nature of the storm and then move to the topic of impacts, both the obvious and immediate physical impacts. These

include, but are not limited to, coastal change, flooding, infrastructure and housing damage, and then the economic, psychological, and social effects. Information from other experiences, notably Hurricane Katrina, but also internationally, are noted.

Following the review of literature about climate change-induced storms, I focused on the writings that examined the implications of such catastrophes for professionals in general and then specifically for designers/planners. It was found that there is an especially limited literature base about these professionals. It is a gap that this dissertation intends to begin to fill, recognizing that their work is pivotal in human societies' and especially cities' attempts to deal with climate change. In this section I looked at some of the ways that researchers have examined the work of designers/planners and related practitioners.

In the third section, I highlighted some previous areas of research on how those in critical and influential positions face extraordinary contexts, ones that take them out of zones of familiarity and comfort into settings of high uncertainty and lack of precedent, yet for which society needs them most. The fourth and final section explored literature about catastrophes more generally, focusing on what is known from the field of disaster studies regarding the impacts on communities and individuals. That section closes with a specific review of literature about how professionals and responders are affected by the traumatic nature of disasters. Figure 2.1 charts the flow of the chapter as just described.
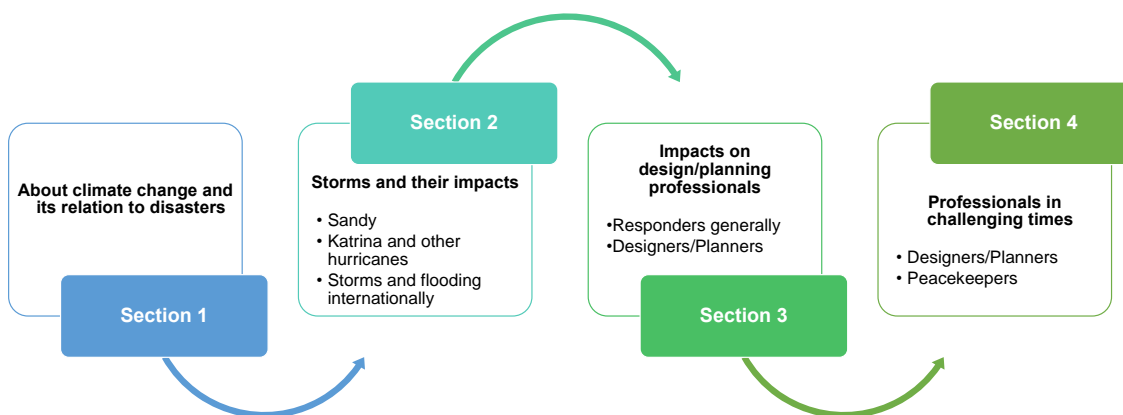
*Figure 2.1.* Flow of sections in literature review.

**About Climate Change and Its Relation to Disasters**

It is important to situate Sandy within the wider, global array of extreme weather and other impacts of climate change. In this section, literature was reviewed on an issue which, sadly, continues to be debated both in the course of legitimate debate among scientific experts, but also as a result of willful denial. I have not allotted much space here to the latter. Instead, I began by referencing the legitimate scientific question of how connected climate change is to increasingly powerful storms that are being experienced around the world. First, because the terms *climate change* and *climate impactful events* are used throughout the research, a brief and authoritative current definition from the Intergovernmental Panel on Climate Change (IPCC, n.d.) is presented here:

> Climate change . . . refers to a change in the state of the climate that can be identified . . . by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity. (p. 30)

The uniqueness of the predicament is underscored, according to the IPCC report,  by the fact that "eleven of the last twelve years (1995–2006) rank among the twelve warmest years in

the instrumental record of global surface temperature (since 1850)" (Intergovernmental Panel on Climate Change, n.d., p. 30).

Most significantly to this study is that climate change induces weather phenomena that can spell catastrophe over vast regions. In addition to the storms and associated flooding that I focused on, note should also made of the several other kinds of disasters which are associated with climate change: increasing numbers and scale of wildfires (Marlon et al., 2009; Westerling, Hidalgo, Cayan, & Swetnam, 2006) and heat waves that afflict more and more people, often fatally (Meehl & Tebaldi, 2004). Relatedly, droughts may increasingly afflict areas vital to feeding and supplying urban areas with water, another cumulating impact on cities suffering from other climate change impacts. Severe dryness and heat will also increase the likelihood and severity of forest and range fires and of infestations of pests in woodlands (Clark et al., 2016; Dale et al., 2001; Hanson & Weltzin, 2000). All of these can and probably will impact human populations and natural ecosystems in a cumulative manner, thereby adding to the burden and complexity of design/planning professionals' responsibilities. Urban areas may not experience forest fires or directly suffer because of drought, but it must be remembered that the needs of cities for food, water, and other essentials are enormous, and that climate-induced catastrophes in non-urban areas that reduce such resources will drastically impinge upon urban populations (Misra, 2014). It is important to note that from time to time, two or more of the most worrying climate change-induced crises may coincide, greatly exacerbating the strain on societies.

The reality and overall scope of climate change is a topic so profuse in scholarly and other publications that this dissertation focused only on the critical issue of how intensified storms are related to global warming. For more general reviews of the global climate context, a

prime source is the Intergovernmental Panel on Climate Change (IPCC), established in 1988 by

the World Meteorological Organization and United Nations Environment Programme (UNEP).

The IPCC is presently into its sixth cycle of assessment. Its website is the main way to be current

with its frequent assemblies and previous reports (Intergovernmental Panel on Climate Change,

n.d.). Of note are several special reports released by the IPCC during the Sixth Assessment Cycle

in 2018 and 2019, including *Global Warming of 1.5°C* (October) and in 2019, *The Refinement to

the 2006 IPCC Guidelines for National Greenhouse Gas Inventories* (May), *Climate Change and

Land* (August) and *The Ocean and Cryosphere in a Changing Climate* (September).

Another overview that is of special pertinence to this study is Bulkeley's (2012) synoptic

collection, *Cities and Climate Change*—although it must be noted that the sheer volume of major

overviews being steadily published, not to mention the massive worldwide scientific

investigation of climate change, means that any hard copy publication is rapidly superseded and

outdated.

As in most complex scientific questions, perspectives vary. At its most moderate, some

scientists caution that there is still not enough known to definitely make the link. An example is

the publication by Pielke, Landsea, Mayfield, Layer, and Pasch (2005), who stated:

> Claims of linkages between global warming and hurricane impacts are premature for
> three reasons. First, no connection has been established between greenhouse gas
> emissions and the observed behavior of hurricanes . . . Second, the peer-reviewed
> literature reflects that a scientific consensus exists that any future changes in hurricane
> intensities will likely be small in the context of observed variability . . . And third,
> under the assumptions of the IPCC, expected future damages to society of its projected
> changes in the behavior of hurricanes are dwarfed by the influence of its own
> projections of growing wealth and population . . . While future research or experience
> may yet overturn these conclusions, the state of the peer-reviewed knowledge today is
> such that there are good reasons to expect that any conclusive connection between
> global warming and hurricanes or their impacts will not be made in the near term. Yet,
> claims of such connections persist. (p. 1574)

Pielke et al. (2005) went on to worry that

> invoking the modulation of future hurricanes to justify energy policies to mitigate climate change may prove counterproductive. Not only does this provide a great opening for criticism of the underlying scientific reasoning, it leads to advocacy of policies that simply will not be effective with respect to addressing future hurricane impacts. (p. 1574)

This was written almost 15 years ago, and while healthy skepticism continues to motivate the work of climate scientists, more and more inferences in the literature can be found that there is a strong, if complex, connection (Knutson et al., 2010). The argument, put simply, is that two of the major consequences of climate change—sea level rise and increased sea surface temperatures—combine to make storms larger, more frequent and, when they hit, more likely to do damage. This phenomenon, now based on sophisticated predictive modelling (e.g., Lin, Emanuel, Oppenheimer, & Vanmarcke, 2012), is widely acknowledged. Therefore, climate change-based energy or recovery policies are no longer vulnerable to equivocation. A. J. Garner et al. (2017) have developed a model for coastal flood hazard impacts of climate change stretching from early colonial times to 2300, concluding that large slow-moving systems like Sandy are almost certain to expose the city to a future of recurrent catastrophe.

In addition to climate change bringing on more severe storms and hurricanes, it must be emphasized that a second and equally major factor in the ever-increasing risk of Sandy-like events is sea level rise. In January 2020, the National Aeronautics and Space Administration (NASA) and NOAA reported that 2019 was the second warmest year on record, only exceeded by 2016 (NASA, 2020). This comes shortly after a December 2019 report from an international consortium of polar scientists (the IMBIE Team) stated that because of the warming climate leading to Greenland ice sheets melting, an approximate 2 to 5 inches (50 to 130 millimeters) of global sea level rise could result by 2100, are in alignment with previous worst-case projections if the ice loss continues (IMBIE Team, 2019). Similarly, alarming

conclusions have been drawn by the same scientists based on study of melting in Antarctica (Shepherd et al., 2018).

Again, climate skeptics and deniers may point to the indisputable fact that long before our excessive reliance on fossil fuels, the height on shorelines of the world's oceans has gone through cyclic and non-cyclic long-term oscillations (Douglas, Kearney, & Leatherman, 2000). As with increasing intensity of storms and with even less scientific controversy, it is accepted that an *acceleration* of the rise of sea level has occurred in the last century. In fact, seas do not rise evenly around the world and the east coast of the United Stated happens to be somewhat of a "hot spot" for these changes (Sallenger, Doran, & Howd, 2012). The consequence is that when storms of any strength attack, the higher the sea level the greater the area affected and the impacts of storms like Sandy (Shepard et al., 2012).

Other dimensions of climate change contribute further to the risk of catastrophic events especially in coastal areas. Though variable in its effects over the globe, in many regions, climate change will bring about a significant change in rainfall. Trenberth (1998) explains the complex interactions which may tragically imply that where there is too little rainfall, less will come, while in areas that are already subject to seasonal deluges, those may get worse:

> Increases in greenhouse gases in the atmosphere produce global warming through an increase in downwelling infrared radiation, and thus not only increase surface temperatures but also enhance the hydrological cycle, as much of the heating at the surface goes into evaporating surface moisture. Global temperature increases signify that the water-holding capacity of the atmosphere increases and, together with enhanced evaporation, this means that the actual atmospheric moisture should increase. It follows that naturally-occurring droughts are likely to be exacerbated by enhanced potential evapotranspiration. Further, globally there must be an increase in precipitation to balance the enhanced evaporation. (p. 667)

The implications of such shifts are already being felt in one of the world's most advanced and largest metropolitan areas, Tokyo, Japan:

Across Japan, rainfall measuring more than two inches an hour has increased by 30 percent over the past three decades, the Japan Meteorological Agency estimates. Rising oceans also make the Tokyo metropolitan region, home to 38 million people, vulnerable to storm surges, even as major redevelopment projects open up the previously industrial waterfront to new residences and businesses. And years of pumping groundwater has led some parts of the city to sink by almost 15 feet over the past century. (Tabuchi, 2017)

"In July 2018, two million people had to evacuate their homes due to devasting downpours that flooded thousands of homes and took more than 200 lives" (The Climate Reality Project, 2019).

**Storms and Their Impacts**

**About Hurricane Sandy.** Edging into eight years after Hurricane Sandy, the effects of the storm still linger. Yes, much work was done but challenges remain. The growing body of literature surrounding Sandy reflects the ongoing impact not only of the storm but how prepared this region is for the future. The literature describes and analyzes three major topics on this:

- In what ways and why the impacts may have surpassed any previous expectations;

- what the actions have been in response to these events; and

- how individuals within impacted communities have fared as the water recaptures shoreline, sidewalks and neighborhoods that were once wetlands and thriving ecosystems—and may be so again whether by natural force or community choice.

This section highlights observable physical aspects of the storm itself, its meteorological characteristics, including path, velocity, and timeline, so that the study has a clear picture of just what happened. This is the reality that the people at the eye of this story experienced and with which they strove to cope.

The overarching impact of Hurricane Sandy in physically vulnerable and economically marginalized communities was often underserved in the course of rebuilding and future

planning. This was underscored in a number of the interviews conducted during this study and is further expanded upon in Chapter IV.

    ***The storm.*** To a significant degree, Sandy, like Hurricane Katrina, is as much about water "out of place" as it is about the horrific winds that one thinks about when the word "hurricane" is used. Mathur and da Cunha's (2006) expression, used in the context of Hurricane Katrina, aptly frames what was faced in New York and what will become the new normal—that we must negotiate a fluid terrain, places, of "ambiguity and relative flows . . . undecided between land and sea, part of both, belonging to none" (p. 34). Sandy was a clarion call from the 71% of the earth we call water. Its message was that the changing atmospheric conditions are influencing the water's behavior on the surface of the earth, with shattering results on human communities and the natural world. An understanding of the storm, therefore, begins in and of the water. Thus, when futuristic (but not that far in the future) scenarios of disaster are envisioned, inundation of critically important urban and rural areas is high amidst our fears. A brief video imagining New York 60 to 80 years from the present, dramatically if controversially envisioned the submergence in part or whole of iconic New York spaces (Maxim/Menilmonde, n.d.). Similar dramatic images abound just for New York in documentary and in fictional films and artwork, and others, for example Goodell (2017), have written full and well-documented treatises—tellingly a book about Miami's future is titled, *The Water Will Come*. While some of the visuals from movies such as *The Day After Tomorrow* and *Artificial Intelligence* seem so imaginary, when one looks through an online gallery such as that mounted by the Gizmodo Media Group's (Diaz, 2012; Grace, 2012) of Sandy flooding, futuristic fears of inundation seem not so farfetched.

    As already outlined, the water *has* come to the New York/New Jersey region already. Catastrophic storms were not strangers to the region for years prior to Sandy, which struck in

October 2012. Weather 2000 (n.d.) tabulated notable storms impacting the New York coastal area, going back to "the Great Storm of 1693" (which, coincidentally struck on the same date as Sandy, 319 years later). Sedimentary evidence of intense hurricane strikes slamming New Jersey have been traced back 700 years (Donnelly et al., 2001). However, as is briefly reviewed below, it is now becoming quite clear that like coastal cities worldwide, the New York region can expect severity and frequency of massive storms increasingly as global warming continues. Given that the region is also far more urbanized than ever before when historic storms struck a less settled New York, it is not surprising that the casualties and costs of Sandy are unprecedented in this history.

Awareness of the threats associated with climate change arose well before Sandy. The City of New York had undertaken a major conceptual planning initiative that began shortly after the terrorist attacks of September 11, 2001, and issued *A Greener Greater New York* (PlaNYC, 2007) six years later. A chapter was devoted to climate change—what it could do to the region and broadly, how design/planning could be used to prepare. This chapter was expanded in an update released four years later (PlaNYC, 2011) in which it was said:

> Cities are at the forefront of both the causes and effects of climate change. Urban areas are estimated to be the source of approximately 80% of global greenhouse gas (GHG) emissions. At the same time, urban areas located on a coast like New York City face increased climate risks. Accordingly, cities have a responsibility to deal with both the causes and effects of climate change. New York City has always faced climate risks, including heat waves, snowstorms, high winds, tropical storms, storm surges, lightning, and torrential downpours. These events affect every New Yorker, and as our climate changes, they will become more frequent and severe. (p. 150)

The report went on to say that there is no one single action that will change this but that many coordinated strategies must be followed. Part of what designers/planners are doing on the ground, whether planning for or responding to climate impactful events, is to develop these strategies whether these are ones of mitigation, adaptation, or resiliency.

Several months later, and still a year before Sandy struck, the New York State Energy

Research and Development Authority issued a climate outlook for New York. Orchestrated by

researchers at Columbia University's Earth Institute, Cornell University, and the City University

of New York, they drew upon input from more than 50 scientists. The resulting 600-page report,

*Responding to Climate Change in New York State* (Rosenzweig et al., 2011), predicted 8 to 23

inches of relative sea-level rise by the 2080s forewarned that a drastic 55 inches—four and one-

half feet—could occur if melting of the Greenland and West Antarctic ice sheets accelerates. The

report pointed out that New York City is at risk because of its extensive shoreline, but so too are

towns and cities along the Hudson River as far north as the Federal Dam at Troy, 150 miles north

of Manhattan. The report summarized that as early as 2020,

> nearly 96,000 people on the barrier island of Long Beach area alone may be at risk from
> sea level rise under the rapid ice melt scenario; by 2080, that number may rise to more
> than 114,500 people. The value of property at risk in the Long Beach area under this
> scenario ranges from about $6.4 billion in 2020 to about $7.2 billion in 2080.
> (Rosenzweig et al., 2011, p. 23)

This study was also updated several years later (Stevens et al., 2014), by which time, the

realities of climate-induced catastrophe had become all too clear for the city and the surrounding

area.

In Chapter I, both personal/subjective impressions and more factual information about the

dimensions of the storm were presented. Now, more than seven years later, there is an abundance

of literature on Sandy's chronology, its physical /meteorological characteristics, and the resultant

economic and social impacts. Among the most thorough overviews of the storm is the National

Hurricane Center's Tropical Cyclone Report, issued several months after the events (Blake et al.,

2013). It is worth quoting the full opening paragraph of this report as a way of reiterating what

New York City and the design/planning professionals, who are the focus here, must confront as a

memory, a source of continuing consequences, and a foreshadowing of

climate-change-induced challenges to come:

> Sandy was a classic late-season hurricane in the southwestern Caribbean Sea. The cyclone made landfall as a category 1 hurricane (on the Saffir-Simpson Hurricane Wind Scale) in Jamaica, and as a 100-kt category 3 hurricane in eastern Cuba before quickly weakening to a category 1 hurricane while moving through the central and northwestern Bahamas. Sandy underwent a complex evolution and grew considerably in size while over the Bahamas and continued to grow despite weakening into a tropical storm north of those islands.
>
> The system re-strengthened into a hurricane while it moved northeastward, parallel to the coast of the southeastern United States, and reached a secondary peak intensity of 85 kt [knots]while it turned northwestward toward the mid-Atlantic states. Sandy weakened somewhat and then made landfall as a post-tropical cyclone near Brigantine, New Jersey with 70-kt maximum sustained winds. Because of its tremendous size, however, Sandy drove a catastrophic storm surge into the New Jersey and New York coastlines. Preliminary U.S. damage estimates are near $50 billion, making Sandy the second-costliest cyclone to hit the United States since 1901. There were at least 147 direct deaths recorded across the Atlantic basin due to Sandy, with 72 of these fatalities occurring in the mid-Atlantic and northeastern United States. (Blake et al., 2013, p. 1)

In addition to federal assessments of the storm's history and damage, both New York

State, the State of New Jersey, and the City of New York prepared their own detailed overviews.

The State of New Jersey fully reviewed the natural resource impacts of Sandy (Office of Science,

New Jersey Department of Environmental Protection, 2015); the Mayor's Office in New York

prepared what was referred to as an "after action report" outlining both what Sandy did and the

city's overall response (Gibbs & Holloway, 2013), and of course the lead federal agency dealing

with disasters, FEMA (2013), likewise released an "after action" assessment. A more concise but

quite helpful plain-language overview of the storm was issued by the international reinsurance

firm AON Benfield (2013). Similarly, Halverson and Rabenhorst (2013) wrote a straightforward

summary which, like the AON Benfield document, provides a clear jargon-free overview of how

the storm built up and then its effects on American locales. Both documents present clear,

understandable graphics portraying the development and physical impact areas of Sandy.

Since then, many multi-author collaborative studies have appeared that provide overviews of Sandy and its impacts. Additionally, a massive amount of literature continues to build on particular scientific questions about the course of the storm and its direct ecological and technical effects. For example, a consortium of German researchers prepared a detailed chronology and impact assessment including economic effects (Kunz et al., 2013). Many other papers from the natural sciences and engineering focus on one or several closely related scientific/technical dimensions of describing Sandy. Examples are Hapke, Brenner, Henderson, and Reynolds, who examined impacts on Fire Island dune and beach systems; Smallegan, Irish, Van Dongeren, and Den Bieman's (2016) study of barrier island effects; and Trembanis et al.'s (2013) assessment of changes in the seabed off of New Jersey and Long Island. The U.S. Geological Survey prepared a detailed overall summary of the wide range of biophysical research that was needed to take full stock of a system like Sandy and what it can do to nature itself (Hapke et al., 2013).

***Human and psychosocial impacts of Sandy***. The term psychosocial, introduced in Chapter I, was characterized in 2001 by an advisory group following earthquakes in New Zealand. They defined it as "encompassing cultural, psychological, social, economic and physical (including housing, infrastructure and physical health) dimensions that are part of the regeneration of a community that has experienced adversity" (Mooney et al., 2011, p. 3).

There have already been many specific explorations of the social and human impacts of Sandy. Some of these have been quite specific. For example, Kelman et al. (2015), and Lempert and Kopp (2013), have looked at impacts on as specific a medical condition as kidney failure and the drop in the quality of chronic care of sufferers. There have also been studies to appear about diabetes care as affected by the storm (D. C. Lee et al., 2016). In turn, the many different ways in

which Sandy impeded access to medical care for chronic conditions led to an increase in mental health difficulties among people already suffering from serious chronic conditions, as reported by Ruskin et al. (2018).

Without delving further into such specific literature, it is fair to presume that these are but a foreshadowing of the wide and diverse array of stressful potential impacts. While medical professionals are especially affected in terms of their practice, these are but a few of the impacts that design/planning professionals will have to account for as they create future strategies to cope with disasters like Sandy. Facility and transportation plans will have to plan for this diminishment of normal essential services. Moreover, designers/planners, like first responders, may also be personally touched by exposure to the trauma of others, what N. Garner, Baker, and Hagelgans (2016) called "private trauma" (p. 168). They may suffer from the ripple effects of such impacts within their own families and neighborhoods, a topic that was addressed in my interviews with the study participants.

Sandy also had larger and broader impacts on key services, and in turn, left many individuals within the region impaired in their everyday lives and work. Shortly after the storm, Kaufman, Qing, Levenson, and Hanson (2012) reviewed the impacts on transportation infrastructure in New York City and the surrounding region, pointing to vulnerabilities that had been demonstrated but also commenting:

> During and after the storm, New Yorkers displayed impressive inventiveness to maintain their mobility. Individuals created new routes and combinations of modes to get to work, using a variety of systems: bus shuttles, bikes, shared vehicles with strangers, ferries, alternate work sites, and telecommuting. (p. i)

Housing was among the most powerfully affected human needs during and after the storm. Sandy was a reminder of that, and while many can forget once the waters receded and life returned to what many consider normal, that was not the case for everyone. Particularly those

who face into the reality of vulnerability on a more consistent basis, in areas such as Red Hook and Coney Island, Brooklyn, and The Rockaways, Queens, were all heavily impacted by Sandy, with large percentages of New York City Housing Authority (NYCHA) public housing.

It is easy to forget how vulnerable life is, particularly in places like New York, where one is more connected to the concrete than to nature, where tall heroic buildings are powerful manmade forces, that can appear like an impenetrable force field. Events like 9/11 or Hurricane Sandy show us how vulnerable we are. We are reminded "just how fragile the busy world we humans build around us really is" (Mead, 2012, para. 1). Perhaps it is human nature to run from that reality, even though we all know that at some juncture, into every life a storm does make landfall, and we are taken aback when it does happen.

A strong source of additional information on the broad sweep of Sandy's impacts has been prepared jointly by Columbia University's National Center for Disaster Preparedness, the NYU College of Global Public Health, and Rutgers School of Social Work (Abramson et al., 2015). Their work is divided into four reports including the Place Report, which scrutinizes the evacuation procedures, the levels of displacement, housing damage and loss and insurance dimensions, and the Person Report, which bears down on changes in physical and mental health, alcohol and drug abuse impacts, child academic and behavioral issues, and storm related stress and uncertainty. The Person Report is of particular interest in defining the panoply of planning issues which professionals must confront both in their work and in their own lives.

A "fact brief" prepared jointly by the Furman Center for Real Estate and Urban Policy and the Moelis Institute for Affordable Housing Policy (2013)—both institutes at New York University—summarized,

> Overall, almost 20% of NYCHA's 178,000 total units were in buildings that were
> damaged by Sandy. Many of the nearly 80,000 residents of these buildings were left

without heat or electricity because the basements of the buildings, where the heating and electrical systems are located, flooded. (pp. 3–4)

Similarly, dire effects were experienced in other affordable housing and privately-owned rent-stabilized units. McArdle (2013) suggested that the winds and waters of Sandy showed that any quest for future resilience (a concept that is fully addressed below):

> must take account of the vulnerable populations at its periphery. Superstorm Sandy put a face to their vulnerability, including 6,800 evacuees assigned to shelters, 1,800 of whom were residents of chronic care facilities located in flood zones. The vulnerable English speakers, who were stranded in New York City Housing Authority-owned buildings without electricity, heat, and hot water for weeks as a consequence of storm surges. (pp. 19–20)

In *Public Housing on the Periphery: Vulnerable Residents and Depleted Resilience Reserves Post-Hurricane Sandy*, Hernández et al. (2018) further substantiated how New Yorkers with the least resources to get them through crises were left stranded:

> Many tenants in NYCHA's densely populated high-rise housing, many of them elderly and disabled, despite being adaptively resourceful were as a result of Sandy adversely impacted by exacerbated social, physical, geographic, medical, and economic factors within homes that became unlivable with some residents, trapped for days and weeks. (pp. 2–3)

**Impacts of other climate change-induced storms.** The effects of Sandy on metropolitan New York can be helpfully placed in the context of the wider national and global experience of cities and regions hit by climate change-induced storms. It is almost impossible to discuss the impacts on an American city without delving into the ever-amassing literature about the impacts of Hurricane Katrina on New Orleans. Such studies help to flesh out implications that may not yet be fully examined in the case of Sandy.

***Katrina and other hurricanes impacting the United States, the Caribbean and Puerto Rico.*** The storm and breaching of levees in New Orleans in August 2005, remains probably the most researched and, in many ways, one of the most lamentable events, showing the power of such storms, and the limitations of preparedness and defects in mitigation. The story of the

storm, the breaching of levees, flooding, and the aftermath, have been looked at in physical

descriptions of the destruction and especially in regard to the inequities suffered by

already-marginalized populations. Greater detail about the impact of designers/planners in the

context of Katrina, is expanded upon in Chapter IV.

The litany of hurricanes that directly destroy coastal property and bring on devastating

floods and a loss of life, has not abated. Research is ongoing into the nature and impacts

particularly of the following events:

- *Hurricane Harvey* (August 2017) tied with Katrina as the costliest hurricane in terms

  of damage to housing and infrastructure, this storm's impacts were most publicized in

  relation to the city of Houston, though like other hurricanes impacting the southern

  and eastern United States, it had already left a path of catastrophe across the

  Caribbean and affected a broad swath of other smaller cities, towns and rural areas in

  Texas and Louisiana. The federal and other government responses to Harvey are

  generally seen as far more just and adequate than what befell Hurricane Maria, a

  comparison that underscored the issues of inequity associated with climate change

  events. Another dimension that is being brought out in the experience with Harvey is

  the extent to which Houston's urban development—including massive historic and

  contemporary destruction of wetlands that can protect against storms and flooding

  (Costanza et al., 2008)—illustrates how preventative measures based on ecological

  knowledge were ignored. This too is an issue which the design/planning professionals

  interviewed in this study face in the stress of their post-disaster practice: confronting

  the political, economic, and psychological forces that militate against design.

- *Hurricane Irma* (August–September 2017) was the second of three massive

  hurricanes to strike the Caribbean and the southern United States in the late summer

  of 2017. After heavy impacts on Cuba, it swept along the Gulf Coast of Florida

  imposing probably the highest economic costs ever experienced in that state. There

  was cataclysmic damage in Barbuda where 95% of the structures were destroyed.

  Puerto Rico, the Dominican Republic, and Haiti each experienced flooding and heavy

  damage, but there was much less destruction than anticipated. While some tragic

  missteps in planning for such an event came to light—notably multiple deaths from

  excess heat in a senior's home where air conditioning and evacuation failed

  (Nedelman, 2017), there have not yet, to my knowledge, been critical studies of

  issues, especially for design/planning.

- *Hurricane Maria* (September 2017) is considered to be the third costliest storm

  affecting American territory, and it infamously once again exposed the inequities of

  post-disaster measures, especially in the American Commonwealth of Puerto Rico. A

  study by Harvard medical researchers demonstrated that death tolls were

  underestimated by a factor of 70 (Kishore et al., 2018), evidence of the blatant

  disregard and disrespect of the current U.S. Administration for Puerto Ricans. This

  has been widely seen as evidence of racism as manifest by what happened in New

  Orleans after Katrina (Schulze, 2018), a finding echoed in a publication that

  characterizes Maria as a "public health disaster" according to (Rudner, 2018, p. 257).

  A number of participants in this study discussed in-depth the severity and inequities

  associated with Maria. The hurricane also devastated parts of the Caribbean,

including the U.S. Virgin Islands and Dominica, which was still recovering from the August 2015 Tropical Storm, Erika.

- *Hurricane Florence* (August–September 2018) hit the Carolinas, with widespread flooding and damage, particularly in North Carolina. It was one of the top ten costliest hurricanes to hit the United States.

- *Hurricane Michael* (October 2018) was the "first Category 4 storm in history to make landfall in the Florida Panhandle . . . the first Category 3 Hurricane to hit Georgia since 1898 . . . and the strongest storm to make landfall in the continental US since Hurricane Andrew in 1992" (Miller & Griggs, 2018, bullets 1, 3, & 6).

- *Hurricane Barry* (July 2019) made landfall on the central Louisiana coast. While Louisiana did have its share of flash flooding, New Orleans was spared from devastation.

-  *Hurricane Dorian* (September 2019) impacted both North and South Carolina. The Grand Bahamas and Abaco Islands had catastrophic damage.

- *Hurricane Humberto* (September 2019) was the first named storm to hit Houston since Hurricane Harvey and the first Hurricane to make landfall in Bermuda since 2016. Major damage was averted.

As for the 2020 hurricane season, which runs from June 1 through November 30, the National Oceanic and Atmospheric Administration (NOAA) is predicting an above normal Atlantic Hurricane season. The first named storm, Arthur, was identified in early May before any outlooks were even posted (National Oceanic & Atmospheric Administration, 2020).

More and more we must accept that these closely spaced storms, severely taxing the resources need to provide relief let alone plan for longer term adaptation, are the "new normal."

This comes across with force in a report by the Union of Concerned Scientists with the telling title, *When Rising Seas Hit Home: Hard Choices Ahead for Hundreds of US Coastal Communities* (Spanger-Siegfried et al., 2017). Calling attention to the dismal political situation in which climate change itself if being denied by the president and other leading political figures including cabinet members, this report warns,

> We are at a turning point where we can still avoid some of the most serious human consequences and losses that our coasts—and indeed coastal communities around the world—face this century. We have time to respond. We must use it wisely. (Spanger-Siegfried et al., 2017, p. 42).

To underscore, it will fall significantly to designers/planners, the focus of this research, to deal with the many stressful situations arising from climate change-induced disasters in order to help society cope more effectively with those same events.

*Storms and Flooding Internationally.* According to the World Economic Forum's *Global Risk Report 2020,* there was $165 billion U.S. in worldwide economic stress and damage from natural disasters in 2018 (World Economic Forum, 2020). It is therefore important when considering the broader significance of this study to be aware of the global nature of the challenges of climate change-induced disasters. It is also essential to look elsewhere to understand how issues that post-Sandy designers/planners face are being confronted elsewhere. We look to what has happened internationally and been documented in other coastal areas, urban and regional, for a grasp of the dimensions of the challenge.

In terms of impact, it is clear that coastal areas, whether cities or not, struggle with similar impacts, especially on marginalized and already poor and powerless communities around the world. Bulkeley (2012) has surveyed a wide array of cities that face major climate-related change and which, as she emphasizes, are in fact places that contribute massively to the emissions that contribute to the climate problem. She pointed out that "by 2030, over 80% of the

increase in global annual energy demand above 2006 levels will come from cities in non-OECD

countries" (Bulkeley, 2012, p. 8). Benson (2018) summarizes information on the world's cities

that are most vulnerable to conflicts resulting from climate change impacts, singling out Manila,

which has already had to cope with major storms such as Typhoon Haiiyan in 2013. The

resulting scarcities, he argued, overload not only local capacity and infrastructure, but the

political system itself:

> Terrorist groups including Abu Sayyaf and ISIS are active in the Philippines, and
> radicalization could thrive in the uncertainty and hardship following a major
> disaster. . . . Because climate change and conflict are so inextricably tied, efforts to
> make a city more sustainable often double as increasing stability and security. Cities
> that prepare may be able to avoid a breakdown of order. But cities that fail to act could
> come apart at the seams. (Benson, 2018, paras. 20–21)

> Hallegatte, Green, Nicholls, and Corfee-Morlot (2013) have tabulated anticipated costs of

flooding and flood prevention in major coastal cities around the world largely resulting from

storms and sea level rise associated with climate change. They concluded,

> With climate change and subsidence, present protection will need to be upgraded to
> avoid unacceptable losses of US$1 trillion or more per year. Even if adaptation
> investments maintain constant flood probability, subsidence and sea-level rise will
> increase global flood losses to US$60–63 billion per year in 2050. (Hallegatte et al.,
> 2013, p. 802)

> Because of the very high property values and labor costs in developed countries, the list

Hallegatte et al. (2013) compiled is dominated by their cities. But the data shows that developing

world coastal cities face equally bad or worse scenarios; and, of course, they have much less

capacity to afford rebuilding or other adaptive measures. Some of the major coastal cities in

developing countries for which there has been research into vulnerability to climate change

include Lagos, Nigeria (Adelekan, 2010) and Mombasa, Kenya (Awuor, Orindi, & Adwera,

2008).

Beyond cities, some of the most vulnerable areas of the world are best described in terms of specific geographic features, notably small island states and highly populated deltaic regions such as where the Ganges and Mekong reach the sea in Bangladesh and Vietnam, respectively.

Small island developing states—of which there are 58 (Sustainable Development Goals Knowledge Platform, n.d.)—are among the countries in the world that are most vulnerable to climate change and required to adapt to its impacts, yet there is comparatively little research that addresses their adaptation to climate change (Robinson, 2017). Places like the Maldives, for example, are important lenses for the impact of climate change, adaptation, and resiliency in place or managed retreat and how communities with limited levels of social capital are responding in the context of design-delivery systems (see World Bank, 2010).

> Geography has made the Maldives especially vulnerable to the consequences of climate change. Being land scarce and low-lying, the country is exposed to the risks of intensifying weather events such as damage caused by inundation, extreme winds, and flooding from storms. With the melting of polar ice caps, the Maldives is also exposed to the risks of sea-level rise. Future sea level is projected to rise within the range of 10 to 100 centimeters by the year 2100, which means the entire country could be submerged. (World Bank, 2010, paras. 8–9)

It is a bitter but not uncommon irony that these disproportionately affected areas have had so little role or benefit from the global fossil fuel economy.

> With small island countries contributing less than 1% of global greenhouse emissions, nonetheless in the Maldives, rising sea levels are causing salt-water to intrude into underground fresh water supplies. In order to adapt, the country is trying to build rainwater cisterns and new pipe systems to ensure that its people have safe drinking water supplies. (Plumer & Friedman, 2017)

| City ranking by risk (AAL) and relative risk (AAL in percentage of GDP) for 2005. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Ranking by AAL (US$ million) | | | | | Ranking by relative AAL (percentage of city GDP) | | | |
| | Urban agglomeration | 100 year exposure | AAL, with protection (US$ million) | AAL, with protection (percentage of GDP) | | Urban agglomeration | 100 year exposure | AAL, with protection (US$ million) | AAL, with protection (percentage of GDP) |
| 1 | Guangzhou | 38,508 | 687 | 1.32% | 1 | Guangzhou | 38,508 | 687 | 1.32% |
| 2 | Miami | 366,421 | 672 | 0.30% | 2 | New Orleans | 143,963 | 507 | 1.21% |
| 3 | New York—Newark | 236,530 | 628 | 0.08% | 3 | Guayaquil | 3,687 | 98 | 0.95% |
| 4 | New Orleans | 143,963 | 507 | 1.21% | 4 | Ho Chi Minh City | 18,708 | 104 | 0.74% |
| 5 | Mumbai | 23,188 | 284 | 0.47% | 5 | Abidjan | 1,786 | 38 | 0.72% |
| 6 | Nagoya | 77,988 | 260 | 0.26% | 6 | Zhanjiang | 2,780 | 46 | 0.50% |
| 7 | Tampa—St. Petersburg | 49,593 | 244 | 0.26% | 7 | Mumbai | 23,188 | 284 | 0.47% |
| 8 | Boston | 55,445 | 237 | 0.13% | 8 | Khulna | 2,073 | 13 | 0.43% |
| 9 | Shenzen | 11,338 | 169 | 0.38% | 9 | Palembang | 1,161 | 27 | 0.39% |
| 10 | Osaka—Kobe | 149,935 | 120 | 0.03% | 10 | Shenzen | 11,338 | 169 | 0.38% |
| 11 | Vancouver | 33,456 | 107 | 0.14% | 11 | Hai Phòng | 6,348 | 19 | 0.37% |
| 12 | Tianjin | 11,408 | 104 | 0.24% | 12 | N'ampo | 507 | 6 | 0.31% |
| 13 | Ho Chi Minh City | 18,708 | 104 | 0.74% | 13 | Miami | 366,421 | 672 | 0.30% |
| 14 | Kolkata | 14,769 | 99 | 0.21% | 14 | Kochi | 855 | 14 | 0.29% |
| 15 | Guayaquil | 3,687 | 98 | 0.95% | 15 | Tampa—St. Petersburg | 49,593 | 244 | 0.26% |
| 16 | Philadelphia | 22,132 | 89 | 0.04% | 16 | Nagoya | 77,988 | 260 | 0.26% |
| 17 | Virginia Beach | 61,507 | 89 | 0.15% | 17 | Surat | 3,288 | 30 | 0.25% |
| 18 | Fukuoka—Kitakyushu | 39,096 | 82 | 0.09% | 18 | Tianjin | 11,408 | 104 | 0.24% |
| 19 | Baltimore | 14,042 | 76 | 0.08% | 19 | Grande_Vitória | 6,738 | 32 | 0.23% |
| 20 | Jakarta | 4,256 | 73 | 0.14% | 20 | Xiamen | 4,486 | 33 | 0.22% |

A comparison with a ranking by exposure is proposed in the Supplementary Information.
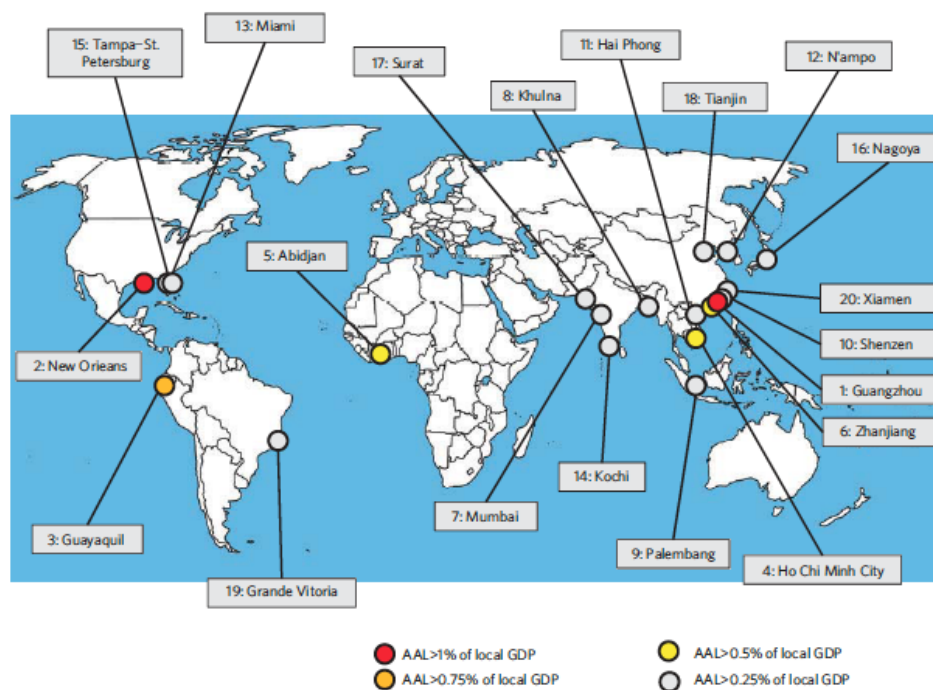


*Figure 2.2*. Coastal city vulnerability and anticipated costs associated with future flooding. From "Future flood losses in major coastal cities," Nature Climate Change by Hallegatte et al., 2013, p. 803. Copyright 2013 by Springer Nature. Used with permission.

As noted, highly populated deltas, especially those in developing countries, are also

especially prone to impacts of climate change-induced effects, both because of their low-lying

altitudes rendering sea level rise a major factor and, typically their exposure to seasonal heavy storms, worsened by global warming. Further, by definition, major deltas mean major rivers, and in time when seasonal precipitation is increasing due to climate change, flood events are also exacerbated. Two important examples of such vulnerable regions are the Mekong Delta and the Ganges-Brahmaputra Delta (Khadka, 2015; Toan, 2014).

The Ganges-Brahmaputra Delta is one of the most densely populated areas in the world prone to flooding disasters. Well before the impact of climate change on sea level and storm intensities bore down on the area, it had experienced what has been described as the deadliest tropical cyclone of the 20th century: The Bhola cyclone is thought to have killed a half million people (Reilly, 2009). Although storm warning systems and other physical measures have reduced the effects that such a storm would now have, Bangladesh remains one of the most disaster-prone regions of earth. Huq (2001) wrote,

> Bangladesh is one of the countries most likely to suffer adverse impacts from anthropogenic climate change. Threats include sea level rise (approximately a fifth of the country consists of low-lying coastal zones within 1 meter of the high-water mark), droughts, floods, and cyclones (approximately 130,000 people were killed in the cyclone of April 1990). With a population of 130 million, most of whom earn less than U.S.$1 a day, it has some of the poorest people in the world. The impacts of climate change will only exacerbate the problems already facing the population. (p. 1617)

The statistics for this region are further expanded upon in a January 2020 study which states that "Depending on the region of the delta, water-level rise could reach 85 to 140 cm by 2100" (CNRS, 2020, para.1)

These almost unthinkable vulnerabilities bring us back to the issue of who suffers most, not only during catastrophic storms but in their aftermath, despite having taken measures to recover and adapt. Mearns and Norton (2010b), on behalf of the World Bank, have edited a wide range of papers that prioritize the issues of (in)equity in relation to climate change. These were

contributions at a World Bank workshop in 2008. In their introduction, Mearns and Norton

(2010a) phrased the issues succinctly:

> Viewing climate change through a social development lens leads us, at the outset, to couch the agenda in terms of social justice, at all levels from the global to the local. The causes and consequences of climate change are intertwined deeply with global patterns of inequality. Climate change acts as a multiplier of existing vulnerabilities in a warming and transforming world. It threatens to roll back the hard-earned gains in poverty reduction and progress toward maintaining the Millennium Development Goals that already have been achieved . . . *The global injustice of a world in which responsibility for the causes of climate change is inversely proportional to the degree of vulnerability to its consequences calls for equity and social justice to be placed at the heart of a responsive agenda on climate policy and action* [emphasis added]. (p. 2)

In this volume and of special interest to my inquiries is the idea of developing "a

framework of pro-poor adaptation to climate change" (Moser & Satterthwaite, 2010, p. 232).

Meaning, policies that promote social, economic, and environmental justice among all people. I

have explored such ideas with design/planning professionals in this study.

**Impacts on Professionals**

**Design/planning responses to climate change and disasters**. How working within these

types of highly charged post-disaster or pre-disaster vulnerable coastal communities is impacting

design/planning professionals individually and collectively was the focus of my primary research

question: In what ways did post-Hurricane Sandy experiences impact the design/planning

professionals' approach to future climate-related events personally (individually), professionally,

and societally? This is an area of literature that has only begun to surface; this dissertation

addressed that dearth.

In this section, I looked at the literature facing up to the disasters in the New York area

and elsewhere. I began with initiatives in the New York region that were central in the study

regarding design/planning professionals. Then, the discussion was broadened to look at strategies

and approaches used elsewhere, beginning by considering the several alternative principles or

goals used in guiding post-disaster efforts: rebuilding, adaptation, and the emergence of

resiliency as an especially popular concept on what needs to be achieved. This discussion,

especially of the major ascendance of the idea of resilience in post-disaster design/planning

work, brings the discussion back to questions of equity and inequity—dilemmas that

practitioners will confront as they attempt to both "do good and be right"[7] (cf. Hoch, 1984). First,

however, main post-Sandy initiatives in the New York area are reviewed here.

        **Major design/planning responses to Sandy.** This section highlights lay documents

related to the major regional planning initiatives responding specifically to Sandy. Critical

commentaries, from newspapers, magazine, and online sources, rather than in scholarly works,

are also included. As noted in Chapter I, there are five principle responses[8] of main interest:

- NYC Special Initiative for Rebuilding and Resiliency (SIRR);

- HUD's *Rebuild by Design*;

- *New York Rising/Buy It Back* (a New York State initiative);

- *Build It Back* (a New York City initiative);

- *Occupy Sandy* (a grassroots initiative).

        ***NYC Special Initiative for Rebuilding and Resiliency.*** The plan developed by the City at

the direction of Mayor Michael Bloomberg comprised a 438-page report titled, *A Stronger, More*

*Resilient New York* (PlaNYC, 2013). Interestingly, its authors chose to have a definition of the

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[7] The challenge of doing one's technical urban planning and design work soundly (being right) yet achieving social equity especially in relation to the disadvantaged (doing good) was considered below as a core issue to explore in this research.

[8] Referring to these as the principal post-Sandy initiatives should not downgrade the large number of other studies that have been prepared by scholars, research collaborations, interest groups, and others, about the storm and its effects. Such other works are the American Institute of Architects New York (2013) *Post-Sandy Initiative: Building Better, Building Smarter—Opportunities for Design and Development*, and the New York State 2100 Commission's (2013), *Recommendations to Improve the Strength and Resilience of the Empire State's Infrastructure.*

definition of the word *resilient* directly after the cover page, indicating how substantially this term is pervading post-disaster and climate-change writings. Emphasizing the path to a more resilient response to climate change, Mayor Michael R. Bloomberg asserted in his cover letter for this report, "We are a coastal city—and we cannot, and will not, abandon our waterfront. Instead, we must build a stronger, more resilient city—and this plan puts us on a path to do just that" (PlaNYC, 2013, from "Foreword from the Mayor"). This perspective, as we shall see, is not necessarily aligned with progressive thinking about disaster planning associated with resilience.

There follows a detailed chapter on repair and resilience for citywide infrastructure and built environment, and, then, community rebuilding plans for each of the five boroughs' most storm-impacted areas. There are more than 250 specific projects comprising this plan with an estimated total cost of $20 billion.

*Rebuild by Design*. The Hurricane Sandy Rebuilding Task Force in partnership with HUD launched an innovative, international design competition, *Rebuild by Design* (RBD). The competition enlisted the support of civic, philanthropic, and academic institutions that included the Municipal Art Society, the Regional Plan Association, NYU's Institute for Public Knowledge, The Van Alen Institute, and The Rockefeller Foundation, that supported this multi-stage competition that was:

> a cross-sector, cross-professional collaboration, and iterative design. Participants collaborated with community and local government stakeholders to ensure each stage of the competition was based on the best knowledge and talent and final proposals would be realistic and replicable. (Rebuild by Design, n.d., para. 1)

Of all the initiatives this design competition was, from my perspective, one that changed the way many design/planning professionals approached disaster and resiliency planning. The RBD program has been involved in several collaborative publications describing the program and its lessons (Grannis, 2016) and assembling the perspectives of designers who were involved

in the program (Basalaev-Binder & Wachsmuth, 2018). Another monograph, *Too Big: Rebuild*

*by Design's Transformative Response to Climate Change*, edited by Ovink and Boeijenga

(2018), further describes the experience of involvement with the program. The intention was:

> to reflect on it, assess it in all its aspects and embed it in a broader context to offer a guide for politicians, designers, change managers, community leaders, researchers, activists, and others, offering future approaches wherever climate-change induced, water-related urban challenges arise. (NAi Boekverkopers, n.d.)

Australian architectural professor, Helen Lochhead (2017), looking at the broader

applicability for approaches akin to RBD, saw the competition as underscoring the critical role of

urban designers in responding to extreme weather events. "Designers are collaborators,

visualizers, and synthesizers. RBD provided them the opportunity to unpack issues and put

together scenarios in new and different ways" (Lochhead, 2017, p. 3). She notes that Hurricane

Sandy did not limit its impact to political boundaries so neither should the design approach.

Designers and planners are needed to think from the perspective of regional interdependencies so

there could be a coordinated approach that did not simply stay at the local level. For example, a

designer/planner developing a barrier to keep the water out in New Jersey could potentially

negatively impact a part of New York during a storm, if it was not regionally vetted and

coordinated. Lochhead (2017) concluded, "The design-led process in RBD has crystallized the

role of designers as agents of change. The pivotal positioning of the designer in the RBD process

facilitated imaginative solutions to the complex problems in question" (p. 12). However, she also

called attention to the "crunch" within which the work of RBD took place, noting,

> because of the compressed timeframe and constrained resources—activities that typically take two years, took ten months—this inevitably resulted in a focus on projects that address the immediate impacts of the disaster rather than systemic vulnerabilities, such as chronic social housing and critical infrastructure in low-lying flood prone land, that were exacerbated by the disaster. (Lochhead, 2017, p. 13)

This hints at a question which will recur in this chapter and, became a key theme explored in the research: Does the urgent work of designers/planners allow or preclude thorough attention to public housing and other pre-existing inequities and vulnerabilities faced by marginalized groups?

Another Australian article on RBD is Lentini's (2016) work. Shapiro-Kline (2014) focused on the extent to which RBD's very open public process succeeded in setting the stage for innovative approaches: "The urgency of the design competition timeframe, following from the urgency of addressing Sandy's impacts, brought together a wide range of citizens, organizations, businesses, and government agencies, through the design teams as intermediaries and facilitators" (p. 49).

This addresses a dilemma that this study explored: namely, that in the midst of a very hurried and urgent response to the threat posed by future climate change and resulting storms, it will be challenging for designers/planners to respond expeditiously, to be accountable to public perspectives and be innovative. The research documents how design/planning professionals have approached these challenges.

*New York Rising/Buy It Back*. Both these initiatives are parts of the GOSR program. The NY Rising Community Reconstruction (NYRCR) Program was an initiative established to assist 124 New York State communities damaged by Hurricane Sandy, as well as Hurricane Irene, and Tropical Storm Lee. GOSR allotted more than $700 million in federal funds for planning and implementation of recovery and resiliency projects. Other than the website for the initiative (Governor's Office of Storm Recovery, n.d.-b) which provides an overview of the entire program, the direct documentation of New York Rising consists of the various planning documents prepared by each affected community. Summaries of three rounds of planning have

been prepared (New York Rising Community Reconstruction Planning Committee, 2014.).

While innovative in many aspects of its approach, New York Rising did integrate some of the

more traditional tenets of planning and recovery, informing yet another type of integrated

approach for planners and designers within communities.

While the NYC SIRR plan did not favor managed retreat or buyout scenarios, both the

New York State and New Jersey governors did set up specific programs for buying back homes.

The program in New York, Buy It Back, focused on specific areas where there has been a history

of severe flooding and where the vulnerability was such that there was high risk to dangerous

repeat flooding and that in order to improve the resiliency of the larger community, these

buyouts returned the land back to nature in the form of wetlands, open space, or storm

management systems. Part of this buyout also included what was called an Acquisition Program,

where the property was rebuilt in a manner that was resilient but which the existing tenants were

either unable or unwilling to do.

*Build It Back*. The NYC Mayor's Office of Housing Recovery Operations and the Build

It Back program was developed to help New Yorkers rebuild, repair, and elevate homes in

Sandy-impacted communities. Funded by HUD's Community Development Block Grant

Disaster Recovery Program (U.S. Department of Housing and Urban Development, n.d.)  Build

It Back provided support for homeowners after all other forms of disaster assistance was

exhausted.

As of June 2018, the program reported,

The City is nearing completion of its Hurricane Sandy housing recovery efforts. Through June 2018, the Build It Back program has served 99 percent of approximately 8,300 homeowners (totaling 12,500 households) through either a reimbursement check, construction start, or acquisition. The vast majority of these homeowners—95 percent—have received their full benefit, including construction, reimbursement, or acquisition of their home. Over 4,500 projects have been completed across

Sandy-impacted areas in Brooklyn, The Bronx, Queens, and Staten Island, including 98 percent of City-managed construction projects, and 92 percent of all construction projects, which also includes homeowner-managed construction. (New York City Housing Recovery, n.d.-b, para 4)

Notwithstanding, this initiative has been the most controversial and contestable of all the programs noted here (Blau & Durkin, 2017; Nonko, 2017; Rizzi, 2016). As a result, not only has Build It Back had impact on people within the communities—both welcomed and resented—but also on the design/planning professionals working on the ground in the rebuilding phase. The way that the program impacted or reshaped professionals' working and thinking was explored closely in the dissertation research itself. Again, the involvement of designers/planners in this work gives rise to the interview discussion about the trade-off that may arise between implementing a program on an urgent basis and yet being sensitive to social and personal consequences for groups who are supposed to be helped.

*Occupy Sandy*. This initiative was an offshoot of Occupy Wall Street but later became a separate grassroots disaster-relief organization to aid communities impacted by Sandy, most particularly areas with large concentrations of subsidized or otherwise affordable housing and more inter-generationally marginalized communities.

Occupy Sandy not only impacted the disaster relief community but also the design/planning community in the post-disaster planning and rebuilding. The movement effectively utilized its social media prowess to respond quickly and sensitively to social needs especially among the most marginalized and vulnerable groups and neighborhoods (Jones, 2013). Not only was Occupy Sandy impressive in its tangible results, but it was able to ensure that its accomplishments were well-publicized as both mainstream and alternative media gave its aid work high profile. Thus, storylines ranged from positive to heroic as seen in this sampling of storylines such as, "Where FEMA fell short, Occupy Sandy was there" (Feuer, 2014), and

"Occupy Sandy: True Heroes in a Time of Crisis" (Farr, 2013). Quickly, the movement

demonstrated its flexibility and agility in comparison to conventional charitable organizations, as

described in *The New Yorker* (MacFarquhar, 2012).

In a wider review of Occupy in the context of more traditional relief institutions, Ogman

(2014) argued,

> Not only did Occupy Sandy outpace traditional relief institutions, they also absorbed a much larger number of volunteers, putting them to work in distribution of donated supplies, cleaning away storm rubbish, removing mold from people's homes, knocking on doors in public housing projects and delivering food and assessing medical requirements of those trapped in their homes because of elevator power outages, and much more. The group had established direct contact with affected populations, and immediately ascertained their needs. (par. 104)

Ogman (2014) further argued that Occupy Sandy used the opportunities created by its

philanthropic work to reconnect to its original mission of opposition, in word and deed, to

neoliberal forces. Their work, he suggested, "strengthened their ties to affected communities and

drove them beyond relief work, back towards protest to get the city, state, and federal

governments to step up their efforts in the relief and reconstruction" (Ogman, 2014, para. 107).

Occupy Sandy brings into focus a central theme in the research: the social equity

dimensions of the storm and of other climate-induced disasters. To what extent, do the responses

of professionals to urban disasters focus on the well-being of the most marginalized and

vulnerable populations—or in contrast, is it "them that has gets" in post-disaster strategies?

Occupy Sandy, clearly was aimed at achieving the former and so, to repeat, brings to the fore the

inescapable dilemma that designers/planners faced as they engaged in recovering from

Sandy—and preparing for its successors.

**Different ways of framing the mission in post-disaster initiatives**. Each of these

post-Sandy initiatives incorporates one or more of the principal ways in which

designers/planners in New York and elsewhere are called upon to respond when large physical

disasters occur. Key words for such initiatives are rebuilding, mitigation, vulnerability, adaptation, and resilience. All of these reflect different, though not always mutually exclusive, future work of design/planning in the face of ever-changing weather and water conditions.

Rebuilding "what used to be" seems the most instinctive response to a major disaster that has destroyed housing and infrastructure. Klaus H. Jacob, who was integrally involved in post-Sandy recovery, uses New York City as a case study:

> Looking closely at the major competing approaches: *defending* against flood and rising waters with massive earthworks and expensive engineered structures; *accommodating* to and living with the rising waters so that the city can recover quickly after flooding; strategically relocating to higher ground; and spreading the risk via insurance. It also examines two other options: doing nothing and stopping the flooding problem at its source. (K. H. Jacob, 2015, p. 1)

Klaus H. Jacob (2015) discusses changing precepts of design/planning work that, he suggests, few are yet thinking about: "Science-based forward-looking, quantitative risk assessment as a sound foundation on which not just to rebuild but to proactively rebuild" (p. 42). K. H. Jacob terms this as "probuild" (p. 42). He evaluates adaptation options in terms of costs and risks that bring added value to a resilient future: "Present affordability needs to be balanced against intergenerational equity, which comes down to the element of risk." (Jacob, 2015, p. 43). I asked the participants in this study, "How are design/planning professionals to inject such measured considerations while they are themselves affected by urgency and recollections of traumatized populations living in stress and denial?"

Johnson and Olshansky's (2016) *After Great Disasters* lays out the agenda reviewing cases from disasters in China, New Zealand, India, Indonesia, Japan, and the United States. Consistent through this work is that cities are complex systems and communities are self-organizing systems. "Communities with a high level of *collective efficacy* [emphasis added] are most likely to recover" (Johnson & Olshansky, 2016, p. 6). Yet within both the system of the

city and community there is a different experience of time that evolves with what one experiences as normal conditions and those that evolve post-disaster. Olshansky, Hopkins and Johnson (2012) refer to this as "time compression" and the impact of that on both speed and deliberation. "A tension that is exhibited between rebuilding quickly and slowing down to develop plans that are for the betterment of the community, with the key being to deliberate more efficiently within compressed time" (Olshansky et al., 2012, p. 11).

While this concept of "slowing it down" was critical to the philosophy of *Rebuild by Design* in New York (see above), it was not as effective when compressed deadlines and slowing down impacted areas that were already under severe economic and social stress and thereby exacerbated by Sandy, particularly in areas of public housing. This is where designers/planners play critical roles with potentially huge impacts by helping the city and the community focus on early actions and separating that out from longer-range plans. They also can play critical roles in communities that while vulnerable, have not been impacted by extreme events, providing time for pre-disaster planning. This can improve post-disaster planning. Johnson and Olshansky (2016) also concluded from their comparative case studies that communities lacking previous post-disaster planning—often because of already being economically disadvantaged areas—were not a priority in recovery efforts. This pattern places a heavy moral burden on designers/planners as they are sure to be faced with more demands than they can meet: so, do they follow or break with patterns of neglect when taking on the immediate work of recovery planning? Who decides and how? Johnson and Olshansky (2016) bluntly asked, "To what extent can they facilitate significant change *from the pre-disaster state*?" (p. 323, emphasis added). This analysis was a part of the discussions with the post-Sandy designers/planners.

Seattle-area planner Karen Wolf (2009) helpfully distinguished between dealing with consequences of climate change versus being prepared in ways that reduce the harm inflicted by such consequences.

> *Mitigation* refers to the actions and strategies to reduce greenhouse gas emissions. Using less and cleaner energy, driving less, and planting trees to sequester carbon are all mitigation strategies. . . . But mitigation alone is not enough. Even if greenhouse gas emissions ceased today, atmospheric carbon concentrations have already reached such levels that global and regional temperatures will still increase to some degree. Because some change is inevitable, *adaptation* strategies must be an equally important component of communities' response to climate change. (pp. 1–2)

> Wolf (2009) suggests that planners are the ones who will be at the centre of adaptation.

> Planners are especially well-suited to lead communities in adaptation because of our experience in working with a variety of stakeholders—citizens, the business community, environmentalists, health professionals—to improve the quality of life for all residents. (p. 2)

Two further concepts to be noted among the guiding ideas and principles to which planners and designers are engaged in relation to disasters are vulnerability and adaption.

*Vulnerability***.** Perhaps beyond the concept of a society's vulnerability lies that of a culture's adaptability. Broadening the discursive framework beyond vulnerability may not only improve the provision and degree of disaster preparedness and relief, but may also help break free from the conceptual constraints that have rendered the world "unsafe" for so many millions for so long. Bankoff (2001) brings to mind how the poor and marginalized of New York and New Orleans have been talked about after hurricane disasters, in warning how narrow discussion of vulnerability stigmatizes Third World areas impacted by climate change, "essentialising and generalising cultural discourse that denigrates large regions of world as disease-ridden, poverty-stricken and disaster-prone" (p. 19).

While vulnerability is an outcome of climate change, it is exacerbated by conditions that long preceded the gravity of the shifting environment. Tanner, Mitchell, Polack, and Guenther

(2009) defined five characteristics that formed the basis of climate vulnerable and resilient urban governance frameworks: decentralization and autonomy, accountability and transparency, responsiveness and flexibility, participation and inclusion, and experience and support. Urban governance is inclusive of elected or appointed officials as well as at a local level with community stakeholders. Planned and autonomous adaptation and the willingness to tackle existing vulnerabilities, is critical to achieving viable solutions across the globe.

Whether countries are successful in realigning their priorities to impede or ultimately reverse the destruction to the planet's environmental integrity and adopt more of the tenets of a sustainable society, cities in both developed and developing countries will depend significantly on designers/planners. They need to have more specific frameworks in place to deal with climate-related events that have either already happened or may have been set into motion without a time stamp of arrival. To accomplish this will take new ways of thinking about frameworks that integrate adaptation, vulnerability and resiliency with leadership that can embody the dignity of place, people, and planet at its core. This research explored the extent to which Hurricane Sandy is changing mind sets of professional practice in this direction.

*Adaptability*. With a global movement toward increasingly more sustainable cities comes an increase in the need for adaptability. This is especially pronounced in the context of extreme climate-related events such as flooding, droughts, and earthquakes. Discussions surrounding adaptability (adaptive capacity) in cities has led to a more extensive lexicon, inclusive of terms that have a variety of meaning in the social sciences: vulnerability and resiliency. In a report for the United Nations Development Program, Schipper, Cigaran, and Hedger (2008) argued that "adaptation is not a 'stand-alone' issue" (p. 32). Adaptation plans need to be part of a larger plan with short, medium, and long-term goals such as disaster management, poverty reduction,

economic development, and land use planning—which brings this discussion to the guiding concept which, in the last several decades, has moved to the center stage of discussions about adapting to climate change.

*The turn to resilience.* The general turn to emphasizing resilience as one of the main guiding principles in coping with climate-induced disasters is seen both in post-Sandy responses and in other urban areas facing climate impactful events. Emergency response management remains an inevitable priority directly after a catastrophic event but there is heightened awareness—especially as the world faces the certainty of more frequent and intense climate-change-induced calamities—that building disaster resilience must not be sacrificed as short-term fixes are pursued. This is a fundamental change in philosophy changing the focus from purely emergency response management teams to disaster resilience, which engages communities to be better prepared and capable of responding to and bouncing back from significant climate-impacting events. Additionally, identifying appropriate baseline indicators for establishing pre-existing vulnerable conditions in relation to disaster resilience takes place before improvements to the resilience of a community can be identified (Cutter, Burton, & Emrich, 2010).

While the term *resilience* is ever-more entrenched in the recovery, design/planning nomenclature, the word has many definitions. It is derived from the Latin word, *resilio*, meaning "to jump back" (Klein, Nicholls, & Thomalla, 2003, p. 35). Probably one of the earliest uses in literature was the study of resilience in psychology, and psychologists ascertained that there was a lack of clarity and unification in the use of this term (De Bruijne, Boin, & Van Eeten, 2010, p. 15). In the early 1970s, the term resilience was closely examined by Holling (1973) and his associates whose primary interest was not in disaster situations but in how disturbed natural

populations' ecosystems return to prior functioning, if not identical equilibrium points, after major perturbations. Holling (1973) defined resilience as, "the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables" (p. 14). It is important to emphasize that in this initial formulation, Holling was not saying that returning to a previous set of relationships was good. As a scientist, he was puzzling over how some natural systems have a better ability to bounce back after disturbance than others do. However, in later writings, value judgements about the desirability of resilience were clear for having human-designed entities like engineering structures and, then having whole social systems *persist*—meaning *survive*—seemed intuitively good (Holling, 2001). This perspective on resilience has become central in the widespread advocacy by social scientists, planners, and others, of adopting strategies that maximize it. In disaster studies and planning, resilience is seen as a means for dealing with "ever-changing patterns and surprises in ecological systems, such as storms, droughts, and over- or under-population—or even the extinction of entire species" (De Bruijne et al., 2010, p. 16).

Since then, resilience has more generally come to be "applied to describe the behavioral responses of communities, institutions and economies" (De Bruijne et al., 2010, p. 21), with the assumption that to persist is better than to change into something entirely different. The concept of resilience has also been used as a concept in organizational and management literature in the context of how to address a challenging and ever-changing business climate and is widely applied to social systems and institutions in general (Maclean, Cuthill, & Ross, 2014).

Most pertinent to this study, the idea—and ideal—of resilience has also powerfully entered the language and goals of design/planning, especially in the wake of disasters. The edited volume, *The Resilient City: How Modern Cities Recover from Disaster* (Vale & Campanella,

2005b), provides a wide array of case studies ranging from the aftermaths of terror in both New York and Oklahoma City (Linenthal, 2005); Berlin (Ladd, 2005), and Beirut (Sarkis, 2005) after the ravages of war; Tangshan in China, after a major earthquake in 1976 (Chen, 2005); and Los Angeles after the 1992 riots following the acquittal of police officers who assaulted Rodney King (Fulton, 2005). Summarizing the "axioms of resilience" as they call the lessons of this wide range of post-disaster experiences, Vale and Campanella (2005a) posit that architecture and urban design are pivotal:

> Rebuilding cities reassures us of a future . . . Architecture and urban design are . . . central to the reconstruction and reimaging of traumatized places. In the effort to shore up the scattered and shattered lives of survivors, post-disaster urbanism operates through a series of symbolic acts. . . . They link the ongoing psychological recovery process to tangible, visible signs of progress and momentum. (p. 344)

Vale and Campanella (2005a) go on to say that even in devastated urban areas, the rebuild has not always led to visionary new plans that correct deficiencies. Johnson and Olshansky (2016) as well as Henk Ovink[9] (principal design consultant to the Rebuild by Design initiative), both have stressed the importance in the rebuilding process to slow the process down. While this is counterintuitive when dealing within a disaster, the space for creating change that is substantive can only happen with a level of active listening and reflection. Rather than rushing in with heroics to save the day, one needs to take pause and understand the problems well enough to be able to create solutions that may mean changes long wished for or never thought of. As expressed by Vale and Campanella (2005a), time and reflection are needed for "the construction of a suitable interpretative framework that enables psychological, emotional, and symbolic recoveries" (p. 340).

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[9] Ovink is also the co-editor of a collection of reflections by the main collaborators in Rebuild by Design (Ovink & Boeijenga, 2018), telling the inside story of politics, human relations, and creativity in *Too Big* (and its challenges), in that major post-Sandy Initiative.

Over time, some voices have arisen that see problems with the hastened ascent of resilience as the main guiding principle for recovery. Increasingly resilience is taken to be the obvious and perhaps literally unquestionable[10] responses to disaster. Mykhnenko (2016) ponders whether or not resilience is "a 'right-winger' ploy" (p. 176), documenting the many sources on both sides of the left-right spectrum who have jumped on this bandwagon. In the end, he concludes (though one could interpret his evidence to support the opposite conclusion) that "analysis does not seem to support the fear expressed by many scholars and commentators of resilience as some sort of a Trojan horse of neoliberals used to advance their causes" (Mykhnenko, 2016, p. 186).

Others are less concerned about possible abuse of the term to reinforce returning the system to its status quo. Simin Davoudi (Davoudi et al., 2012)—a British architect and professor—has worried that the idea of resilience is "in danger of becoming just another buzz word" (p. 299). She asked, "Does its malleability mean that many divergent measures, including those that might otherwise appear indefensible, can be justified in the name of resilience?" (Davoudi et al., 2012, p. 299). In a related paper Davoudi co-authored with urban studies scholar, Libby Porter (Davoudi et al, 2012), resilience's similarity to other "elastic concepts" (p. 329), such as sustainability, is noted with the concern that these are "employed to justify diverse and even conflicting ends . . . empty signifier[s] which can be filled to justify almost any ends" (p. 329). This foreshadows other more critically expressed fears that resilience can go hand in hand with trying to restore the status quo rather than seize upon disasters as opportunities to effect more radical changes in favor of the disadvantaged. Vardy and Smith (2017) suggest that, "Resilience risks becoming code word for 'business as usual' as industrial, military, and political

elites rearrange their operations to acknowledge the reality of climate change while maintaining relations of power" (p. 175). Taking a constructive and positive tack at the possible risks of resilience-seeking as shoring up pre-existing "them that has gets" relations, Cote and Nightingale (2012) call for "resilience approaches . . . needing to engage with the insights and critiques from the social sciences about agency" (p. 484).

This goes to the heart of discussions with design/planning professionals closely addressed in the research. The term resilience while sounding so right on the surface, could bypass or beg the critical question that arises for those most concerned with social equity and the status quo before and after disaster: Are designers/planners unwittingly supporting socially inequitable arrangements, where the "powers that be" continue to dominate, through this concept of resiliency? This was a controversial question during the research, and designers/planners were polarized in their responses.

When disaster strikes, confusion, panic, disorientation, and often finger-pointing follow. Amidst the emergency, people and agencies make forgivable and understandable errors. But it is also well-known that after the casualties are cared for, the dead are grieved, and basic infrastructure is sufficiently restored to allow some semblance of normal daily life and work, authorities still often act without a reasoned approach based on sound design/planning. Politically expedient projects may be launched that turn out to have been more harmful than helpful. Some of the public and private works may even smack of opportunism and greed as when funding is channeled to rebuilding for those who have the greatest means to take care of themselves. This pattern has been described and documented in many settings, most notably in the United States in the aftermath of Katrina which struck New Orleans and breached the levees in late August 2005. Shughart (2006), writing soon after the event, coined a new and derogatory

term—*Katrinanomics*—while nicely highlighting a number of conspicuous failures that made the

infamous disaster even more disastrous:

> Who was to blame for the authorities' evident failure, illustrated most vividly by the chaos at Louisiana's Superdome, to mount a timely, well organized effort to succor the victims of Katrina's wrath? Where was the Red Cross? Where was the Federal Emergency Management Agency (FEMA)? Why were no police or National Guard units in place to prevent the looting and gang violence that erupted in "Baghdad under water," as former Louisiana Senator John Breaux described New Orleans (Gibbs et al., 2005, p. 44), a city which, by 1 September, "was on the verge of anarchy" (Thomas et al., 2005a, p. 47)? Why was the official response to Katrina so "pathetic"? (p. 31)

In the years after Katrina, billions were expended and yet the predicament of victims and

survivors—especially those of color—was repeatedly documented as adding up to a colossally

mismanaged "recovery." Leeson and Sobel (2008), having looked at disaster relief along the

Gulf, concluded that: "Natural disasters create resource windfalls in the states they strike by

triggering federally provided natural-disaster relief. By increasing the benefit of fraudulent

appropriation and creating new opportunities for such theft, disaster-relief windfalls may also

increase corruption" (p. 667). Squires and Hartman (2013b) aptly titled their collection of critical

essays on post-Katrina recovery, *There is No Such Thing as a Natural Disaster: Race*, *Class*, *and*

*Hurricane Katrina*. In their editors' introduction, they list the panoply of post-disaster corruption

that Katrina exposed:

> Credible accusations of dereliction, even financial improprieties, on the part of national sacred cows such as the Red Cross. . . Foreign aid coming to us not from us—and then mishandled . . . A mandating of moratoriums (albeit ephemeral) on mortgage foreclosures and evictions—an intervention in the housing market unheard of since Depression days . . . Absentee voting problems (only partially resolved) on an unprecedented scale . . . Police officers simply walking away from their jobs . . . Incidents of racism/exclusion/NIMBYism . . . [most notably that] police in the Westbank city of Gretna blocked a bridge, preventing large numbers of African American evacuees from escaping the deluged city. (Squires & Hartman, 2013a, pp. 1–2)

The chaos, corruption, and heightened marginalization of already marginalized groups

continue to serve as a warning for those who plan and act in the aftermath of Sandy. And yet,

Cohen and Liboiron (2014) conclude that there were actually two Sandys experienced in the

New York region: "The first was a one-time indiscriminate exceptional catastrophe. The second

was an extraordinary acceleration of inequalities affecting the poorest New Yorkers" (p. 34).

Ways of recovering need to be created that not only rectify the destruction wrought by the

disaster but attend to the special neediness of segments of the population, including going deeper

into the roots of social inequity—this, I repeat, is central to the mission and varied experience of

designers/planners in New York and worldwide, as climate change-induced catastrophes

proliferate. Cohen and Liboiron (2014) sum up well what these professionals and our society

generally must face up to:

> Disasters don't just leave infrastructure in rubble. They also illuminate the moments when our usual forms of intervention fail to address a devastating problem. New systems, communities, and policies must emerge as the old systems are overwhelmed by social and physical change. Within this paradigm, the systemic inequities that Sandy laid bare occurred long before the hurricane hit. (p. 4)

> Similar concerns have steadily emerged from analyses of responses to both Sandy and

Katrina. For example, Liberty (2013), a New Jersey public defender, wrote in "The (In)Equities

of Superstorm Recovery":

> The entire state [New Jersey] was dramatically changed by Hurricane Sandy, and its effects will be long lasting. Like Hurricane Katrina, Sandy exposed many of the inequities deeply ingrained in our society. While disaster recovery projects have not been fully implemented and the final allocation of recovery funds has not yet occurred, the state's action plan is representative of how it prioritizes damage. As indicated above, the state's recovery plan fails to adequately account for the demonstrated relationship between race, poverty, and natural disasters. (para. 36)

> Such insights and a broader critique of conventional public and private response to

disasters have also emerged internationally. As noted above in a report developed for the United

Nations Development Program, Schipper et al. (2008) argued that adaptation plans need to be

part of a larger vision with short, medium, and long-term goals such as disaster management,

poverty reduction, economic development, and land use planning. This must embrace fine-tuning

of policy at the local level so that actions were not static and limited to one event, but rather became part of an ongoing process that evolved over time.

There is of course a strong physical dimension to vulnerability, as certain landforms and community locations are so obviously more prone to negative impacts than others (Cutter, Ash, & Emrich, 2014). Almost as obvious but often overlooked, is that when catastrophes strike within a region or city, some populations are inevitably more at risk and more affected than others. These tend to be ones that have long been socially marginalized on grounds of race, economic status, gender, health, and even age. Children are often much more at risk than adults, all else being equal (see Cutter, 2017). As for gender, Cutter (2017) asserted that the "disadvantages in basic living conditions and livelihoods are amplified during and after disasters and humanitarian crises" (p. 118). Enarson and Pease (1998a) earlier had written of the "gendered terrain of disaster (p. 3)" adding their voice to their edited volume (Enarson & Pease, 1998b), much of which advocated the study of "men and masculinities" (Enarson & Pease, 1998a, p. 3) as a way of grasping the uneven effects of catastrophe on women and men.

The racial dimensions of disaster were nowhere more grotesquely obvious as in the days after the flooding in New Orleans caused by Katrina, as documented in numerous books (e.g., Brunsma, Overfelt, & Picou, 2010; Wailoo, Dowd, & O'Neill, 2010), scholarly articles (Elliott & Pais, 2006; Myers, Slack, & Singelmann, 2008), and in movie documentaries—S. Lee's (2010) *When the Levees Broke*, for example—and TV s dramas such as *Treme* (Incaprera, Simon, & Overmyer, 2010).

Given that the research focused on the effects on and actions of designers/planners in relation to Sandy, a major theme that was looked at were the impacts of the disaster on already-marginalized social groups. My reasoning was that designers/planners have long

wrestled with equity implications of their work (Forester & Krumholz, 1990; Hoch, 1984;

Krumholz, 1982), having had to face up to earlier instances where professional planning had hurt

disadvantaged groups and caused various social inequities (Goodman, 1971; J. Jacobs, 1961;

Krumholz, 1982). Eventually professional associations, such as the American Planning

Association, developed a code of ethics that openly addressed the issue of equity:

> 2) Strive to give citizens (including those who lack formal organization or influence) full, clear and accurate information on planning issues and the opportunity to have a meaningful role in the development of plans and programs;

> 3) Strive to expand choice and opportunity for all persons, r*ecognizing a special responsibility to plan for the needs of disadvantaged groups and persons* [emphasis added]; (American Planning Association & American Institute of Certified Planners, 1992, p. 2)

> Our society requires a fundamental change in their collective moral compass where

inclusion, respect and dignity are interconnected. Physician Lise Van Susteren (2017) believes

that the chronic threat of climate change and its attendant catastrophes is making citizens

become,

> climate Cassandras gripped by thoughts of future harm, suffering from pre-traumatic stress response (a before-the-fact version of classic PTSD) because they know the world has not heard the warnings forcefully enough . . . Our canon of ethics says we have a duty to protect the public health and to participate in activities that contribute to it. (p. 57)

> This canon of ethics applies no less to designers/planners who must create ways not just

to solve the technically obstinate challenges of adapting to climate change but meet the public's

need for understanding and involvement that converts disabling stress into collective action. This

duty may resemble what Heifetz (1994) wrote of as adaptive work, a concept examined in

relationship to the question of leadership in the context of the interviews.

**Professionals in Challenging Times**

The impacts of designing and planning amidst (and after) disaster. The preceding

discussion has included a substantial amount of research and writing about the impacts of climate

change-induced disasters, with much of the attention on regions, cities, neighborhoods, and on

people who are especially vulnerable because of pre-disaster marginalization. Here, the literature

on the impacts experienced by the very people who play critical roles in responding to disasters

was explored. The most obvious question, dealt with first, is about how being in the thick of

highly stressful emergency situations impacts professionals as individuals. This analysis is the

personal "pillar," using the idea introduced in Chapter I of three distinguishable aspects of

understanding the work and perspectives of practitioners: personal, professional, and societal.

Understandably, the preponderance of research on such individual-level impacts and

responses to disasters has been first with civilian victims and then about groups known as first

responders: police, firemen, paramedical emergency workers, nurses, doctors, etc. It is intuitive

that these professionals, exposed as they are to scenes of carnage, amidst broken streets,

transportation and electricity infrastructure, and buildings, are likely to suffer from immediate

and post-traumatic psychological impacts. Mitchell and Dyregrov (1993) reviewed the state of

research into traumatic stress among disaster workers and emergency responders, and their call

for significantly greater attention to the plight of such personnel was met by a steady if not

voluminous array of research and publications. After the attack on the World Trade Center and

the prominent and admirable role of police, firemen, and other emergency personnel, more

research ensued (e.g., Adams, Boscarino, & Galea, 2006; Perrin et al., 2007).

Subsequent studies of mental well-being of emergency responders are insufficient (Surya,

Jaff, Stilwell, & Schubert, 2017), yet in comparison, there is virtually no work probing the

psychosocial impacts on designers/planners. It may be assumed that, unless such professionals were accidentally caught up in blatantly traumatic incidents during or immediately after a storm, that they are unlikely to suffer from anything close to PTSD or other mental distress. However, such professionals do not go untouched. Their work calls for repeated one-on-one and collective interactions in meetings with victims of disaster. Such victims are unlikely to be calm discussants of the plight of post-disaster conditions. Steady exposure to truly touching stories of loss and grief can lead to what has been called "compassion fatigue" (Figley, 2013, book title), "secondary traumatic stress," (Baird & Kracen, 2006, p. 181) or "vicarious traumatization" (Baird & Kracen, 2006, p. 181). This idea has been applied in the context of several major climate-change related disasters including "Katrina fatigue." This term was originally coined by disaster relief providers in Colorado who found that after a period of months, there developed an "inability of Coloradoans to empathize with the evacuees" (Peek, 2012, p. 35). It has since been more widely applied to others who continue to work on post-Katrina rebuilding and adaptation. Over time, many fell back into racial and economic stereotypes and began to experience what had initially appeared as a temporary interruption to their lives, as a burden that grew into exhaustion. It is to be noted that many of the professionals engaged in this research study were engaged with Sandy, as well as with Katrina and some of the more recent hurricanes previously noted, and may therefore be subject to similar feelings as their professional work unfolds amidst traumatized individuals.

There have been several usages of "Sandy fatigue" as well. Katinas (2014) wrote "Superstorm Sandy helpers suffer from 'compassion fatigue'" that "now it's the helpers who need help" (para. 1). Widespread among nurses and social workers, it is reasonable to

presume—and investigate—whether designer/planners deeply involved in the aftermath of Sandy could manifest the symptoms of such disorders.

Exploring this and more broadly what the often-subtle impacts have been of working in this setting will be, I believe, a significant and new contribution to understanding how professionals are to cope with a future of more climate change-induced events.

Cote (2011) observed,

Physical urban planning is typically based on historic data, which include avoiding past incidences of natural phenomena such as flooding and beach erosion. However, there is little precedent in urban planning policy that incorporates scientific prediction into decision making processes with respect to physical form of a community and legal issues that may exist between climate science and law and how that would impact the role of design/planning professionals. (p. 87)

Secondary traumatic stress and secondary traumatic stress disorder, which is also referred to as "compassion stress fatigue" (Figley, 2002), has not to date been studied in any depth within the design/planning profession. This is understandable given the fact that while trauma workers typically include mental health professionals, victims' advocates, caseworkers, firefighters, law enforcement, paramedics/EMTs, emergency room physicians and staff, there have been widespread studies about this in medical, social science, psychological literature (e.g., Beaton, Murphy, Johnson, Pike, & Corneil, 1998; Castellano & Plionis, 2006; Knafo, 2004), little of any depth has yet been studied among design/planning professionals immersed in disaster situations. This is completely understandable as they are not what are usually deemed to be crisis workers. Therefore, what I have learned has been primarily through the personal stories of these design/planning professionals. And while shared informal stories among professionals are a rich and important source of learning, without more systematic efforts, such tutelage is therefore hit and miss.

***Research on design/planning practice***. Limited but intense efforts have been made to analyze design and planning practice, with a focus on how professionals reflect upon their own work. At the general level (i.e., outside the context of disasters), a well-known approach that has produced a contribution to the literature outside design/planning fields is Schön's (1983) notion of reflective practice. He based this on the observation that most of the time, professionals are taking on problems that have no formulas for ready solution and that unfold in contexts of ever-increasing complexity, uncertainty, instability, uniqueness, and value conflicts" (Schön, 1983, p. 14). In his seminal work, *The Reflective Practitioner*, Schön developed a model intended for understanding and educating practitioners of many kinds. Interestingly the chapters that at least initially inspired the most commentary were about designers ("Design as a Reflective Conversation with the Situation") and planners ("Town Planning: Limits to Reflection in Action").

Subsequently, there have been a number of critiques and elaborations on Schön's way of looking at both designers'/planners' modalities of action (Roozenburg & Dorst, 1998; Visser, 2010). While the basic concept of reflection-in-action is still seen as worthwhile, there is a sense that Schön did not draw on a sufficient breadth of cases to infer how design/planning work. Nor did he look at practitioners in the midst of truly complex and stressful situations. Yet, such contexts are the very least that designers/planners face amidst climate change-induced disasters.

A small step towards analyzing design practice in relation to climate change has been made by Dubois et al. (2016). In a study conducted in Toulouse, France, they engaged in two design workshops based on the role architects, urban designers, planners, and engineers would play in climate change. The authors concluded that the response to these issues may have resulted in efficient solutions, but it did not often go far enough, and that by providing more

holistic and operational information, in essence bridging climate research and practice, more could be accomplished. Similar issues were raised during the design process after Sandy, resulting in conventional approaches being expanded and transformed to meet the demands of the situation. Although quite general, MIT Planning Professor Lawrence Susskind's lecture at the University of Idaho Law School, "Managing Climate Risks in Resilient Cities" (University of Utah S. J. Quinney College of Law, 2016), indicates how planning educators have begun to anticipate how the profession must itself adapt to what is needed in the face of global warming.

There is also a small but growing literature specifically about the role that planners can and must play in the aftermath of major catastrophes. At the height of the Reagan-era escalation of fears of nuclear war, Leaning and Keyes (1984) compiled *The Counterfeit Ark*. Its primary purpose was to rebut the then-prevalent notion among governments that planners (with many other professionals) could successfully lead in the adjustments to nuclear holocausts. Many of the insights on the limits of design/planning in extreme circumstances may serve as a caution for contemporary planners and designers facing events like Hurricane Sandy. March and Kornakova's (2017) *Urban Planning for Disaster Recovery* illustrates the growing awareness of planners' roles and responsibilities in disaster settings. Of special interest to me is the emergent discussion and practice of what in Japan is called *Machi-zukuri* (community-based planning), which Evans (2002) has described in the district at Kobe after an earthquake. There, planners shifted away from the traditional establishment view that planning is a technical endeavor to be practiced top-down. This literature review and the post Sandy experience indicate that different community-driven planning must be the modus operandi of designers/planners confronting increasingly frequent and intense climate-change-induced disasters.

It must be emphasized that the recent and growing literature about designer/planners and climate change/disaster planning is primarily about what these professionals do—and should do—in their practice. None really address the issues central to this study: how being part of such traumatic and unprecedented events impacts designers/planners. This points to a significant gap and need which the work redressed.

***Research on design/planning leadership in changeable and uncertain settings.*** As perspectives of my interviewees were gathered and analyzed, an important framework for understanding their roles and strategies can be found within normative literature on leadership: How does one lead in contexts of massive uncertainty, complexity, and even trauma? Through these interviews, some key insights into leadership studies were highlighted, as was how leadership or lack thereof impacted not just planning and recovery but the justification for advancing the climate conversation.

Throughout history, leaders have often felt that they are living in unprecedented times of change and uncertainty. Yet, its seems to be the case that everything at this time is changing at an accelerated and disorienting pace for which no one is fully prepared. Climate-impactful events are so much of this rapid change.

In the context of events specifically surrounding earth changes, what type of leadership is needed that will support designers/planners working in service to individuals and communities facing an uncertain future? While, the research shows that pressure exists on designers/planners to help people return to what was lost, that may be neither possible nor prudent; then the bigger question becomes how to live with uncertainty. To that end, the research looked to the work of peacemakers to deepen that understanding.

***Research on peacekeepers and others whose work takes place amidst trauma.*** As with the leadership literature, my findings with designers/planners working in the aftermath of Sandy bear some useful parallels to others who work professionally and in the long term within traumatic settings. While some similarities can be found among healthcare professionals, the work of peacekeepers seems to broadly parallel the practitioners focused upon in this work. Unlike first responders at disasters, peacekeepers need to work away steadily and amidst stakeholders who are by definition in extreme circumstances. While peacekeepers explicitly struggle with parties who are deeply divided, implicitly, designers/planners also work among constituencies who may work at cross purposes or turn on each other over matters small and large. In light of what has been said in this chapter about the often inequitable and deeply resented impacts on already marginalized populations, it is understandable that metaphors of war arise in disasters' aftermaths. Katrina was described as a "war zone" frequently by those who witnessed or experienced the violent environment that prevailed long after the floods subsided. Kramer's (2016) article in *Slate* simply titled "Desert, storm," describes the reactions of several veterans of the Iraq War who, shortly after returning to the United States ended up in New Orleans during and just after Katrina struck. Similar parallels can be drawn in the aftermath of Hurricane Maria in Puerto Rico. To that end, many of the challenges and lessons from either field can be applicable to both.

The exact way that understanding about the work and difficulties of peacekeepers can shed light on what post-Sandy designers/planners do, is reflected in the analysis of data on their experiences. However, I have already benefited in my overall thinking about the work of post-Sandy designers/planners from the writings of John Paul Lederach (2003; Lederach & Moomaw-Jenner, 2002). It is intriguing that one of his books reverses the metaphor in describing

peacekeeping's journey: *Into the Eye of the Storm: A Handbook of International Peacekeeping* (Lederach & Moomaw-Jenner, 2002). Lederach and Moomaw-Jenner's (2002) reflections in the context of a conflict resolution workshop, are similar to questions designers/planners in this study raised post-Sandy.

> How do I know if this is the right thing to be doing at this time in this context? Will this be like parachuting into a place with quick answers and then leaving, or is this the start of something that could be truly important and make a difference in the long haul? (p. xiii)

Kevin Avruch (2002) a professor of anthropology at George Mason University, made two critical points for peacekeeping practice and leadership that are closely aligned to what design/planning practitioners need to be growingly aware of in post-disaster leadership: "First, reflect on your own biases and cultural biases particularly as they relate to your professional work and the approaches you use. Second, become inquisitive about the way people make sense of things (p. 75).

Being in the aftermath of a disaster, whether design/planning professionals or peacekeepers, requires leadership that can attain access to issues unfolding with accuracy and be agile enough to take decisive action while making informed decisions. This is challenging when things are developing at a fast pace in real time. It requires agility and the ability to "match the complexity of the situation by behaving with the set of behaviors necessary to meet the group's needs" (Northouse, 2007, p. 209). McGrath (as cited in Hackman, Walton, & Goodman, 1986) outlined the critical leadership functions of group effectiveness, taking into account the analysis of the situation both internally and externally and whether this required phased or immediate action (Northouse, 2007, p. 211).

**Final Thoughts on the Literature Review**

In the beginning of this chapter, I spoke of the challenges of reviewing a vast array of literature within the often-upsetting context of Sandy and climate change. Challenging because I

had lived through the experience and then worked on the recovery, but also because I knew that the topic itself was complex: difficult to see both "parts and whole" in some presentable pattern. I have come to see how much there is to understand by way of background and yet how superficial and selective one needs to be to cover even a partial array of these crucial issues. I felt that the writing of this chapter was more discovery than authoritative exposition and that what emerged most compellingly was the dilemma that professionals cannot escape. It is that the issues are so urgent for designers/planners, yet so wrought with high emotion and social trauma. In particular, I have seen how the discussion came back again and again to the inequities experienced by marginalized groups and the need for design/planning to be ever mindful of that. There were other questions that asked the design/planning practitioners about how Sandy has impacted them, but none, I observed, that were so challenging and so important.

**Chapter III: Methodology and Research Procedures**

This study provides a significant contribution to understanding professionals who are not, by the very nature of their work, trained to deal with disaster and trauma. With the greater frequency of these climate impactful events, design/planning professionals need to address these challenges in the long-term, not unlike people who work in medical or first-responder roles after a disaster. This study draws particular parallels to peacekeepers in areas of conflict where issues around rebuilding in traumatized communities take their toll not just on the people who have experienced the loss but those who are helping to facilitate the rebuilding and reclamation process.

Many studies address how professional designers/planners impact their work situations but there is a lack of research about how they (as individuals and as professionals) are impacted by their engagements in high stress situations. To use a phrase that has become common in phenomenological qualitative research, what are their "lived experiences? (e.g., Van Manen, 1990).

The findings from this study will at the very least open a conversation essential to knowing the issues designers/planners have amidst tumultuous and traumatic contexts. At best it will help to develop a shared strategy with other design/planning practitioners locally, nationally, and internationally, of how to accommodate these challenges in the face of transformed roles as climate change continues and intensifies. This objective is in close alignment with the goals of qualitative researchers who, by inductively gathering their data, are "interested in (1) how people interpret and construct their experiences, (2) how they construct their worlds, and (3) what meaning they attribute to their experiences" (Merriam & Tisdell, 2016, p. 24). Therefore, a qualitative approach of collecting data through interviews, observations, and documents, rather

than taking a more quantitative deductive approach derived through surveys and questionnaires, was the basis of developing a well-defined strategy of inquiry to this study, one that gives meaning and structure to the research.

**Qualitative Research Designs**

There are a number of potential qualitative research designs as described by Merriam (2008). Figure 3.1 is her depiction of the choices among qualitative research studies.
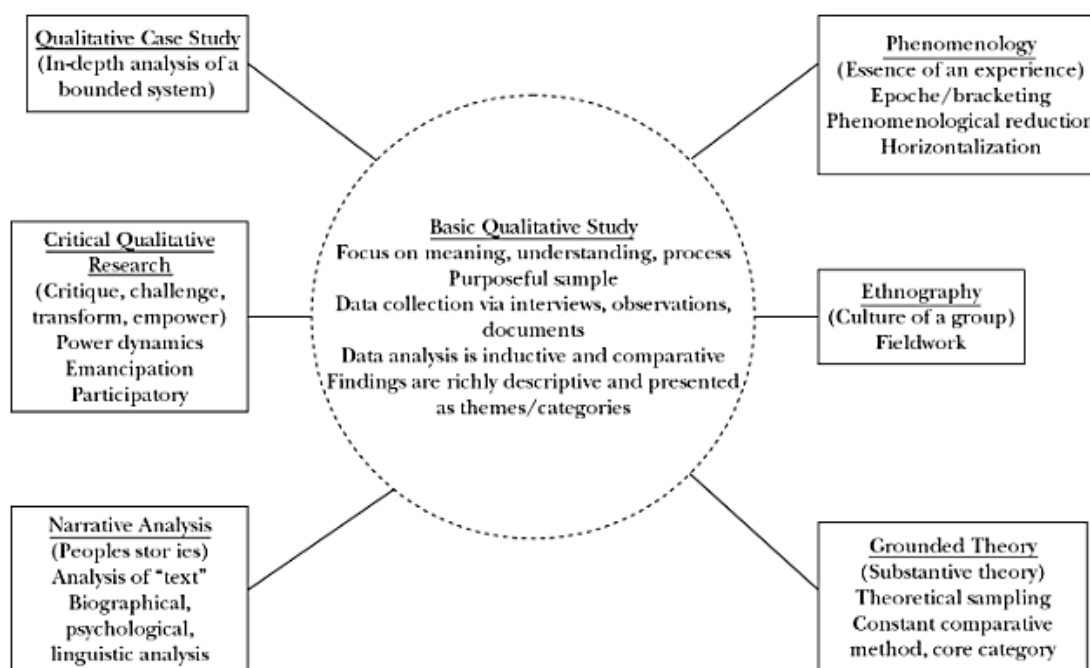


*Figure 3.1.* Types of qualitative research. From *Qualitative Research: A Guide to Design and Implementation* by S. B. Merriam, 2008, p. 37. Copyright 2008 John Wiley & Sons. Used with permission.

Additionally, qualitative researchers can to an extent draw eclectically on these approaches, choosing aspects of two or more of those Merriam (2008) diagrammed, according to how the situation "talks back." A case study was employed with the primary but not sole data source being the narratives or stories of design/planning professionals closely engaged in post-Sandy. I used narrative methods to generate a significant part of the data but also turned to the archives of writings about Sandy found in the media, in libraries, and as much as became

feasible, the files of centrally involved institutions, such as NOAA, Municipal Art Society, Sandy Storyline, GOSR, and the New York City Mayor's Office. Thus, development of the stories of designers/planners are complemented by archival and documentary research followed by close reading of materials as described below.

In the following sections, I begin with a detailed discussion of the case study method, noting its value and limitations. I then turn to the principal data source I used, namely the stories of the lived experiences of design/planning professionals, describing the pros and cons of narrative-based research. The discussion then altered briefly to the complementary use of documentary materials. It should be noted that in working on this research, the documentary analysis preceded interviewing as going through written records assisted in identifying potential interviewees: Any media coverage of the post-Sandy initiatives quoted those who were centrally involved and who could be strong potential participants or, at least, were good first contacts in identifying participants.

**The Case Study Method**

A case study, according to Orum, Feagin, and Sjoberg (1991) is "an in-depth, multifaceted investigation, using qualitative research methods, of a single social phenomenon. The study is conducted in great detail and often relies on several data sources" (p. 2). They add that, while this definition is broad,

> there is further supposition that certain kinds of data collection procedures will be employed, procedures that will permit the investigator to examine the phenomenon in great depth and detail . . . usually termed qualitative methods and are contrasted with quantitative methods. (Orum et al., 1991, p. 2)

From the perspective of one of the most prominent advocates and formulators of case study research, "it is most often under complex social phenomena that focuses on a 'case' with a real-world perspective and is most often found in the social science and practicing professions

(Yin, 2014, pp. 4–5). For example, in law, in psychiatry, urban design, and, as made famous by the teaching approach at the Harvard Business School, preparing descriptions of cases is a fundamental activity central to human learning and creativity (Christensen, 1987; Flyvbjerg, 2006).

The research case study has been defined at length in what is probably by far the most cited text on using this approach. Yin's (2014) detailed twofold definition of the case study is as follows: "A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (p. 16). Yin (2014) goes on to further describe characteristics he feels constitute the research case study:

> The case study inquiry,
> • copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result;
> • relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result;
> • benefits from the prior development of theoretical propositions to guide data collection and analysis. (p. 17)

Admirable in its breadth, this widely cited definition does not really set much in the way of clear boundaries on what is (and is not) a case study. For example, although the approach "benefits" from pre-existing theoretical propositions, a theoretical grounding to the study is not essential. Including a term such as "contemporary" also invites controversy and dissension, because there is no way of telling just how far back one can go and still be contemporary.

**The value of case studies.** A paradox one soon sees in examining the case study method is that it is used widely and yet spoken of just as commonly with qualifications, even by researchers who use it. Researchers are quick to apologize for what the method *cannot* do compared to the rigorous experimental designs and quantitative research favored in natural

sciences. For example, in a paper whose title advances the case study as leading potentially to "intellectually ambitious inquiry" (Barzelay, 1993, p. 305), it is noted that: "In the canons of social science research, the single case study . . . is ordinarily judged to be lacking in rigor, comparability, and replicability" (p. 305). Yin, probably the best-known proponent of research case studies wrote "'The Case Study Crisis' (1981) many years ago and, three decades later was still lamenting that although the case study is a distinctive form of empirical inquiry, for many researchers it is not their first method of choice" (2014, p. 19).

Gerring (2007) commented, "Practitioners continue to ply their trade but have difficulty articulating what it is that they are doing, methodologically speaking. The case study survives in a curious methodological limbo" (p. 7). For others, such as D. T. Campbell and Stanley (1966), the case study was seen as going way below limbo into a kind of much-deserved eternal damnation:

> Such studies have such a total absence of control as to be of almost no scientific value . . . It seems well-nigh unethical at the present time to allow, as theses or dissertations in education, case studies of this nature. (pp. 6–7)

But, as Flyvbjerg (2006) pointed out, over time Campbell "made a 180-degree turn in his views of the case study and has become one of the strongest proponents of this methods" (p. 391). Heugens and Mol (2005), describing the change in Campbell's attitude towards research case studies, touched on important strengths of the approach:

> At the core of his [Campbell's] conversion lies the insight that even single-case studies are never $N = 1$ snapshots of an unchanging reality. Case studies are genuine empirical endeavors in that they always explore covariation between purported causes and hypothesized effects, sometimes by dividing a sampled case up in subunits, at other times by comparing formal units (the person, group, or organization of which the researcher has in-depth knowledge) with informal units (all other units that are brought into the analysis in a more peripheral way). (p. 118)

Flyvbjerg's (2006) article, which addressed "five misunderstandings about case-study research" (the article title) also lays out the main value of doing case studies. He argued that to

really grasp social phenomena context-rich accounts are essential, in contrast to purely

theoretical works. Flyvbjerg first became interested in case study research for an urban design

project. He turned to Karl Popper's famous formulations about "black swans" to make the case

for the case study. Flyvbjerg (2006) noted Popper observations:

> "All swans are white," and proposed that just one observation of a single black swan would falsify this proposition and, in this way, have general significance and stimulate further investigations and theory-building. *The case study is well suited for identifying "black swans" because of its in-depth approach* [emphasis added]*:* what appears to be "white" often turns out on closer examination to be "black." (p. 228)

Flyvbjerg went on to say that his experience of identifying black swans was something he

became very familiar with during this own in-depth urban politics and planning case study, about

which he noted:

> One can often generalize on the basis of a single case, and the case study may be central to scientific development via generalization as supplement or alternative to other methods. But formal generalization is overvalued as a source of scientific development, whereas "the force of example" is underestimated. (Flyvbjerg, 2006, p. 228)

Looking at this in regard to the study, the complex multi-dimensional setting of the

massive New York metropolitan area during and after Hurricane Sandy, makes looking at the

storm's impact on design/planning professionals something of a black swan. Many were the

observers who in one way or another commented on the unprecedented nature and impact of

Sandy. For example, the week after the storm *Scientific American* (2012) titled a "Special

Report" comprising several separate articles, "Hurricane Sandy: An Unprecedented Disaster"

Even the harshest critics of case study methods will admit that the approach has exploratory

value: getting first acquainted with the broad strokes of a complex situation and not

underestimating the force of example.

An added advantage of approaching this as a single case study is that this "method" is in

fact not just a single formulaic methodology but an opportunity to use, as Yin pointed out,

"multiple sources of evidence" (p. 101). Along the same lines, Stake (2006), argued that utilizing a case study, leaves open the use of a broad range of methods:

> Case study is not a methodological choice but a choice of what is to be studied . . . By whatever methods we choose to study *the case*. We could study it analytically or holistically, entirely by repeated measures or hermeneutically, organically, or culturally, and by mixed methods—but we concentrate, at least for the time being, on the case. (p. 443)

Additionally, what makes this study a case is that it is bounded, with the study focused on one event, Hurricane Sandy and on a specific community of professionals—designers/planners. Within this in-depth bounded system other types of qualitative or quantitative research can be built into the case study, such as narrative inquiry, presenting individual stories as part of the case.

This study relied on a mixed approach—not in the now common notion of doing quantitative and qualitative work together, known as "mixed methods" (see for example Teddlie & Tashakkori, 2009)—but relying on in-depth biographical or life history style interviewing, with thorough document analysis, relying on written and media accounts to combine with what participating design-planning professionals related. What follows is a description of key aspects of these methods, within the case study research.

**An embedded single case study.** Yin (2014) describes in great detail the primary characteristics of a single case study design with specific circumstances and five rationales:

- Critical—"representing the critical test of a significant theory" (p. 52);

- Unusual—"represents an extreme/unusual case deviating from theoretical norms of everyday occurrences" (p. 52);

- Common—"capturing the circumstances or conditions of an everyday situation" (p. 52);

- Revelatory—"analyzing a phenomenon previous inaccessible to social science inquiry" (p. 52);

- Longitudinal—studying the same single case at two or more different points in time.

Yin (2014) went on from his explanation and rationales for single case studies to speak of "embedded case study design" as opposed to "holistic" ones (pp. 41–42). The former describes cases where there are distinctive subunits that can be and are used for some internal comparison while holistic, for Yin, is where there is a single unit of analysis.

For the purposes of this study a single embedded case study was used. Each of the five post-Sandy initiatives mentioned previously in Chapter II, are a "unit of analysis." These specific units of analysis, the macro-, meso-, and micro-level are distinguished for this study as follows:

*Macro*: Contextual Forces: Hurricane Sandy

*Meso*: Five different initiatives: connections to designers/planners; information rich

*Micro*: Designers/planners' interviews and focus group.

The application to this classification to this dissertation is portrayed in Figure 3.2. In planning this analysis, a revelatory case study was another alternative but upon further review, it is already implied by the very nature of a dissertation, that the research would need to be revelatory and not previously studied. In an exploratory embedded case study, while structured or focused interviews are employed, this design allowed for an array of samplings that can be embedded into the case.
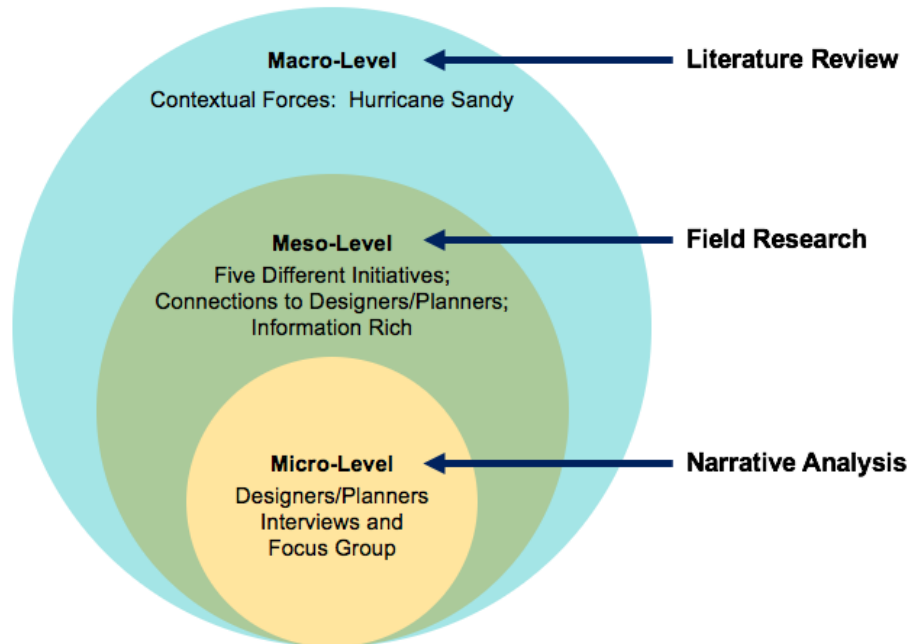
*Figure 3.2.* Research design levels of analysis.

**Designing the case study.** Yin (2014) identified five components of research design that he states as critical in order to avoid not addressing the research questions in a case study:

- A case study's questions;

- Its propositions, if any;

- Its unit(s) of analysis:

- The logic linking the data to the propositions;

- The criteria for interpreting the findings. (p. 29)

The study's question was stated in terms of "who," "what," "where," "how," and "why," with the unit of analysis describing what the case is, which could be groups, organizations or countries. For this study, the primary research question was: In what ways did post-Hurricane Sandy experiences impact the design/planning professionals' approach to future climate-related events personally (individually), professionally, and societally? This raises the question of how working on Sandy affected designer/planners' understanding of their work and

lives more generally. Have they been wounded and/or transformed by immersion in a context that is rife with suffering and uncertainty? And, as a result developed, a fuller yet more nuanced appreciation for their role in terms of the three pillars that was introduced in Chapter I: personally, professionally, societally.

## Methodological Approach
### Three Pillar Framework

**Sandy's Impact on Designers/Planners**

**Personal**

Self/Individual Psycho-social challenges, empathy/ stress

**Professional**

Impact to professional practice, reflection on strategies, post-Sandy impact on future events

**Societal**

Local and Global Impacts, Leadership
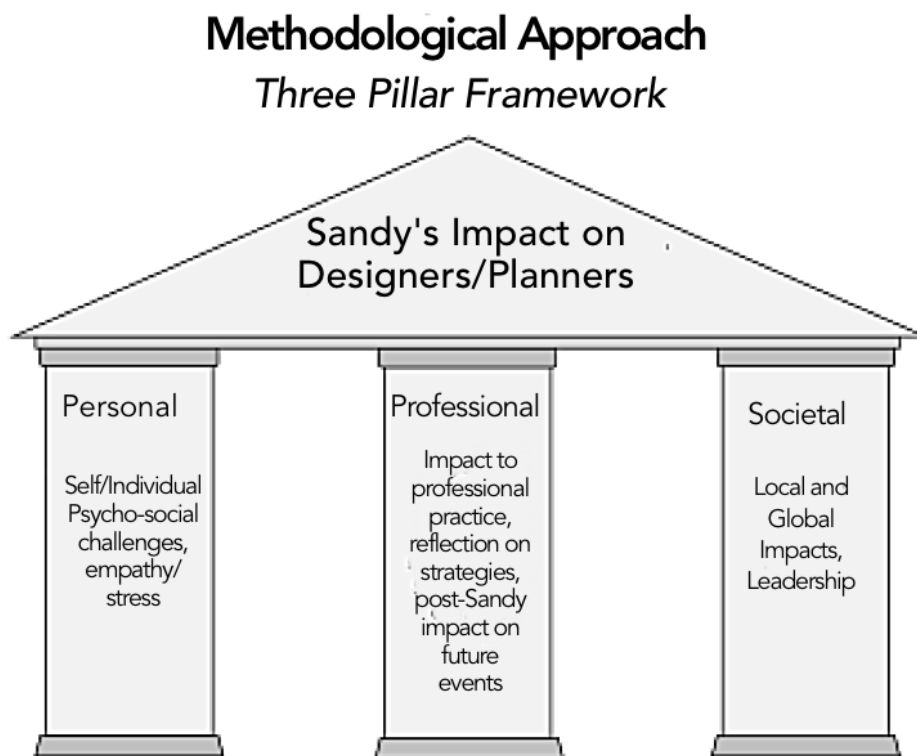
*Figure 3.3.* Three pillars used as the framework for understanding the impacts on and strategies developed for post-Sandy challenges by designers/planners.

Of the 28 professionals interviewed, 20 participants in this study, were significantly involved in one or more of the initiatives outlined in Chapter I, which were:

- NYC Special Initiative for Rebuilding and Resiliency (SIRR)

- HUD's Rebuild by Design

- New York Rising/Buy It Back (New York State initiative)

- Build It Back (a New York City initiative)

- Occupy Sandy (a grassroots initiative that overlapped with a number of these programs)

As seen in Chapter II, there is no great abundance of research on how designers/planners (as individuals and as professionals) are being impacted at the personal, professional, and societal level by their engagement in post-disaster design/planning. Therefore, one of the objectives of this research was to provide a significant contribution to an area of professionals that are not, by the very nature of their work, trained to deal with settings of disaster and trauma. Since we knew little about the actual impact to date, I concluded that the use of narrative inquiry for this study was the best means for understanding the individual's experience as a means of developing research on this subject (Clandinin & Connelly, 2000). Therefore, while narrative inquiry was a major data source, it was nested within the larger methodological frame of the single case study. This approach added another level of authority since case study research design principles lend themselves to including numerous strategies that promote data credibility or truth value. Triangulation of data sources, data types or researchers is a primary strategy that can be used and would support the principle in case study research that the phenomena be viewed and explored from multiple perspectives (Baxter & Jack, 2008, p. 556).

**The Rise of Narrative Research**

The idea that story is, in fact, how we structure our lives (Bruner, 1987; Eakin, 2008, Randall, 1995) is related to the fact that stories surface individual meanings which is different than what a researcher can infer from structured surveys. Stories blend understanding of a person with social phenomena (like the impact of a cataclysmic event) that are often what the researcher really wants to understand better. "Personal narratives thus reveal not only much about the

narrating self but provide a small window into the engines of history and historical change, as we both shape and are shaped by the events of our day" (Andrews, 2007, p. 51).

While most academic work continues to be non-narrative and based upon quantitative data, Clandinin (2007) comments that there has been "a veritable explosion of narrative inquiry across disciplines" (p. ix), which more generally has frequently been referred to as the "narrative turn" (Czarniawska, 2004; Glover, 2003).

Pinnegar and Daynes (2007) define this in the context of four different turns toward narrative:

- "Narrative Turn 1: Relationship of researcher and researched" (p. 9)—a change in the relationship between the person conducting the research and the person participating as the subject (the relationship between the researcher and the researched

- "Narrative Turn 2: From Numbers to Words as Data" (p. 15)

- "Narrative Turn 3: From the General to the Particular…a move from generalizability" (p. 2)

- "Narrative Turn 4: Blurring Knowing" (p. 25)—a widening in acceptance of alternative epistemologies or ways of knowing.

For researchers, these are all turns based on a commonality of research, focused on language used within the social science and the lived experience. Narrative inquiry is not a new practice. John Dewey (1930, 1934/2005), one of the foremost early influencers of narrative inquiry, wrote extensively about the nature of experience, and the way in which an individual's personal voices are most often spoken in relationship to a community or within a particular social context, that is, a personal, social, and physical environment. As Clandinin and Connelly (2000) interpreted this, we are always in a continuum of moving "back and forth between the

personal and the social, simultaneously thinking about the past, present and future, and to do so

in ever-expanding social milieus" (pp. 2–3). This mirrors the three pillars structures of strategy

that was employed to deepen understanding of practitioners reflecting through narrative inquiry,

and to see if what they experienced post-Sandy was attributable to that one event and/or if, in

fact, that one event has had ongoing impact that is shaping a different kind of reality.

Anthropologist, Mary Catherine Bateson's work *Peripheral Visions: Learning Along the Way* (1994) is a compelling example of narrative inquiry with resonance to the use of it for this

study. In this reflective interpretation of her life, and using narrative as a form of inquiry, the

world is about change. Clandinin and Connelly (2000) described Bateson's perspective:

"Everything is changing—the phenomena, the discipline, the agent, the methods, and the

outcomes . . . It is narrative that allows Bateson as an anthropologist to learn, narrative that

allows all of us to learn" (p. 8).

The initial exploration of the literature on narrative inquiry surfaces significant

differences in how experienced researchers bound the field. Clandinin's (2007) edited collection

on narrative inquiry is subtitled "mapping a methodology" because, rather than trying to resolve

the many different takes on narrative inquiry, she sees demarcating the "landscape of narrative

inquiry" (Clandinin & Rosiek, 2007, p. 35) as the appropriate task in delineating the field. What

she and other narrative inquirers appear to share is the idea, as noted above, of simultaneity and

interactively exploring the personal and the social level. This is well summed up by Pinnegar and

Daynes (2007): "In essence, narrative inquiry involves the reconstruction of a person's

experience in relationship both to the other and to a social milieu" (p. 5).

One of the leading approaches that aims for the same dual exploration of the personal and

the societal is referred to variously as biographical or life history studies. Both can be conflated

with other literary work, such as doing what are widely called biographies of famous people, which, unlike narrative inquiry, are not usually primarily interested in social phenomena of how the life described speaks to broader issues. Use of that term and life history may be understandably perceived by those outside the field as describing entire life journeys and not being equally or more interested in social phenomena (such as is the case here, the impacts of events like Sandy on professions and professional individuals).

Nonetheless, as practiced by scholars like Dan Bar-On (2006) and Molly Andrews (2007)—whose work is more fully described below—life history interviewing, and analysis are more focused on broad, often challenging societal events, than on the specifics of particular individuals' experiences.

Dan Bar-On's work demonstrates how storytelling can be used to work through intergenerational intractable conflicts. While the focus of this study is one specific event, which to date now spans close to eight years, the way in which he demonstrates data systematically through the use of storytelling as a mode of narrative inquiry has particular relevance. Bar-On developed theoretical constructs through the analysis of the interviewees that created a bridge between the events, the people impacted directly by them and those brought in to help with recovery. Bar-On (2006) went on to say,

> While in many quantitative studies hypotheses derive from existing theoretical structures and are confirmed or contradicted as the data is generated, the process here is an explorative one. The data is generated in order to develop new, yet-unknown theoretical constructs. This does not mean that there are no theoretical explanations or thoughts that apply to a given situation. But this method requires putting them aside at least until after the newly generated data is analyzed, in order to see if other, unexpected theoretical explanations can work. (p. 27)

This approach can be particularly useful when analyzing the experiences of the interviewees through the lens of the three pillars.

Similarly, Molly Andrews (2007), focused on the "relationship between the stories people tell about their lives, and the political frameworks which form the context for these stories" (p. 2). For her, stories over time take on different meanings particularly as is the case for this study, as more and more design/planning professionals begin to take on similar roles within other environmentally impacted communities.

Once the interview process begins, a greater understanding is developed that clarifies which among these various perspectives is most relevant. That reveals itself when the interviewer has the lived experience of working with the respondents. For now, the flexible boundaries evident in Connelly and Clandinin's (1990) *Stories of Experience and Narrative Inquiry*, was employed:

> Narrative inquiry in the social sciences is a form of empirical narrative in which empirical data is central to the work. The inevitable interpretation that occurs, something which is embedded even in the data collection process, does not make narrative into fiction even though the language of narrative inquiry is heavily laced with terms derived from literary criticism of fiction. A number of different methods of data collection are possible as the researcher and practitioner work together in a collaborative relationship. . . . The sense of the whole is built from a rich data source with a focus on the concrete particularities of life that create powerful narrative tellings. (p. 4)

Given the research implications of this study with the use of narrative inquiry, I thought it pertinent to once again refer to the work of John Paul Lederach and the impact and role of narrative in the context of disaster:

> When I first came into this field I bumped into the word "storytelling" in reference to a phase in the mediation process, but it was actually a rather narrow definition of story: tell us what happened and why you're mad so we can get you past being mad and find a solution . . . the term I'm referring to, or the content, or the understanding I would give to storytelling is much more about finding a way to reflect in a much wider sense on what's happening in a situation and/or the experience of people . . . help break you out of an exclusively cognitive, linear rational understanding of both conflict analysis and solution seeking. And whoever the listeners are interact with it like it's a painting. If you stand before a painting, everyone has an opportunity to say, "this is what it's saying to me. This is what I see." And the story very much has that component to it. It is both on the side of the storyteller to put forward things, the ways they configure it, the ways they draw it out, but then it becomes very much of a live process in which there is an interaction and the

interaction itself is something that's open for interpretation. So suddenly you're in a community of meaning-creation, and I think that's a lot of what conflict is about. It's about the search for meaning; it's about how do we makes sense of these things that are going on, and what are the ways that we might respond to it, that can move it toward—at least in terms of my wider goals—finding our way back to being human, being in the community, in as constructive a way as we can? (Lederach as cited in Portilla, 2004, para. 4)

**Why Use Narrative Inquiry for This Study?**

The adaptation of human communities (including cities and nations) to global climate change is almost unthinkably complex. Despite a near consensus of scientists who are expert in disciplines relevant to climate change that it is a real and present danger, "an inconvenient truth" as former U.S. Vice President Al Gore famously called it, for others the topic is very difficult to grasp. When, for example, part of the earth faces a blizzardy winter as much of North America did in 2017–2018, and faced a milder winter in 2018–2019, confusion abounds, some of it intentionally spread, but much just due to the intricacy of cause and effect in patterns of air flow, ocean currents, etc. Thus, as someone grudgingly shovels out a snow-filled driveway in March, they can be forgiven for asking, "Where the hell is this 'global warming?'"

One might contend that most designers/planners, while well versed in analytic thinking, are also caught up in webs of this physical complexity and, yet, must take a lead role in helping non-professionals understand what's happening and participate in strategies to mitigate and adapt to increasingly unpredictable meteorological events—like Hurricane Sandy and the future superstorms that are sure to be coming. Moreover, as emerged in the discussion in Chapter II, designers/planners need to also take the pre-disaster marginalization of certain groups into account in their work.

To grasp their innermost feelings about climate change, weather and sea level catastrophes, and the effects of these, and how to do their essential work in the future, is not amenable to some of the more common approaches used in social science such as questionnaires

or highly structured interviews. To create such a survey would mean having to already grasp the complexities, conflicts, and nuances arising for such professionals as they experience and work during and after events like Sandy. Narrative inquiry does not depend on the researcher's foreknowledge of complex feelings and experiences, but draws on the stories of participants, structured in ways close to their lived experience, and which bring out details that no one researcher could hope ever to anticipate.

Such stories are sure to be full of surprises not only for the researcher but for the narrator. It is a common observation both in narrative research as well as in the work of creative professional storywriters, that only in the process of telling does the narrator deeply probe, reflect on, revise, and develop his/her own understanding. Some have called this "narrative knowing" (Polkinghorne, 1988). Or it could just as well be called *narrative discovery*: getting to know one's own world better by telling stories of one's experience in it. As Randall (1995) so well put it: "The way we story our lives directly affects the way we understand ourselves; the way we understand ourselves directly affects the way we act; and the way we act directly affects the way the world is" (p. 9). Underlying this topic and this researcher's commitment to it is the belief that nothing is more important, as cities, nations and individuals face up to climate change, than an intimate knowledge of this process of self- and situational-understanding. The stories of design/planning professionals who play and will play such vital roles in humankind's coping with climate change, are central to survival.

Additionally, narrative inquiry is a "collaboration between researcher and participants, over time, in a place or a series of places, and in social interaction with milieus" (Clandinin & Connelly, 2000, p. 20), all commonplace to the lived experience of design/planning professionals.

**The Challenges of the Narrative Case Study Approach**

Narrative inquiry, not unlike other forms of research, involves data collection and analyses with the emphasis of the study done through stories. It is a form of making meaning by consolidating, reducing, and interpreting what the interviewees have said and what the researcher has seen and read. The confluence between data and abstract concepts, between inductive and deductive reasoning, between description and interpretation, become the basis of the findings for the study. Identifying themes, categories, patterns, or answers to the research questions are the basis for the interpretation of the data (Merriam & Tisdell, 2016, pp. 202–203). The language used to tell the stories is part of the analysis.

However, as noted by Savin-Baden and Van Niekerk (2007), how the researcher is managing the story and the ownership of interpretation is critical:

> Understandings of concepts such as credibility, validity or trustworthiness that are used to ensure rigor must be addressed with honesty in narrative inquiry. Thus, we must engage with the issue of ownership of interpretation, so there is a sense that what we are presenting is shared truths and shared values. Thus, people's norms and values, including our own, are always evident in the way data are presented and portrayed. Yet such negotiation remains a difficult, complex and time-consuming task. (p. 467)

Therefore, how stories are interpreted, the clarity with which the interviews are set up and the manner in which the stories are gathered become all the more critical. It is also critical that that the researcher is very clear about what it means to be a good interviewer. The differences between ordinary conversations and in-depth interviews need to be clear from the beginning as is the distinction of if someone is providing the reader with a narrative or a story. When one is interviewing, the questions are more consciously linked to one another and there are more deliberate transitions when topics are being changed. Additionally, the researcher has a different intention in that when interviewing someone, she/he has a deliberate intention in terms of information gathering that will later be analyzed. An interview is not as informal as ordinary

conversation: notes are taken, and the discussion is usually recorded for the purpose of analyzing data. While these distinctions seem obvious, it is easy to get so engaged in the flow of a conversation during a research interview as to lose track of the objectives. Therefore, while allowing for spontaneity, I kept interviews focused on the research question throughout by asking follow-up questions that guided the conversation as well as provided greater depth and detail.

The way that a researcher listens is as important as the questions asked. How actively researchers listen determines the strength and quality of the connection with the interviewee. This is foundational for creating an exchange of respect, safety, responsibility, and empathy so that when more sensitive questions are asked, both the researcher and the interviewee have a high level of comfort with each other. An additional consideration is that for this particular study, I interviewed a number of people with whom there had been a prior professional relationship. This made the clarity of all of these distinctions all the more critical.

This becomes all the more important in considering the ethical issues of conducting narrative inquiry. Josselson (2007) speaks of the "ethical conundrum [that] derives from the fact that the narrative researcher is in a dual role in an intimate relationship with the participant . . . and in a professionally responsible role in the scholarly community" (p. 535).

## Interviews for Story-Gathering

> In a narrative, the speakers put together what they believe actually occurred, recognizing that what they say might be incomplete because they only saw part of what happened or only remember a piece of what went on. In contrast, a story is told to make a point or present a theme, either stated or implicit, irrespective of the accuracy of the details. In telling a story, events may be edited or reordered, and exaggeration may be added for effect. (Rubin & Rubin, 2011, p. 109)

**General approach and philosophy in using stories from interviews.** Stories from professionals could conceivably be gathered in other ways than face-to-face interviewing (Van

Manen, 1990). For example, professionals individually need to have ways of charting their activity, sometimes even using reflective journals. Others will create written "traces" of their work and thought through correspondence, meeting notes, transcripts of their participation in public sessions, etc. Access to such materials is likely to be limited at best; who of us would willingly turn over diaries, memos, etc. to an eager researcher? Moreover, there is something quite different about writing than talking about experiences. Van Manen (1990) suggested that participants in a study could, in principle, be asked to write what he calls protocols: "The most straightforward way to go about our research is to ask selected individuals to write their experiences down" (p. 63). He suggested that researchers could ask participants "to write a direct account of a personal experience as [they] lived through it" (Van Manen, 1990, p. 65). This kind of approach may work best in participatory action research, such as with educational research where the researcher is also the professor of her "subjects" with the resultant extra leverage to "persuade" the researched to do this. In contrast, in a context such as this study, there is much less likely to be concurrence and acquiescence with such a strategy; exceptionally busy design/planning professionals usually have pressing commitments that are more part of their everyday role fulfillment; diligently journaling so as to meet this study's purposes is unlikely to be as high a priority. As well, participants are always sure to worry about the eventual fate of things that are written.

Moreover, Van Manen (1990) argued for interviewing because of the predictably different kind of product, as opposed to written accounts.

> Sometimes it is easier to talk than to write about a personal experience because writing forces the person into a more reflective attitude, which may make it more difficult to stay close to an experience as it is immediately lived. (p. 67)

In this study, the objective was to seek both the "immediately lived" experience and reflection but a minimalist interview technique as advocated by Bar-On (2006), based on

Rosenthal (1993), and utilized also by Andrews (2007). These authors recommend interviews in which the researcher begins with a brief explanation of the subject matter and requests that the participant tell his or her story as it relates to the topic. And then, for the most part, the researcher stays quiet. Bar-On (2006) describes the approach personally:

> I favor the biographical method developed by Rosenthal (1993), based on a German study in which the interviewer opens the interview wide at the outset—for example: "Please tell me your life story, starting wherever you would like"—and then lets interviewees narrate their life stories undisturbed. Clarifications or questions of interest to the interviewer come after the main narration. (p. 29)

The interviewee as storyteller is then wide open to structuring and recounting a story in a way that gets to the heart of their feelings. It should be pointed out that while Bar-On's (2006) words imply that participants may end up describing everything from their moment of birth (or before) to the present, the description of the study that the researcher will have given in advance of meeting should cue the them towards discussing themes close to the research topic. The key point is that how each interviewee relates the topic of interest to a broader flow of life experiences is what is needed. Disembodied generalities on the importance of climate change and how we all must do our part, etc., are not what is needed to shed light on the topic how Hurricane Sandy (and its aftermath) impacted and was experienced by design/planning professionals.

As noted, as they do this, with all the freedom that traditional storytellers have had since the earliest of times, they will access ways of looking at the impacts of and changes in them caused by so dramatic an event as Sandy. This approach has been used to deal with extremely difficult and personally and politically sensitive matters. Whether it is the experiences of individuals caught up in rapid social transformation, Whites and Blacks in the transition away from apartheid in South Africa or as East Germans after the Berlin Wall came down (Andrews, 2007). Distinct from such political transitions, the people who are the center of this research have

also lived through what are literally tempestuous events; their stories can be used, broadly

speaking, as Andrews (2007) says: "to provide a small window into the engines of history and

historical change, as [they] both shape and are shaped by the events of the day" (p. 51). An

example is the Sandy Storyline, an outgrowth of Occupy Sandy, that began with individual

stories evolving into a "participatory web-based documentary and exhibition that

explores the immediate and still-unfolding impacts of Hurricane Sandy through the

experiences of some of the millions of people whose lives were affected by the storm"

(Sandy Storyline, n.d., para. 1).

**Data Gathering**

I conducted two tiers of narrative research with participants: an initial round of

one-on-one conversations and, based then on the results and emerging themes from those, a

focus group of three professionals who through the response to some pointed questions around

some prevailing themes, either agreed with or challenged some of the responses.

**Sample size and sampling strategy**. "It is said that qualitative methods tend to generate

large amounts of detailed information about a small number of settings" (Mays & Pope, 1995,

p. 109). Comparatively small sample size is often raised by critics of qualitative interviewing as

a weakness as it will inevitably be much smaller than what would be done using surveys. Lincoln

and Guba (1985) provide a credible response to this suggesting that sampling be only until one

reaches a point of saturation or redundancy: "[Using this] means that you are hearing the same

responses to your interview questions or seeing the same behavior in observations; no new

insights are forthcoming" (Merriam & Tisdell, 2016, p. 101). Therefore, as part of the structure

of this study, the goal was to reach a point of saturation which,

> entails bringing new participants continually into the study until the data set is complete,
> as indicated by data replication or redundancy. In other words, saturation is reached when

the researcher gathers data to the point of diminishing returns, when nothing new is being added. (Bowen, 2008, p. 140)

I recognize that "nothing new" is itself a fuzzy concept and that my search for and eventual interviewing of a sample was guided also by a subjective sense that "an adequate sample size is one that sufficiently answers the research question" (O'Reilly & Parker, 2013, p. 192).

The sample was comprised of design/planning professionals as well as allied professionals who were integral to the design/planning process and were present in the New York/New Jersey region during Hurricane Sandy (all or part of the period, approximately October 22, 2012–November 2, 2012). They subsequently had an opportunity to work on one or more of the five post-Sandy initiatives described in Chapters I and II—the NYC Special Initiative for Rebuilding and Resiliency, Rebuild by Design, New York Rising, Build It Back/Buy It Back, and Occupy Sandy, or other closely aligned climate impactful events.

The research utilized a mix of approaches to actually locate interviewees, starting with people whose professional work I had become familiar with through my own engagement in aspects of several of those and other post-Sandy initiatives. From there I utilized snowballing as part of purposeful sampling, which basically means a chain referral approach (Biernacki & Waldorf, 1981), with current interviewees being asked who else one could speak with and, sometimes, even getting the person's help with making initial contact. I also anticipated locating some potential interviewees from a detailed analysis of documents (newspapers, reports, published articles, and dissertations); often, such written materials identify professionals, including designers/planners, as report authors or as experts cited or thanked by other authors. In preparation for the focus group, emerging themes from the impact of Sandy on design/planning professionals was prepared as a case highlighting findings for focus group review and discussion.

**One-on-one interviews.**

For a narrative research approach that will rely heavily on interviews, setting up clear expectations in the beginning is critical for having a respectful relationship with participants. While this is important in any social research, it is all the more critical where the participant's life is interwoven with a particular phenomenon; therefore, the researcher has to be transparent about his/her interest in the study so that there is an authentic alliance with the participant. (Josselson, 2007, p. 540)

The strategy was to prepare a clear and concise interview protocol (S. A. Jacob & Furgerson, 2012). While working out the detailed structure of interviews, the research structure was developed from the topics arising from the three pillars discussed in Chapter I:

- *Personal*—Impacts on the self/individual; psycho-social challenges, such as empathy/stress

- *Professional*—Impact to professional practice, reflections on strategies post-Hurricane Sandy, and impact on future events.

- *Societal*—Local and global impacts, leadership.

**Participant Demographics**

What follows is a thematic analysis of 28 participant interviews. Table 3.1 briefly profiles the participants, including their profession, experience, years in the profession and gender identification. The names are all pseudonyms.

Table 3.1

*Interview Participants' Characteristics (n = 28)*

| Name | Profession | Years in Profession | Gender Identification | Race/Ethnicity/ Nationality |
|---|---|---|---|---|
| Eli | Architect | 20 | Male | Euro American |
| Penelope | Architect | 12 | Female | Latina |
| Hannah | Planner | 30 | Female | Euro American |
| Roberta | Architect | 25 | Female | Euro American |
| Leah | Architect/Planner | 15 | Female | Euro American |
| Paul | Engineer | 30 | Male | Euro American |
| Ross | Architect/Professor | 40 | Male | Euro American |
| Muriel | Communications Specialist | 35 | Female | Euro American |
| Talib | Architect | 12 | Male | Jamaican |
| Liz | Engineer | 20 | Female | Greek |
| Esther | Activist/Storyteller | 10 | Female | Euro American |
| Melissa | Architect/Professor | 30 | Female | Euro American |
| Samuel | Architect | 20 | Male | Euro American |
| Lyla | Architect | 30 | Female | Euro American |
| Nahla | Architect/Professor | 15 | Female | Turkish |
| Edward | Architect | 20 | Male | Euro American |
| Thomas | Landscape Architect/Urban Designer | 15 | Male | Latino |
| Grace | Engineer | 20 | Female | Euro American |
| Brianna | Architect/Professor | 15 | Female | Indian/Asian |

| Name | Profession | Years in Profession | Gender Identification | Race/Ethnicity/ Nationality |
|---|---|---|---|---|
| Beryl | Landscape Architect | 25 | Female | Euro American |
| Joseph | Social Activist | 15 | Male | African American |
| Susan | Urban Strategist | 30 | Female | Euro Canadian |
| Kaasar | Planner | 12 | Male | Latino |
| Robert | Architect | 40 | Male | Euro American |
| Mya | Architect | 15 | Female | Latina |
| Claire | Architect | 12 | Female | African American |
| Vic | Architect | 30 | Male | Euro American |
| Jeanine | Landscape Architect | 35 | Female | Euro American |

Table 3.2 provides information about the profession, experience, years in the profession and gender identification for the three focus group participants. Again, all of the names are pseudonyms.

Table 3.2

*Focus Group Participants' Characteristics*

| Name | Profession | Years in Profession | Gender Identification | Race/Ethnicity/ Nationality |
|---|---|---|---|---|
| Adam | Architect | 40 | Male | Euro American |
| Zac | Architect/Planner | 30 | Male | Euro American |
| Therese | Landscape Architect/Architect | 20 | Female | Euro American |

In the discussion in Chapter IV, I have relied on both the interviews and the focus group for insights related to the pillars and emergent themes.

*Preparing for the interviews.* An Informed Consent Agreement was created and provided to participants in advance. In preparation for the interviews I circulated a briefing note for participants describing the study details and means to be used to assure anonymity and confidentiality. Ways of achieving this were considered below.

A consent form was prepared, modelled on commonly available templates but tailored to fit the context. It was further recognized that many of the participants hold significant positions in ongoing post-Sandy work, settings where they are expected to be always strong, fast, and sure in their professional judgements, and invulnerable to the very kinds of doubts and fears and self-transformations that the study sought to explore.

*Conducting interviews.* Prior to the interview permission was sought for audio recording, accompanied by confidentiality protocols (see on "Ethical Considerations," below). Recordings that were made were professionally transcribed. Security of the actual recordings and the transcripts were committed to in the consent form. Interview sessions were all conducted on the phone. Each session ran between 60 and 80 minutes.

## Interview Analysis

**Phase One: Transcriptions.** The recorded interviews were uploaded to a secure computer. Of the 28 interviews, 23 were transcribed by a single investigator from Upwork to ensure confidentiality. Four were transcribed by me. This resulted in 457 pages of single-spaced, one-sided interview text. The interviews were then read through in their entirety, and initial themes and comments were noted in the margins of the documents. This same approach was followed in the focus group, which is further expanded on further in this document.

There were many hours of listening and re-listening with the transcript and note-taking with the recordings produced during the interviews. It is further acknowledged what Bar-On

(2006) says, that "moving from the interviewing phase into the analysis phase can represent a crisis" (p. 32). In using "crisis," Bar-On is referring to the transition from often coming to feel very close to, and empathetic with interviewees, to adopting a more distanced analytic stance. He emphasizes the usefulness both for enhancing validity and just for "ventilating" (p. 32) of having another researcher brought in to assist in reviewing themes and patterns in this stage of the work. While I anticipated prior to beginning the analysis that this might be necessary, I found that I was able to maintain my objectivity. This was achieved by structuring enough time between the interviews and the actual analysis. As a result, reflection was built into the schedule and a more distanced analytic stance was maintained. In terms of enhancing validity and just for "ventilating", that was achieved through the focus group.

**Phase Two: Coding.** After the interviews, and all documents were transcribed and uploaded to Dedoose,[10] an analysis of interview data began. Notes, comments, observations, and queries in reading the data began the open coding process. Parent codes were developed for the thematic analysis that drew inferences to the interviewee' stories as they relate to the research questions and thus began the assignment of codes to specific data. The initial coding process in this study generated three primary or parent codes that aligned with the three pillars: Personal, Professional and Societal. All together there were 947 text excerpts, and with multiple code applications per excerpt, a total of 965 code applications were part of the final analysis.

Through the use of thematic analysis, inferences were drawn about the interviewees' stories as they related to the research questions. The details of the strategy were worked out based upon the results of the interviews, the form the stories and data took. Braun and Clarke (2006) helpfully point out that each researcher can and must consider quite an array of different

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[10] This software is described as "a cross-platform app for analyzing qualitative and mixed methods research with text, photos, audio, videos, spreadsheet data and more" (Dedoose, n.d., para.1).

approaches in drawing from his/her corpus of results, themes, or patterns most pertinent to the research question. Therefore, in developing this study's thematic analysis approach, depending on the form of the data, I turned to Braun and Clarke's (2006) approach as well as Aronson's (1995) "Pragmatic View of Thematic Analysis," which is aimed at ethnographic interviewers; Kvale's (1996) "six steps" (p. 189) of analysis; and Burnard, Gill, Stewart, Treasure, and Chadwick's (2008) thematic content analysis, which involves "analysing transcripts, identifying themes within those data, and gathering together examples of those themes from the text" (p. 429). In some instances, the interviews yielded longer biographical accounts—given the relatively unstructured and open-ended approach in the interviews. Bar-On's (2006, pp. 32–33) three-step approach to analyzing interviews, relying on chronology, linguistic and sequential analysis, was also utilized.

The results of the analysis were useful for my research in and of themselves and also became the basis of preparing questions, featuring themes, for use in the second tier of data gathering: focus group discussion.

**Conducting the focus group.** The second step of my data gathering involved holding one focus group to discuss the question of impacts and changes design/planning professionals experienced during and after Hurricane Sandy. Prior to arranging the focus group meeting, a first cut thematic analysis was completed. This was followed by a concise discussion document, outlining (without attribution) results of interviews and posing a set of questions for group discussion.

The selection of participants raised a key question: Is it best to rely on a sample of the professionals who have already been interviewed or recruit a different group who would be unconstrained by any thoughts of having to support or be consistent with points they have

already made? After reviewing all of the data, the decision was made to recruit three individuals outside of the study sample to act as the focus group. This was utilized through a snowballing technique. While I knew each of the participants through reputation in the industry, they were not well known to me either professionally or personally. They consisted of one architect, one architect/planner, and one landscape architect/architect. One of the architects and the landscape architect were very engaged post-Sandy. One was particularly focused on recovery in NYCHA housing. The second architect was engaged with Sandy through one of the non-profits. He had ongoing recovery and planning experience post-Katrina and was heavily focused on resiliency and vulnerable communities.

The main purpose of the focus group was to "to clarify, extend, qualify or challenge data collected [in interviews]" (Gill, Stewart, Treasure, & Chadwick, 2008, p. 293). It is to be noted that while what is said in a focus group can be protected with the same measures for anonymity and confidentiality used in interviews, there is, by definition, the added issue that group members will inevitably be revealing their views and experiences to others than the researcher. Bloor, Frankland, Thomas, and Robson (2001) note that while every effort may be taken to assure confidentiality of the discussion—what comes up in the group, stays in the group—there is bound to be a risk that participants will reveal some of the conversation later outside the group. The best approach, they advise, is to have protocols but make focus group participants aware of such risks before they agree to attend. Reference to such risks were included in the informed consent agreement that each participant reviewed and signed.

Decisions on venue, length and structure were agreed upon in preparation for the focus group tier of research. The guidelines I used were as follows:

*Venue:* As with all the other one-on-one interviews, the focus group was conducted on the phone.

*Length*: This was subject to participant availability, which ended up being 60 minutes. As Stewart and Shamdasani (2015) observed,

> Time is a finite resource in modern society. The time budget of the average individual may be more constrained than the financial budget. Asking individuals to spend 90 minutes to 2 hours in a focus group discussion—plus the time travelling to and from the group—is asking for a significant sacrifice. (p. 66)

*Structure:* I had a pre-circulated discussion document that explained the study purpose, provided an overview of key emergent themes (while pointing out that this is not necessarily a complete list of such), and outlined a few questions to guide the discussion. The latter was "suggestive" and room was left for new matters to be discussed. One of the participants answered all of the questions and sent them back to me. The other two did not.

One further matter that comes up in designing focus groups for research is the question of group moderation or facilitation. Ideally, someone other than the researcher takes care of managing the meeting and interactions, freeing the researcher to listen deeply and make highlight notes as the discussion unfolds. For my work, budgetary constraints would mean being able to do this only if a volunteer facilitator could be recruited which was not feasible.

The focus group session was taped and transcribed as with the interviews, based on prior notification and concurrence of the participants.

**Focus group analysis.** The analysis of the focus group transcripts followed closely the approach this interviewer developed for the one-on-one interviews, as outlined above. This interview was transcribed by the investigator. It resulted in 13 pages of single-spaced one-sided interview text. Additionally, one participant provided a one-page written response to the questions in advance of the actual interview.

The interview thematic analysis was considered in formulating the questions that were posed in the focus group. This researcher is mindful of remarks made by Gill et al. (2008) on some special challenges to analyzing the text from focus groups:

> It is important to note that the analysis of focus group data is different from other qualitative data because of their interactive nature, and this needs to be taken into consideration during analysis. The importance of the context of other speakers is essential to the understanding of individual contributions. For example, in a group situation, participants will often challenge each other and justify their remarks because of the group setting, in a way that perhaps they would not in a one to-one interview. The analysis of focus group data must therefore take account of the group dynamics that have generated remarks. (p. 294)

**Document Research**

While the interviews and focus group were the most time-consuming and influential data gathering for this research, in this embedded case study involving designers/planners engaged with or highly influenced by five post-Sandy initiatives, it was important to have an independent understanding of how each initiative worked and what critical incidents and developments may have been central. This not only assisted me in gaining a strong sense of the context and chronology of each initiative but helped me to come to my own assessments of their professional experiences: their victories, their setbacks, their existential moments. I needed to be ready to constructively challenge[11] those who contribute through interviews and focus groups within the analytical and interpretive frame. There was a substantial collection of materials germane to the design/planning professional roles, actions and reflections garnered well in advance of those interviews. Beyond this role, the documentary records of individuals and organizations, as they struggle through crisis situations, provide important insights into how they see and present

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[11] A major contribution to understanding and even resolving the tension between taking what an interviewee says on faith, and yet being scientifically skeptical of it, is Josselson's (2004) article, "The Hermeneutics of Faith and the Hermeneutics of Suspicion." Documentary research can be an essential part of being able to be a believer and a constructive doubter simultaneously.

themselves, the stories they tell, even in comparatively dry documentation, about their work, its challenges, their successes and (sometimes) their failings (Atkinson & Coffey, 2011). This was part of the study's analyses along with expanding my familiarity with all relevant written materials.

Jarvis (1999) has described the range of materials that those research professional practitioners may try to access and study. A goldmine among these would be the personal notes and/or working journal of actual professionals. He suggested, "Such documents . . . are useful accessories to understanding the practice because they capture a view of its transitory process and shed some light both on what occurred and, on the reasoning, and feelings of the practitioners" (p. 113). While actual studies, drawings of plans and site photos of projects under construction or completed were easily accessible, given the specific parameters of this study, while the researcher could have access to them, it was deemed not worthy of further exploration.

Jarvis (1999) identified an array of other "more formal" (p. 113) documentary materials from within organizations which he recommends be found and studied: "minutes of meetings, official correspondence, policy directives, outlines of procedures, statements from management, rule books, job descriptions, and so on" (p. 113). He pointed out that, many categories are in the public domain though a few are internal; the latter include internal communications which are increasingly electronic.

More readily available documentation, beyond the reports and scholarly literature reviewed in Chapter II, include:

- Newspaper articles about Sandy along with letters to the editors;
- Presentations by design/planning professionals at conferences, public meetings;
- Transcripts from community meetings about Sandy;

- The frequently super-abundant reports, memos and the like, sometimes referred to as "grey literature."

*Document analysis*. This work proceeded concurrently with the interviews and also the focus group as materials came up in discussion. As themes emerged from analysis of discussions, focal points for documentary analysis developed. Additional documents, beyond those that were used to describe the contextual characteristics of the study, were sought during and after the interviews as initiated by the participants' reference to types of sources/information.

**Ethical Issues of the Research Relationship**

> Narrative research consists of obtaining and then reflecting on people's lived experience and is inherently a relational endeavor. Every aspect of the work is touched by the ethics of the research relationship. (Josselson, 2007, p. 537)

In narrative-based research, the researcher seeks, hears, and later writes about stories that are usually momentous to those who recount them. Ethical matters needed to be addressed over the entire narrative inquiry process beginning with application for and obtaining approval from Antioch's Institutional Review Board (IRB). This application was prepared and submitted after the proposal was accepted and the research process was begun with participants. The ethical challenges—and how I planned to meet these—were fully developed for the IRB application, and is underscored, as Kvale (1996) suggested, by noting the different ethical issues arising at the several stages of the completed research.

**Ethical issues in recruiting participants.** Having worked as a participant and collaborator post-Sandy in a variety of roles—researcher for a professional organization, communications liaison on one of the Rebuild by Design teams, volunteer with Occupy Sandy, and facilitator at public events in communities struck by Sandy—I acknowledged this to the participants to maintain transparency and be cognizant of any potential bias that may arise.

Many of the participants held civic positions or government contracts as design/planning professionals. I anticipated that interviewees might feel restricted in their responses given the professional role they currently held, or any non-disclosure agreements they may have signed. Under such circumstances they would be limited in terms of what they could or would be willing to discuss beyond the "party line" of their organizations. Clearly, in seeking their agreement to be participants I needed to show how, as a researcher, I would balance their possible reluctance to reveal innermost thoughts and feelings about post-Sandy experiences with my need to bring out valid and meaningful accounts. This was resolved through my characterizing to each participant the interview as a mutual project for which both they and I have responsibility. The initial consent form and ancillary materials, such as the description of what the research entails, was the main way of working towards this balance, along with the discussion prior to their commitment to participate. The fact that some of the participating designers/planners were people with whom I had varying degrees of prior amicable working contact had implications. Brewis (2014) explained,

> The stories we are told by friend-respondents are more likely to be heard stories, so we need to reflect on how it might feel for them to narrate these as well as considering how much of a "scholarly good" we serve by reproducing these stories in our publications. Moreover, friend-researchers and friend-respondents alike have to live with these publications after the fact; something which may get neglected in the process of research itself. (p. 860)

Clearly, when one is doing research among people one has worked with before and expects to again, the approach and suitable limits must be "negotiated," the word used and explained in detail by Taylor (2011). Additionally, the questions and discussion that I asked so as to understand the full array of impacts that Hurricane Sandy had on participants, in some instances brought up traumatic memories. It was important that as the researcher, I did not force

that direction but rather guided the participant in a manner that allowed a moment like this to unfold in a reflective rather than reactive manner.

As the interviews were recorded, consent was sought from each of the participants with full assurance that they will be used only for this research and destroyed when the work was done. The participants were given a copy of the transcripts to sign off on and had the right to withdraw from the study at any time. Consent was additionally sought verbally at the beginning of each interview.

Note should be made of the particular ethical concerns that are involved with focus group research, for as a researcher one can confidently guarantee confidentiality on what happens in interviews, when groups convene there is much less control both over what goes on during meetings and what is said afterwards. Experienced moderation of sessions—a role I have previously played—helped to create an environment where a candid discussion could take place. This was challenging at some junctures when deep feelings and conflicting opinions came to light, particularly around issues of marginalization and resiliency.

Insofar as what participants say or reveal outside the sessions, I discussed a guiding protocol to minimize "leakage," emphasizing the adage "what's said in the room, stays in the room."

The summation of this chapter is best conveyed through the telling remarks made by Van Manen (1990) and later, separately by Bar-On (1996), which accentuate the ethical difficulties and yet the moral good that can come out of well-planned narrative research. Most important is to know for what, a researcher is responsible.

> The research may have certain effects on the people with whom the research is concerned . . . They may feel discomfort, anxiety, false hope, superficiality, guilt, self-doubt, irresponsibility—but also hope, increased awareness, moral stimulation, insight, a sense of liberation, a certain thoughtfulness, and so on. (Van Manen, 1990, p. 162)

I feel that finally, after all that we do, even when we think we are doing a lot of good to our interviewees, we have to take into account how they are thinking of themselves, how this is changing over time . . . Although we are also only human, I feel we are responsible because in such a delicate kind of research, we hold the meaning of people's lives in our hands. Our successes will be gratifying, but our failures may become irreversible. (Bar-On, 1996, pp. 19–20)

**Chapter IV: Findings**

The unpredictability and sheer force of Hurricane Dorian in 2019—which, in the late summer of 2019, swept destructively through the Caribbean devastating the Bahamas and then tracking from the southeast United States through Atlantic Canada—was just one more marker of how climate-impactful events are influencing the built and natural environments. New York City has never experienced a storm of the size of Hurricane Sandy that had caused so much damage and affected so many lives. Close to eight years later, how much longer will this statement hold true and what will be the lessons learned in response to the next event? This is raised not to provoke fear or to question the viability of this study, but rather to further stress the importance of insight and understanding into the impacts on and work of design/planning professionals. They are the women and men on the front line of rebuilding and future planning within climate-vulnerable areas.

The research question is: In what ways did post-Hurricane Sandy experiences impact the design/planning professionals' approach to future climate-related events personally (individually), professionally, and societally? The intention is to not only shed light on what has been learned in response to this question but to determine what collective insight can be garnered as we move forward into a rapidly changing future.

A cross-section of design/planning professionals—architects, planners, landscape architects, and engineers—were interviewed for this study. As one would expect, their responses were quite varied, some teetering on the edge of extremes, with many nuances and gradations in between. While the participants each brought something unique to the research, there was a common single thread that ran throughout their stories; it emerged consistently at the intersection of where the personal, professional, and societal. Kaasar, a planner, said it most succinctly. In

response to being asked what advice he would give other professionals facing challenges similar to the ones he faced after Hurricane Maria, he stated, "So, I try to stay hopeful by staying curious and staying critical by staying demanding and also being completely reflexive and thanking fate for allowing me to have this opportunity to do that." This statement illustrates the intersection of the three pillars used as a framework for this study—he tried to stay hopeful (personal), and reflexive (professional), and demanding in terms of his aims to make a difference in a dire situation (societal),

**Purpose of the Study and Research Question**

While it is understandable that many of the studies in the aftermath of a disaster focus on the actual work of rebuilding or the experiences of those within a community directly impacted by the disaster, this study's objective was to provide insight into a relationship-based profession that responds to the needs of community within a human-made built environment within the natural world. Whether one lived on a barrier island like The Rockaways (in Queens), or a densely populated urban community in Lower Manhattan, when Sandy struck, design/planning professionals responded in ways that ranged from the immediacy of targeted short-term to longer-term solutions. Herein lies the genesis of the primary research question.

In summary, the intent of this study has been to examine an area of literature that has only begun to surface. More specifically, I have focused on the following dimensions of the research question:

- How working within highly charged post-disaster or pre-disaster climate-vulnerable communities, such as in New York post-Sandy, impacts design/planning professionals (architects, planners, landscape architects, and engineers) personally, professionally, and societally;

- While initiatives in the New York region are central to the research regarding design/planning professionals, the discussion broadens to include interviews that look at strategies and approaches used nationally and internationally guiding post-disaster efforts: rebuilding, adaptation, leadership and the emergence of resiliency and managed retreat are especially popular concepts on what needs to be achieved or what is hotly debated.

While the above themes were part of the initial primary and interrelated research questions, an additional theme emerged in the analysis as a central element. This theme, the way in which issues of diversity, equity, and inequity within the profession impact societal and professional realms, as well as the way in which they effect design/planning professionals emotionally and psychologically, broadened and deepened the research. This is of particular significance because (a) it emerged in the context of recovery and planning in marginalized communities where public agency attitudes and responses are more often than not based on a perspective that is non-inclusionary; and (b) it is difficult to design inclusively when the very people doing the work are not representative of large segments of the impacted populations.

**Introduction to the Findings: Study Process Outcomes**

Framework for interpreting design/planning practice after Sandy: The three pillars. The research data has been organized utilizing three pillars for breaking down and understanding the data and the impacts. While the concept of the three pillars, personal, professional, and societal has not changed since the inception of this study, how they have each been defined shifted in light of the data. Post-data collection, and based significantly on what I learned from the participants through the interviews, each is now defined as follows:

- *Personal*: Self/individual, psycho-social challenges, empathy/stress. Critical moments of professional designers/planners that have most deeply impacted these individuals emotionally, psychologically, or existentially as an outgrowth of one of the following: (a) lived in a Sandy-impacted area; (b) dealt with empathy/stress that in some instances were referred to as PTSD; (c) had life-changing events post-Sandy that permanently impacted or changed the course of their lives; or (d) had experienced the long-term impact of the racial and gender composition within the profession.

- *Professional*: Impact professional practice, reflection on strategies post-Sandy, impact on future events, including, (a) as professionals engaged directly post-Sandy or another climate-related events; (b) tangential to a situation related to an event that they were not directly engaged in but impacted them personally; or, (c) were professionally engaged post-Sandy or with another climate-related event that circumstantially impacted them.

- *Societal*: Local and global impacts from climate-impactful events and their models of leadership: (a) the consequences within vulnerable communities and populations; (b) the intersection between the built and natural worlds; (c) resiliency, sustainability, and managed retreat from a local and global perspective. This also addresses the nature of leadership from a global perspective within the design/planning professional community.

Figure 4.1 depicts the three pillars.

## Methodological Approach
### Three Pillar Framework

**Sandy's Impact on Designers/Planners**

| Personal | Professional | Societal |
|---|---|---|
| Self/Individual Psycho-social challenges, empathy/ stress | Impact to professional practice, reflection on strategies, post-Sandy impact on future events | Local and Global Impacts, Leadership |
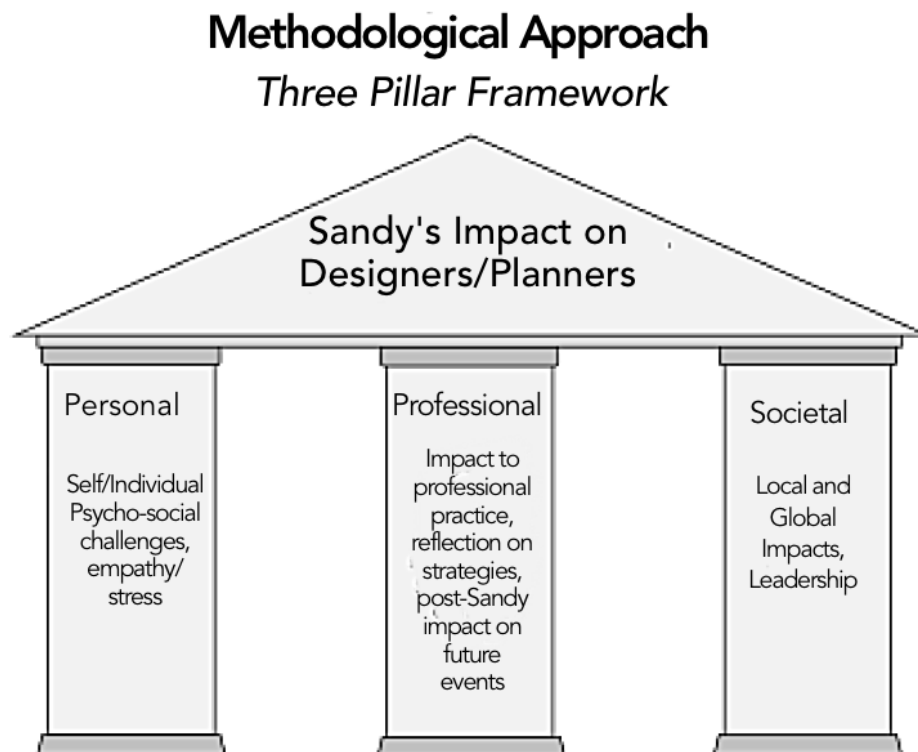
*Figure 4.1.* Three pillars used as the framework for understanding the impacts on and strategies developed for post-Sandy challenges by designers/planners.

**Coding Structure of the Findings**

The qualitative and mixed-methods software, Dedoose, assisted in developing a structure

for the study's themes, categories, and descriptors (referred to here respectively as the "parent,"

"child," and "grandchild" codes). The parent codes are foundational; the child and grandchild

codes are subordinate codes that further the thematic development. Through an inductive

method, the codes were applied to excerpts from the transcripts that aligned with the codes. The

emergent codes were then placed inside each of the three pillars according to their relevance.

They were further coded to identify those themes within the pillars that had the greatest

relevance to the research question, and to classify them according to the density of the theme

across all interviews. This data driven research approach resulted in the thematic structuring (for

parent codes) outlined in Table 4.1 and elaborated on in the ensuing extended discussion for each

pillar.

Table 4.1

*Themes in Relation to Parent Codes for the Three Pillars*

| Parent Codes In . . . | | |
|---|---|---|
| PILLAR 1—PERSONAL | PILLAR 2—PROFESSIONAL | PILLAR 3—SOCIETAL |
| Theme 1.1: Lives and works in Sandy-impacted area<br><br>*Subtheme: Leaving or staying within your impacted community* | Theme 2.1: Five post-Sandy Initiatives<br>• NYC SIRR<br>• Rebuild by Design<br>• New York Rising/ Buy It Back<br>• Build It Back<br>• Occupy Sandy | Theme 3.1: Vulnerable and marginalized communities |
| Theme 1.2: Empathy/stress | Theme 2.2: Design Strategies in Response to Sandy | Theme 3.2: The intersection between nature and the built environment |
| Theme 1.3: Critical Moment | Theme 2.3: It's not just about design it's about—<br>• Data Assessment<br>• Safety Training/ Deployment<br>• Codes and Policies | Theme 3.3: Resiliency and Sustainability |
| Theme 1.4: Impacting the narrative | Theme 2.4: Lessons Learned from other hurricane/ post-disaster events, e.g.,<br>• Hurricane Katrina<br>• Hurricane Maria<br>• 9/11 | Theme 3.4: Managed Retreat |
| Theme 1.5: The personal impact of the racial, gender, socio-economic composition of the design/planning profession | Theme 2.5: Reflections post-Sandy | Theme 3.5: International Connections |
| | | Theme 3.6: Leadership |

*Note.* Shading is for ease of reading and has no significance in distinctions among themes.

A disaggregation of the data into the three pillars provided by excerpts from the

transcripts illustrates these themes. Pseudonyms and professional affiliation are listed after each

excerpt so that the individual is identified beyond the overarching phrase designer/planners but

by their specific professional expertise. In the research, the professional affiliations architect, planner, landscape architect, engineer, communication specialist, urban strategist, social activist, and activist/storyteller are important differentiators. Patterns of similarities and differences within each of these affiliations highlight patterns within the themes of the three pillars.

**Pillar 1: Personal Impacts**

One of the first questions I asked participants was why they choose to go into the design/planning profession. My intent was to understand this as something of a starting point for each professional in their journey into the unprecedented personal challenges following Hurricane Sandy. Figure 4.2 summarizes the themes I identified in regard to Pillar 1, to be discussed in this section.
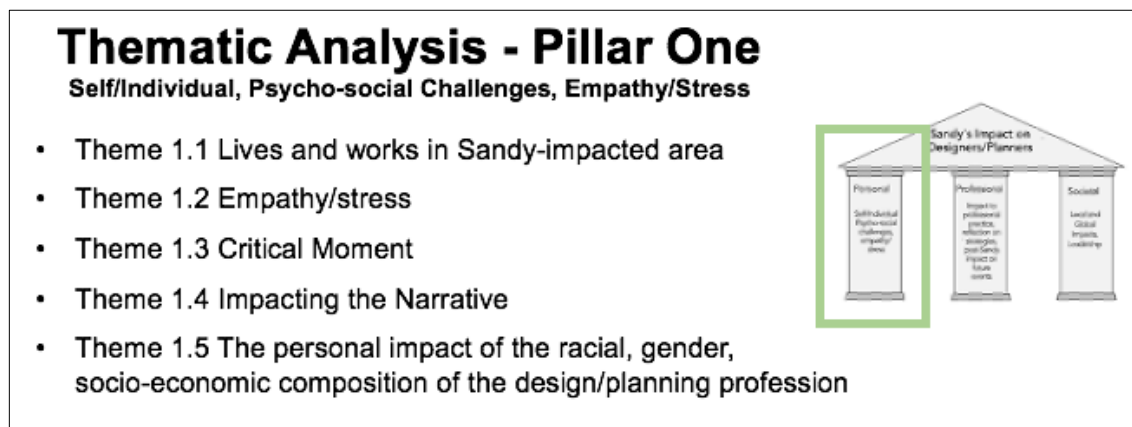


*Figure 4.2.* Themes identified for Pillar 1(Personal).

Not one person interviewed for this study said they went into it for the money. Some talked about initial motivations in the context of creating a lasting legacy, only to be faced with the reality after Sandy about the impermanence of buildings. Others had had personal events in early stages of their life that impacted their understanding of the importance of having a voice that spoke out for others in our shared environment.

While I have no illusion about the number of design/planning professionals who are more driven by ego than altruism, those interviewed as part of this study varied greatly in this regard. These professionals were able to balance healthy professional egos with a drive to be successful and have an impact, with altruistic intents and inclusive behavior. Sandy and other such climate-impactful events, as illustrated in this study, have begun to ignite much more reflection within the community of design/planning professionals. This is illustrated in this excerpt from an interview with Vic.

> I don't think there's any field of experts that is more suited for bringing about change. Change, meaning, dealing with the world. Once I got into architecture, I realized how completely touching the mission is. How many areas of lives it would touch, how important it is to think of the quality and the environment we live in. I think everywhere you go, you're in an environment touched by people. (Vic, architect)[12]

The following section begins the discussion individually of each of five themes and one sub-theme of Pillar 1.

**Pillar 1 (Personal): Theme 1.1: Lives and works in Sandy-impacted area.** For professionals living in Sandy-impacted areas the storm had substantial effects on their personal lives and their professional worldview. The heartbreak, devastation, and loss also showed the power of the human spirit and their commitment to community. Some professionals like Vic, who lives in Sea Gate, Coney Island, Brooklyn, lost everything. Others like Thomas, though he lived in a vulnerable area near the Gowanus Canal (Brooklyn), which flooded but spared his home, came to provide a safe haven for friends who lived in the vulnerable Rockaways. Brianna, an architect in Red Hook, Brooklyn, experienced her second flooding from a hurricane, the first being from Irene. She did not lose everything like Vic did but dealing with flooding for a second

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[12] In presenting quotations from the participants, I have listed both the given name (pseudonym) and profession so that the reader is always aware of each's occupation, rather than having to repeatedly turn back to the list in Table 3.1.

time gave her pause about the long-term community impacts, the future for Red Hook, and her

own long-term future there.

> It's been a journey about discovery, but it really integrates my understanding of my whole life. Any time that human beings experience a trauma, it opens up old wounds. Being an architect by training and experience helped unmeasurably because I understood the nature of the physical challenge. I can exercise whatever muscles I have that will help us and others survive this situation. (Vic, architect)

Unlike Vic's, Thomas's home became a place of refuge for others who lived in more

vulnerable areas than where he lives—The Rockaways in the borough of Queens, New York.

The Rockaways was one of the hardest hit areas during Sandy, and the disparity here in the

recovery process was very different for people living in private homes and those living in public

housing. That will be further discussed in the societal pillar of this research.

> We have a lot of colleagues in this coastal area, Rockaway Beach, which is kind of an ocean facing section of New York City. We convinced a lot of the folks, who were friends of ours, to evacuate, even though they were on the fence about staying. I was watching the canal and it started to swell, and then it started to surge and flood out our street. It didn't quite make it to our doorstep, but it made it to our block. (Thomas, landscape architect/urban designer)

During the interview, Thomas never spoke about wanting to leave his home in Brooklyn near the

Gowanus Canal (Figure 4.3). However, the issue came up in my discussion with Brianna who

resides in Red Hook (Figure 4.3) which is bounded by the Gowanus Expressway to the North,

the Gowanus Canal to the east, Upper New York Bay to the south, and Buttermilk Channel to the

west. Brianna, who is a long-time resident of Red Hook, Brooklyn, was hard-hit during Sandy.

> We were flooded during Hurricane Irene also. I guess we expected to be flooded during Sandy a little bit, but not quite to the extent that we were by the second-high tide, I was watching the water come up the street and then I realized that it wasn't going to stop, and it was actually coming incredibly quickly. We watched the water come up into our first floor, and then we left. (Brianna, architect)

*Figure 4.3.* Locator map for Red Hook and Gowanus neighborhoods (Brooklyn) . Adapted from a map by Julius Schorzman. Creative Commons Attribution-ShareAlike 2.5 Generic (CCBY-SA 2.5). From Wikipedia Commons (2005).

Leah, who also lives close to the Gowanus, unlike Thomas and Brianna, left her home

during Sandy because of what she described as suffering from "hurricane fear."

> I'm someone who has a lot of hurricane fear. When I saw that storm [Sandy], I decided I was leaving. It's just straight up fear. I do have a house full of emergency candles, solar power battery packs, flashlights and I have all that stuff. When I chose to leave during Sandy, I gave them to my neighbors. I am too close to the Gowanus. (Leah, architect/planner)

However, after Sandy, she came back and began to help friends in Red Hook who had been hit

by the storm.

> So, after Sandy, I came back two days after the storm made landfall and the first thing I did was jump into Red Hook because I had friends whose homes had flooded in Red Hook. I did the first level immediate actions of helping them. I had done this with so many friends in New Orleans. (Leah, architect/planner)

Leah described this fear in subsequent conversation as related to her experience post-Katrina.

      ***Subtheme: Leaving or staying within your impacted community.*** The issue of whether a community should rebuild, and what the considerations are for an individual in staying or leaving the place that has been home, is a complex one. It is something that will be looked at in greater detail under the Societal Pillar (within the theme Managed Retreat). However, because of their professional background, designers/planners understand more than most people what the risks are. It is a complicated and painful decision—whether you are in a position of privilege to even entertain relocation as a choice, or not, knowing the vulnerabilities and risks so as to make informed decisions about your own life, your community, and the generations to come. There was no conversation with Thomas about relocation, as this was not an issue he was even remotely considering. He had known far greater exposure to storms and living with the water than most other participants had. While he lived for a time in The Rockaways, he grew up in "hurricane alley" in Florida, and still actively works in Puerto Rico, has family there, and was impacted personally by Hurricane Maria in 2017.

      The internal debate for design/planning professionals, even with all that they know about risk, adaptation, recovery, is challenging. Do you stay or do you go? And for some design/planning professionals, they personally had a very different experience of the storm. It all depended upon where one lived. Jeanine, who lived on the Upper East Side, didn't lose power. That was a very different experience for Brianna who not only lost power but was flooded out of her home.

> My husband [pause] we have fights all the time. He's like, we're leaving. We had dinner last night with friends. We've all lived in Red Hook for 15 or 20 years and it's coming to the point like, are we leaving? When are we leaving? Every year it's like, *when* are we leaving? It's not *if* we're leaving, it's *when* are we leaving. (Brianna, architect)

It is human nature to think that one bad event is an isolated event and will not happen again for decades—maybe not even within one's lifetime. In a place like New York, affordability plays a big role in this decision, not to mention the significance of community that one has built up over time. These are very difficult issues that climate-impactful events are going to make more frequent in the years to come even for those who understand the ramifications better than most: the design/planning professionals.

> I was planning on dying here, and I still can't wrap my brain not being here. So, that's going to be a really, like hard moment to leave. I believe that every person living in Red Hook right now, or that has been here for a very long time, is beginning to realize that the city doesn't care, and the city isn't going to do something in time. Therefore, we need to figure out a secondary solution, and that solution right now is to leave and that's a really sad moment. (Brianna, architect)

While Brianna experienced damage during Sandy, Vic lost everything and had to decide whether he wanted to rebuild and stay in Coney Island.

> Is this really the right direction for us? Is this the right thing for us to do as a family to stay here after we lost everything? Is this an opportunity for me to build my dream house? Is this a waste of my time? Is this something I simply cannot afford to take on? All of those doubts and considerations, repeatedly hammered at me, and my wife, and my family. Let's just sell the property, take what we can get, pay off our mortgage, and run. And when we looked at the numbers, they were low, and we couldn't. (Vic, architect)

This kind of poignant debate resonated for hundreds of families after Sandy who have had to make decisions that will impact them for the foreseeable future. These are difficult choices under any circumstances, but most especially when the loss has been sudden, unexpected and the ramifications life changing.

*Summary—Pillar 1 (Personal): Theme 1.1 Lives and works in the Sandy-impacted area.* For professionals impacted by living in Sandy-impacted areas they had the professional experience to navigate post-disaster strategy better than most. However, with that knowledge

often came the burden of understanding just how vulnerable their community was and how the future could unfold with more Sandy-like events.

       **Pillar 1 (Personal): Theme 1.2: Empathy/stress**. In a post-Sandy scenario, designers/planners enter a space of disequilibrium where the urban fabric and the physical structures of communities, are suddenly torn apart. This intensifies the disruption that people must suddenly adapt to after an event such as Sandy. For the design/planning professional most deeply engaged on the ground in the recovery, the impact can be stressful enough to incapacitate helping professionals temporarily or longer. In some instances, several design/planning professionals referred even to PTSD as something to consider among those who have been most deeply involved in dealing with such events. It can also be a time for many, when the impact of experiencing empathy and resulting stress amidst the unforeseen or the unforeseeable, significantly altered their own personal world views in irrevocable ways. Empathy, defined as "the ability to tune into and share another person's emotions from their perspective plays a crucial role in bringing people together" (Wallace, 2017, para. 2). It builds trust, yet can also create anxiety, stress, or low-level depression if someone becomes more consumed with another person's feelings well beyond their own (Manczak, DeLongis, & Chen, 2016).

       Just as nature's force within a storm has a variety of category strengths, design/planning professionals are also impacted personally in varying degrees of empathy and resulting stress. How a number of these professionals processed, adapted, and reacted to these circumstances from the perspective of empathy/distress are further noted in the following selections from the interviews.

       Eli has built a professional practice that directly addresses the impacts of a multitude of climate-impactful events and community vulnerabilities locally, nationally, and internationally.

Of all the people interviewed on this question, he was the most direct in speaking to grief as part

of empathy and distress.

> All you can do from a design standpoint is hear what that grief is, listen, and not take it in too much. Being human is to empathize with what is taking place. From a greater standpoint, the concept of nothing is permanent has really been driven home from these circumstances and experiences. Not just this disaster, but other disasters. (Eli, architect)

The discussion evolved to the professional's own experience of grief not clouding their

judgment when assisting traumatized community members post disaster.

> Most people say to you, I want it back, I want it back. It's not a response of wanting their house back, it's a response of, I want *it* back, I want my life back. But grief is real, it's tangible, and it's a huge hurdle for the design profession to take in. People just want to be heard after the disaster and once you hear them and take that in, it may be best to see if you can drive people towards a clear-eyed design effort. (Eli, architect)

Ideally, a professional maintaining a boundary between feeling and witnessing ultimately

helps people think through their options and guides them to make the best decisions. But this is

an experiential process and even with holding boundaries, one cannot help but be impacted by it.

> The grief after Sandy—it's definitely transformed me in a lot of ways, personally. But, as a designer, you have to listen to it but alongside it to make sure that you keep coming back to clear-eyed decisions, which are very hard to get it. Very, very, hard to get at. (Eli, architect)

Design/planning professionals are not trained in psychology or grief counseling. In

expectation of more climate change-related traumatic events, FEMA has put programs in place

as part of their communications disaster program. There is training for responding after disasters

for a safety assessment program and a national assessment safety program so that one is prepped

before going into the field. Eli spoke of a decompression process after what he termed

"deployment."

> Your deployment is for a maximum of five or seven days of field work. Even after a disaster, and you're working with government agencies, you are supposed to have two weeks on and then to have a break. It's really how you protect yourself from taking on other's people's grief. Sometimes I have to go back to that, just to recognize, in myself, how do I deal with this grief is a heavy, heavy piece. (Eli, architect)

As part of the snowball sampling, a number of professionals who worked in Puerto Rico, post-Hurricane Maria, became integral to deeper insight into the personal impact of climate-impactful events on professionals.

> When you start identifying injustices, you see how very little power you have in a colonial system which is condescending and racist. Then you get mad, you get unnerved and you empathize from that place. Some days you think maybe nothing is going to work. But as planners we are trained to be hopeful in some ways. (Kaasar, planner)

What made this insight particularly important in the context of Sandy is that it is reflective of how many marginalized communities felt impacts from the storm and its aftermath even in one of the wealthiest cities in the world. While it would be misleading to compare what happened during Hurricane Maria—with its most deadly impacts centered in relatively impoverished Puerto Rico—to Hurricane Sandy, a better comparison would be Hurricane Katrina: what is similar was how professionals themselves felt personally impacted even though they were certainly dealing with levels of grief and loss on very different parts of the spectrum.

> We are trained to try and think that the future may bring positive outcomes. That's why we plan, we try to look forward, so we keep going. At the same time, I am deeply reflective in part because I have to understand my position of privilege as a professional sitting in an air-conditioned office where I earn a good living and I actually work on something I was actually trained. So, I don't take that for granted. (Kaasar, planner)

While Kaasar was not directly engaged in Sandy, he has tremendous insight into empathy and distress post-disaster through working as a professional planner in Puerto Rico after Hurricane Maria struck in 2017. While our conversation surrounding empathy and distress was more focused on anger and injustices, the direct and positive action he took came from a fiercely empathetic space and from a position of owning his privilege. What is also particularly critical in Kaasar's insights and responses is that he is experiencing empathy/distress as a professional within a community/country that has been historically marginalized. While, as stated, overall

New York is far more affluent than most of Puerto Rico, at the neighborhood level, it is also rife

with communities that have long been economically oppressed and marginalized.

> The one enduring piece of this is constant impermanence. I remember in post-Katrina days that vicarious trauma is a real thing and it is in the health profession and I don't think people in design and engineering appreciate that until they go through it themselves. (Susan, urban strategist)

Susan has worked on the ground within communities and in non-profit leadership roles

during Katrina as well as Sandy. Her role, though not specifically a designer/planner, has been

critical in the aftermaths and subsequent planning in both events; she was the only person

interviewed who mentioned vicarious trauma, as a term. Although in looking at what

architect/planner Leah experienced, one could categorize her experiences as such.

> I don't talk to anyone about my disaster recovery experience. I was deeply traumatized post Katrina, for a huge range of reasons—the amount of deaths, decay, corruption. It's just terrible to see the world turned upside down. I receded talking about it because it was emotional. I was like, actually enraged in a constant state for two or three years. (Leah, architect/planner)

While Melissa did not discuss the same stressors that Leah did, she did speak quite a bit

about empathy not necessarily being a given with all design/planning professionals.

> It certainly increases your empathy, but I don't think that's always the case. I was working with a structural engineer who couldn't feel any empathy; but I think for a lot of people, though not for all, it increases their empathy. I've absorbed some of the stress, for sure. It's come down now, so I'm not quite as aware of it. (Leah, architect/planner)

Melissa spoke about empathy/distress in the context of how it impacted her and her

younger staff. An important marker during this interview was her mentioning that experiencing

empathy/distress as a professional was not a given. She pointed out her own assumptions and

unconscious bias about empathy/distress. That bias goes like this: how could someone *not* feel it

for others in this context? But the point was that not everyone will empathize strongly. From

Susan's vantage, that does not make that person hollow or give cause for negative judgement. It

just makes them human with a different set of coping mechanisms.

The engineers interviewed in this study had experiences directly with Sandy but also brought a plethora of experience from an international perspective. For Liz, a civil engineer, every disaster is personal, and an understanding of empathy and distress is built into how she pragmatically executes her role.

> These are life-changing events for me. I have seen loss of life in hospitals because they were in the ICU and the emergency batteries do not work. New York in particular. I have been through 9/11 and Hurricane Sandy. It's my city and very personal but every city I have gone through something like that; it becomes personal. (Liz, civil engineer)

Liz further spoke of her role in the context of a code of professional conduct to make conditions safe and protect people. This was further underscored in Paul's background, empathy, and compassion.

> As an active duty Army Officer, 27 years plus, being involved in a number of operations, I've seen some things like Somalia where people are starving, literally, and dying on the streets, and in the villages. When you see stuff like that it gives you a whole different perspective on life. And being in a combat situation, things are happening around you, that are life threatening. My spectrum is different than everyone else's. (Paul, engineer)

Paul is an engineer who has seen active duty. He has seen the ravages of war and has brought to his work a level of empathy and an understanding of distress that is unique to anyone interviewed in this study. While I am not inferring that architects, landscape architects, planners and engineers need to have this level of insight and experience, his viewpoint even after all that he has experienced, reflects someone who values life and the importance of interacting and connecting with people as an engineer in a post-disaster or planning role.

> In the context of Sandy and other events like that, my first thought is to make a real connection to people. I don't think we do this enough today, this idea of community bonding. I got a chance to do this in Katrina, Andrew, Lee, Irene, and then Sandy. It's really satisfying for me to be able to help and to be able to be involved in bringing solutions through empathy and understanding distress. (Paul, engineer)

Though Robert was not a military career professional like Paul, he is a member of the Air Force Association and the Navy League of the United States. A healthcare architect for more

than two decades, Robert was one of the first people who mentioned post-traumatic stress in the

context of Hurricane Sandy.

> Right after Sandy, going into The Rockaways, talking to homeowners, I not only calmed them down, but also started talking about potential solutions, potential funding sources, and got into literally house by house discussions; it became quite tragic. It is a difficult experience that in the aftermath feels like post-traumatic stress syndrome. (Robert, architect)

> Robert's response is certainly reflective of an empathetic approach and a deep

understanding into the distress of those he is there to bring assistance to. According to the

American Psychiatric Association, "post-traumatic stress disorder (PTSD) is a psychiatric

disorder that can occur in people who have experienced or witnessed a traumatic event such as a

natural disaster, a serious accident, a terrorist act, war/combat, rape or other violent personal

assault" (Parekh, 2017, para. 1).

> Thomas, a landscape architect who grew up with hurricanes, has a particular poignant

perspective on Sandy in this context given what he witnessed as an adolescent during Hurricane

Andrew, a Category 5 hurricane that struck the Bahamas, Louisiana, and Florida in 1992.

> I think Sandy helped me heal a traumatic time in my life, with Hurricane Andrew. I mean, you are going from adolescent to adult and your own life is changing and then to see the world around you transform, it was a lot to take in. To understand that and communicate that with folks in the field is really important. (Thomas, landscape architect/urban designer)

Thomas went on to discuss how the personal directly impacted his professional approach in

training others in post-hurricane scenarios.

> And a lot of our volunteers, we were training them to not just turn the lights on in a hospital but also to give hugs. Everyone you meet is going to be in a PTSD type of environment. You never really heal from that. Just like grief, when someone dies, the pain is just as intense—but when you do remember it, it's just as intense as day one. (Thomas, landscape architect)

It takes courage and fortitude to confront and respond to these issues. As reflected in this quote, often one doesn't often grasp the level of personal stress that is absorbed in these interactions over time. It is my objective that this study will begin to be a first step in asking some of the right questions as more professionals are called into post-disaster action.

*Summary—Pillar 1 (Personal) Theme 1.2: Empathy/stress*. As illustrated by the designers/planners in these excerpted narratives, many entered a space of disequilibrium where seeing the urban fabric and physical structures of communities suddenly torn apart impacted them deeply. Likewise, was witnessing the suffering of people within the communities who professionals were there to support. Some designers/planners met that with empathy, others grief. Several plannindesign/planning professionals referred to PTSD as something to consider among those who have been most deeply involved in dealing with such events. This is an experiential process and even with holding boundaries, one cannot help but be impacted by it.

**Pillar 1 (Personal) Theme 1.3: Critical moments**. The theme of critical moments grew out of narratives shared during the interviews revealing personal turning points directly related to post-climatic events. These were either events related directly to Hurricane Sandy or even events pre-Sandy that impacted their lives dramatically and affected their approach to the Sandy event and aftermath. These are insights and changes that made a permanent impact on their lives.

> In many ways, this disaster was the best thing that ever happened to me [pause] to my family. Because it brought us together, it brought my wife and I together, in a way that we had never. We've endured many challenges personally, as a couple, and this was one that would have broken anybody's back. We bound together, and our kids call us the dream team. There was nothing we couldn't take on. (Vic, architect)

Both Grace (engineer) and Thomas (landscape architect/urban designer) had experienced critical moments in previous climate-change related events, ones that deeply affected the direction of their professional lives. For Thomas, it was as an adolescent dealing with the loss of his best friend's younger sister after Hurricane Andrew; for Grace it was as a young professional,

working on the ground in New Zealand on the recovery effort after the 2011 Christchurch

earthquake. She recounted,

> I have dealt with the impact of these events through so much of my career but being in the trenches after the earthquake in New Zealand is probably one of the most impactful things for me. In a personal way it has impacted what I do in my career. I'm really focused now on the proactive side of disasters rather than just being on the reactive side. (Grace, engineer)

The earthquake in New Zealand was a turning point early in Grace's career. For Thomas,

it is what happened to him directly as a teenager during and after a Category 5 hurricane that

impacted what he wanted to do in life. Claire—who is from Haiti—was impacted by the death of

her grandmother and other members of her mother's family during the Haitian earthquake of

2010. When she went back to Haiti after the quake to support in the rebuilding, the family homes

she had stayed in just months before had been destroyed. Claire described,

> I had [previously only] seen architecture as a positive thing. But after the earthquake in Haiti I saw architecture as an element that could kill. That architecture can be both a protagonist and an antagonist. As a woman of color, I am 0.2% of the profession of architecture. So, while I can't solve all the problems, I can support the community and tell the story of what has happened. I also need to share my knowledge so that I can help people in their own communities use their power to make their own changes.

This resonated with Thomas's recollections from his youth in Florida in relation to

Hurricane Andrew.

> My best friend lived across the street from us. We were like, as teenagers, "Oh chaos, it's so cool!" We had all these plans that we were going to drive around and see the wreckage, we had no idea how bad it would be. And I go to his house. He goes, "Naomi [his sister]is in the house. A beam flew through the wall and hit her. We're waiting on the ambulance. She died last night." It impacted the direction of my life. (Thomas, landscape architect/urban designer)

Esther is an activist/storyteller and works with Sandy Storyline, an outgrowth of Occupy

Sandy that described itself as "a participatory documentary that collects and shares stories about

the impact of Hurricane Sandy on our neighborhoods, our communities and our lives" (Sandy

Storyline, para. 1). In our interview, Esther described a critical moment in which she came

face-to-face with her own despair as an activist and storyteller. She seemed wary of digging up

the past any further during the interview. In honoring the limits being set in the conversation, I

asked her why she sounded so sad and engaged her in the present moment as opposed to asking

her a question that would have meant recalling the past. This self-described poignant moment

was also a critical moment for me as a reminder of the boundaries that need to be respected in

conducting research within a moment of observed fragility. "I am sometimes sad because I think

these stories are so important. And sometimes I feel like it is so hard—even with all the

storytelling skills in the world—to break through and get these stories out there" (Esther,

activist/storyteller).

As I listened to Esther, unavoidably I was also reflecting on what had brought me to the

dissertation subject. How my own despair and sadness went back to the neighborhood I had

grown up in and Sandy's impacts there and, therefore, on me. I shared the feelings of impotence

Esther described. At the same time, I wondered: Would any of the narratives in this study

ultimately make even a small dent of awareness into such a large issue? Would it matter?

Remarks by Eli (architect) were meaningfully parallel:

> Nothing is permanent, the precious object, or precious memory, or photo albums, those
> types of things . . . not even buildings. As a family of immigrants, I wanted to build
> something permanent. It was in part why I became an architect. It's definitely been driven
> home to me that nothing is permanent. It is kind of liberating in a certain way. I
> appreciate some things more, that you might take for granted. (Eli, architect)

The experience of impermanence in a profession of solidity and structure became

something of a theme throughout the research. For some professionals, impermanence came in

the form of knowledge. This is like the Buddhist space of the beginner's mind (*Shoshin*) where,

even after decades of practice, you are always starting over (Suzuki, 1970/2010). A seasoned

professional returning to a place of not knowing is a critical moment.

In college, life seemed so black and white, something was right, or something was wrong. It was kind of easy to see the world that way. This issue of how we get our arms around climate adaptation—[I] might as well have just gotten out of school. I feel as much at a loss professionally today as I did the day I graduated from graduate school. So, it is very, very humbling, is all I can say. (Beryl, landscape architect)

While both Eli and Beryl spoke of their work in deference and respect to the communities they worked within. Susan (urban strategist) was more focused on the loss of dignity which she experienced as a critical post-Katrina moment.

Post-Katrina New Orleans was struck by two disasters. One was the hurricane itself and the other was people who came in as professional experts to force solutions on them that had nothing to do with the people that they were meant to serve. (Susan, urban strategist)

Susan also described professionals who came to New Orleans, learned what they could from the community, took those ideas, wrote articles and books (not attributing the narratives from the local sources appropriately, in her view) and made names for themselves. When Hurricane Sandy struck, Susan was already working with the Municipal Art Society of New York, one of the oldest civic organizations focused on the built environment. As a member of the Society's roundtable that Susan chaired post-Sandy, I felt that it was all about inclusionary leadership. Notes from the first meeting of that roundtable on February 25, 2013, described its work as follows: "As there are many initiatives underway post-Sandy, the Roundtable can provide civil society leadership organizations to come together monthly (Municipal Art Society of New York, 2013, para.1).

*Summary—Pillar 1 (Personal) Theme 1.3: Critical moments.* Among the participants in this study there was a wide range of responses about critical moments—events that changed the course of a person's life or made a fundamental change to how they perceived themselves in relation to the profession or in their personal lives. Through the loss of his home, one participant found his way back to what was really meaningful—his family. For another, as an adolescent in Florida, the death of a friend's sister during Hurricane Andrew, impacted the direction of his life.

For several designers/planners the belief in permanence gave way to the wisdom of

impermanence.

       **Pillar 1 (Personal) Theme 1.4: Impacting the narrative**. Design/planning professionals

have been exploring how to best communicate the challenges and solutions around

post-climactic events such as Sandy to the public as well as to others in the profession. They

need to find ways to communicate these sometimes harsh or unwelcome realities in a manner

that is truthful but not fatalistic. Beryl's narrative exemplifies this conundrum:

> It's become easier now that Sandy has stayed a bit in people's trauma memory to suggest
> to them that there is no magic bullet here. Even looking at some of the tide gate
> alternatives that are being proposed across the mouth of the New York Harbor, aside
> from the fact that they probably won't live to see that ever completed. (Beryl, landscape
> architect)

> Predictions about sea level rise are changing rapidly. The design and technology being

proposed to address those issues can be tenuous because by the time it gets built it may no longer

be relevant. How one communicates this narrative is particularly demanding.

> In terms of landscape architecture, there is an impermanence to it because it is always
> changing. I think architects think of what they do as permanent. When you're dealing
> with something like Sandy, you really get pushed up against the reality that what you've
> built to last a lifetime, is really, within a certain context, as impermanent as the
> landscape. I mean, it can be. (Jeanine, landscape architect)

> The theme of impermanence is again being raised but, in this case, in the context of

impacting the core narrative in the professional's life. When you are designing for storm

protection the underlying objective is to build to last; but if critical conditions are changing, and

there is no precedent in one's lifetime for that kind of change, how then do you design with an

eye on the future? How do you communicate this challenge to a community that is putting their

safety in your hands?

> Agility is a fundamental component, and if we go back to the idea of impermanence,
> what you need is agility. Agility is the ability to move among various issues and
> opportunities and to deal with them successfully. We have to develop that agility in our

narrative. We have to have agility and will. I think those two things together could serve us quite well. (Ross, architect)

Agility is a key point Ross raised here in regard to impermanence. Reflective-based action rather than reactive-based decisions. This is an important distinction, one that I find a crucial component of the design/planning professional's narrative in responding post-disaster or in pre-planning within vulnerable communities.

Another point of discussion in this research of communicating the narrative is how to convey just how vulnerable a community may be to the next storm. In the aftermath of a disaster, how do you keep people engaged without creating fear or lethargy? This is a very important issue especially when informing those affected that perhaps the impacted area should not be rebuilt. This dilemma for the professional will be discussed more directly in the societal pillar.

> On one hand the sky is falling and on the other side, the sky may fall in 10 years or in 20 years, but somewhere out there the sky *is* falling and it's all about the speed in which you would expect it to happen. How do you plan for that? (Beryl, landscape architect)

A number of the study participants who shared concerns similar to Beryl's connected this level of climate challenge to challenges during war where there is an enemy—and a plan of attack to defeat the enemy. But they questioned, "Who is the enemy here?" Nature? The waters and the earth that sustains us?" In terms of the impacted and changing narrative that the study participants had turned to, there were many more questions than actual answers.

> When you sit down and you say to people, one of them is a war monger, the other is Gandhi, how do you get that message out that promotes peace with power and with passion and really taps into emotion. That is where the struggle sits in the global climate debate. To get people to feel emotional about the climate coming from a place of peace and not from a place of the adversary, the enemy. (Edward, architect)

Current global narratives make almost everything seem of the same level of urgency. So, how then does a professional communicate the urgency and far reaching impact of climate change on future generations?

Design/planning professionals were most effective in this process when they truly engaged the community with open-ended questions. This encouraged collective perspectives more than setting up the problem and pushing for a solution. Liz found that communicating to diverse groups of stakeholders so that they understand the issues and potential vulnerabilities was clearly a major part of what she did in the aftermath of Sandy.

> So, you have Hurricane Sandy in 2012. And people have a mechanism of protection against what is very scary and that includes loss of life. The memory of people is very short lived, and I think it is our way of not being afraid or causing others fear, to forget these things. So, I think that is a very important thing to communicate these issues in ways that people understand. (Liz, engineer)

Not unlike Liz, Samuel sought to communicate the complex messages around Hurricane Sandy in a way that could reach people emotionally and across generational lines.

> I've thought a lot about what we could do on an emotional level to communicate this message in a more meaningful way. I think it's how you talk to one generation about the future of the next generation. I deal a lot with how to communicate science and data. I have found storytelling gets people emotionally involved in this, and then they care about what the data is showing. (Samuel, architect)

The global youth movement on climate change has shown that many younger people feel that older generations are not invested in protecting the earth for next generations (Foran, Gray, & Grosse, 2017; Sengupta, 2019). Eli, one of the architects in the study, suggested "kitchen table conversations" where adults and children discuss these issues at home. This would help in the sharing of information on a more intimate level and help to integrate these realities more into the day-to-day. This is a similar theme underscored by both Hannah (planner) and Roberta (architect). Hannah said,

> Well, what is a motivator in this narrative? I mean, maybe some people are motivated by fear. Some people are motivated by science. I think the people that are doing work in this area are people who are able to not think about themselves all the time, and they can kind of see ahead and think about other generations.

This statement reflects the importance of design/planning professionals thinking more inclusively and intergenerationally in how ideas are conceived of and communicated. Recovery from Hurricane Sandy or other climate-impactful events takes years and, in some instances, the same communities can be hit by multiple events. Similarly, Roberta brought the intergenerational narrative back to storytelling in a very creative and experiential manner. She called it the power of putting your finger on the map.

> Impacting the narrative stories are going to be so important for that—the power of putting your finger on a map. If you know a place, and you put your finger on that place on the map, that connection brings back your history. If you don't know a place and you put your finger on the map, you project desire of what you think it's going to be like. (Roberta, architect)

Roberta then tied this analogy to arriving in a disaster area, underscoring that not understanding the people and the location can be as damaging as the disaster itself.

> For those of us who parachute in and do work, how can we understand someone if you put your finger there? Do you know what they're truly trying to tell us? Do *you* understand *their* narrative? (Roberta, architect)

One of the study's themes is the importance of design/planning professionals not pushing their own agenda on a community that they are there to serve. Esther further built upon the importance of this inclusive approach by expanding the narrative to honoring the dignity of the person telling the story and being a witness to another's experience.

> It is about honoring the dignity of the person telling the story. Not every story is meant to be told the same way. But telling the story in a way that is meant to create a narrative that is collaborative. You know there is some value to being a storyteller and being a witness to someone else's story. (Esther, activist/storyteller)

This theme reveals that the perspective and practice of the designers/planners, on the front lines, can be improved by identifying and seeking out voices of those more vulnerable and are often silenced amidst the rush to recover from catastrophes. As such events become more

commonplace, the future of the profession may need to become far more inclusive of those people who have suffered the loss of community through natural disasters.

*Summary—Pillar 1(Personal)*, *Theme 1.4: Impacting the narrative.* With so many competing global narratives that make almost everything seem of the same level of urgency, the design/planning professional is challenged to deliver an account that is constantly changing, and for which there is no precedent in their lifetime. Although the participants offered a number of different approaches to tackle this challenge, they consistently endorsed the value of simplicity and factual clarity.

**Pillar 1 (Personal) Theme 1. 5: Race, gender, and inclusion with the design/planning profession**. In 1968, Whitney M. Young, Jr., a civil rights activist and, at the time, the executive director of the National Urban League, gave the keynote address at the Portland, Oregon, American Institute of Architects National Convention. He stated, "You are not a profession that has distinguished itself by your social and civic contributions to the cause of civil rights . . . You are most distinguished by your thunderous silence" (American Institute of Architects, 2019, para. 4). At the time, Young was critical of the high-rise housing projects that were being built in some of the poorest and toughest neighborhoods. He questioned why there wasn't push back from the profession. While this goes to the point of the ongoing lack of diversity within the profession, it equally shows the lack of inclusiveness in the recovery and planning process within racially diverse communities. Participant Talib stated,

> Designing for disaster relief, disaster preparedness comes from really well-intentioned folks. Yet, it's always assuming a kind of general sense of universal needs instead of specific needs, attitudes or understandings of culture and community that are worthy of being preserved. Community members need to be part of whatever structures are built. That goes for refugees from disasters or wars, it's all kind of the same thing. (Talib, architect)

Talib's remarks were reinforced by Penelope who more bluntly brought up infamous historical domination while also distinguishing the perspectives of planners versus architects.

> Part of it is that we have to decolonize how we think about space because we are building on layers that really, at one point, enforce segregation or slavery. And a lot of that has perpetuated itself. We think it's normal and it's quite surprising how we don't even realize some of these things. I think with the profession itself it needs to diversify in lots of different ways. (Penelope, architect)

To achieve this kind of fundamental change in the profession requires focusing on potential entrants to the profession before college and even before high school. Planner Kaasar further expanded upon the importance of professional practitioners being involved in the university's training of the next generation of designers/planners. A significant number of professionals interviewed within this study are also educators; their appreciation of the importance of (re)education seems almost a given.

> I assume a sort of practitioner hat on a daily basis but also [have] engaged in a more academic role . . . in the immediate days after Maria. One of the things I learned was that the classroom was a very important place for conscious reflection and critical thinking around what needs to happen in the post-disaster period. It opens up the conversation with the next generation of planners. (Kaasar, planner)

Part of what Kaasar is highlighting is the importance of being a reflexive practitioner as a way to shape discussions and call out injustices. It is also a way to begin to influence the mindset of the next generation of professionals in a far more inclusive manner.

Asking the same question of Joseph regarding racial and gender equity and the need for greater diversity resulted in quite a different response and perspective. Joseph, as previously noted, was heavily engaged during Sandy as a social activist and worked closely with designers/planners on the ground as part of the rebuilding process. Climate justice is a focus of his work. He had a unique perspective on his next steps on tackling the injustices as a result of climate crises and referenced his commitment to the existential crises of climate change and White nationalism.

The far right and climate—these two problems are intertwined. I am trying to understand White terrorism. It's key to building structural racism and is a huge barrier to addressing the climate crises. Systems on the planet are collapsing and the ability of humans to live on this planet; and with this is a resurgence of White nationalism. (Joseph, social activist)

***Summary—Pillar 1 (Personal)***, ***Theme 1.5: Race***, ***gender***, ***and socio-economic composition of the design/planning profession.*** While women in this study acknowledged that the number of women in the design/planning profession had increased exponentially in the past 20 years, participant designers/planners acknowledged that the same could not be said of Black or Brown professionals. They remain underrepresented in the profession. This substantial underrepresentation negatively affects design/planning, in predominately Black and marginalized communities. Through the sheer lack of diversity, the very democratization of space is impeded. This sentiment is reflected in comments about the need to decolonize how we think about space and integrating social justice into design. Education plays an important role in shifting this paradigm. An increase in Black and Brown professional practitioners at the university level who help to train the next generation of designers/planners would therefore be vitally important.

**Pillar 2: Professional Impacts**

Despite the metaphor of pillars, there is not a clear separation between the personal and professional dimensions of the interviewed practitioners' response to Hurricane Sandy. In fact, the interrelatedness of what it is to experience the world as "just another" human being and to do so as a highly trained professional, should not be siloed. The findings underscore the desirability of making the personal, the professional, and vice versa. This said, I have separated the personal and professional themes for the purposes of discussion and clarity. In the concluding chapter I return to the inevitability of cross flows between personal and professional lives in

design/planning. This section looks at each of five themes of Pillar 2, which are summarized in
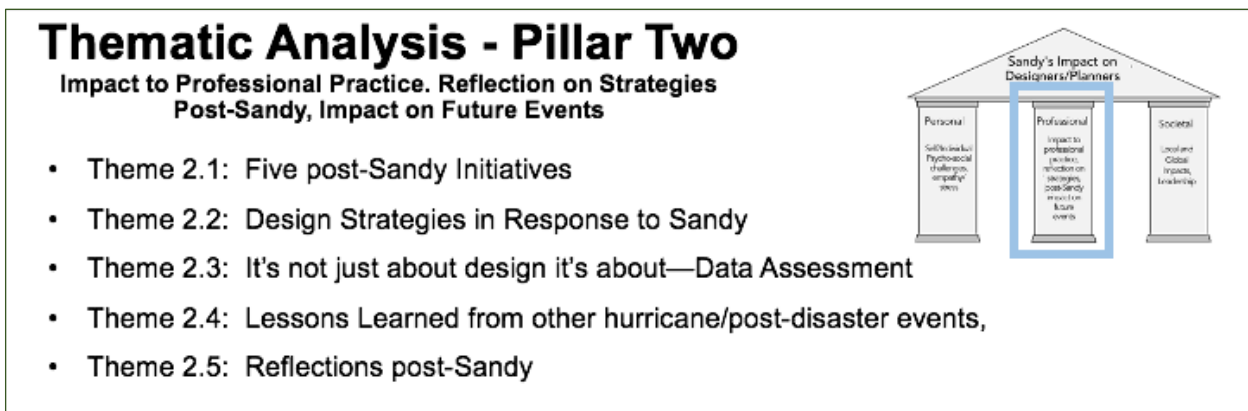
Figure 4.4.



*Figure 4.4.* Themes identified for Pillar 2 (Professional).

Six months before Sandy, Lyla, one of the architects interviewed for this study, was

contacted by the NYC Mayor's Office about her role on the Spaulding Rehabilitation Hospital on

the Boston waterfront. It is a building Lyla's firm designed, but her particular role on the project

was to lead the resiliency and sustainability conversation. She went on to describe how after the

people at Spaulding watched the media coverage post-Katrina they wanted to put measures into

place so they would not recreate another scenario like Katrina.

> If something akin to Katrina happened in Boston, people would not be throwing furniture
> through the windows, and the building would be inherently more passively survivable. It
> would be elevated to prevent flooding. And so, it became the first building on the Boston
> waterfront designed to take into account sea level rise and the first one to be designed
> where you have all the infrastructure on the roof. (Lyla, architect)

Lyla's comment referred to the curiosity and interest the Mayor's office representatives

had recognizing that Boston *voluntarily* built to withstand ocean rise effects. Although the city

was challenged in convincing property owners along the NYC waterfront to take building

resiliency seriously, these actions suggest that City of New York was beginning to assess their

own coastal vulnerabilities long before Sandy. During the Bloomberg mayoralty in 2007,

PlaNYC was introduced (and updated in 2011) with the objective of what NYC should look like

in 2030 as a city that was greener and had a more equitable quality of life that addressed the climate issues as a coastal city (PlaNYC, 2007, 2011, 2013). Unlike these reports (e.g. NYC SIRR), PlaNYC was completely focused on Sandy relief and recovery. After Sandy, many other initiatives began to emerge.

**Pillar 2 (Professional), Theme 2.1: Five post-Sandy initiatives**. To adequately understand the professional dimension of the impacts Sandy had on the participants, it is necessary to revisit the five post-Sandy initiatives overviewed in Chapters I and II. Here, emphasis is on the difference that Sandy made to designers, planners, and related practitioners professionally.

As noted in earlier chapters, I have chosen to focus on professional work that arose through participation in five somewhat overlapping but substantively distinct initiatives. These were arguably the most comprehensive responses that institutions—governmental and non-governmental—made to the overwhelming challenges Sandy left behind. I rely on my participants' experiences primarily in the context of these five programs, to probe the impact of Sandy on their professional lives.

*NYC Special Initiative for Rebuilding and Resiliency (SIRR).* In December 2012, approximately a month after Sandy struck, the Special Initiative for Rebuilding and Resiliency (SIRR) convened to address the creation of a more resilient New York City in the wake of Sandy. Its long-term focus was on preparing for and protecting against the impacts of climate change. A final report released in June 2013—*A Stronger More Resilient New York* (PlaNYC, 2013)—laid out plans for a $19.5 billion program to reinforce disaster protocols and prevent damage from future climate events. The Administration of Mayor Bill de Blasio, who took office in January 2014, continued to back the plan.

While the designers/planners interviewed as part of this study categorically acknowledged how important this report by the Mayor's office was right after Sandy, and how important the in-depth research and initiatives set forth report were, most of the focus in these discussions was on the actual programs that were implemented as result of these reports.

I participated as a facilitator in a rollout of this report in Coney Island at Abraham Lincoln High School, Brooklyn in 2013. Video footage of that rollout was recorded as input for this research study. However, when I attempted to play it, I received this message: "Video unavailable. This video contains content from Mayor Bloomberg. It is not available in your country" (New York City Special Initiative for Rebuilding and Resiliency, n.d.). As "my country" was squarely in the location of the work and the hurricane, this was worrisome; I saw this as an ill-starred example of the outreach efforts the initiative purported to emphasize. Participant Robert commented on SIRR:

> From my perspective this, [The NYC Special Initiative for Rebuilding and Resiliency had a lot to do with things that architects, planners, engineers, zoning experts got involved in right after Sandy. It was a good important step. This continued as more reports were produced and then those reports were translated into codes. (Robert, architect)

As he further discussed, after the storm many different reports were produced and many guidelines were proffered. All of those guidelines were made into changes in zoning, planning, and building codes. "The changes in the building code, which is known as Appendix G, was particularly critical" (Robert, architect). What he was referring to is noted below and was vital to the rebuilding process for design/planning professionals. The 2014 addition to the code's purpose was as follows:

> The purpose of this appendix is to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas. (UpCodes, n.d., Section G101.1)

Additionally, changes were also made in the New York City Zoning Resolution of October 2013: "The provisions of this Chapter establish special regulations which are designed to encourage flood-resilient building practices for new and existing buildings and in so doing to promote and protect public health, safety and general welfare" (City of New York & City Planning Commission, 2017, para. 1). Robert commented,

> Ultimately, what happened, is that many national codes were affected, building codes, zoning codes, FEMA codes and insurance company guidelines, even hospital codes. It had a great impact on the profession. Again, that's what made reports like NYC SIRR and others were so important. Many of the FEMA maps that people had been guided [by] needed to be revisited. That was another big change that happened. (Robert, architect)

FEMA produces flood maps that rate areas from vulnerable to safe, and from moderately hazardous to hazardous. New York was first mapped by FEMA in 1983. With only minor changes made since that time, Hurricane Sandy far exceeded the map zoned flooding areas.

Leah further underscored that the *Stronger, More Resilient* initiative (PlaNYC, 2013) helped to provide guidelines and a roadmap of what communities would be facing in the recovery period.

> Being able to tell people in Red Hook, this is what it's going to be like, the long-haul of the process and what's it's going to look like. A report like this is useful. So, I felt like that fact that New York City had a relatively quick response and could deliver so quickly [on the initiative and the report] was impressive. (Leah, architect/planner)

***Rebuild by Design.*** Rebuild by Design (RBD) began as part of former President Obama's Hurricane Sandy Rebuilding Strategy led by a task force that was chaired by the HUD Secretary at the time, Shaun Donovan. It began in June 2013, resulting in an international design competition led by the United States in cooperation with Henk Ovink, the then acting director general of spatial planning and water affairs for the Netherlands (see Chapters I and II for a detailed description of this initiative). The participants in this study who had engaged in Rebuild by Design emphasized that Ovink's focus was on the importance of collaboration. The

Rockefeller Foundation played a pivotal role in *Rebuild by Design*. In a review, of the program

funded by the Foundation, the Urban Institute's (2014) review called the RBD vision "more

aspirational than operational" (p. ix). I have noted this here because it foregrounds the struggle

between the aspirational and the pragmatic, a challenge that many of the participants clearly had

on their mind in our conversations. Eli's remarks go to this dilemma.

> So, Rebuild by Design—great that it came up. Great that we had all these amazing
> projects be developed and engage the design and communities. An amazing program for
> demonstration projects. Once the design winners were announced, you got almost a false
> sense of security, that the general public said, "Oh, great, once these are all built, we're
> going to be fine." But not everything was funded or will be built. (Eli, architect)

> RBD was part of the Rockefeller Foundation's 100 Resilient Cities initiative that put

resiliency on the map across the country and around the world. However, another participant,

Kaasar observed,

> We collaborated with the Resilient Puerto Rico Advisory Council . . . [we] worked with
> the now defunct 100 Resilient Cities program and intersected with the folks in Rebuild by
> Design. My impression with what was going on there was that they had a template of
> things they do on the ground from somewhere else. I don't think that you can expect to
> do the same things over and over again and call it a success. (Kaasar, planner)

> Kaasar talked about pushing back on many of their ideas and strategies. He was skeptical

if they were going to be in Puerto Rico for the long haul or if they were just checking off another

box in the global landscape. At the time of this interview, The Rockefeller Foundation had

announced that it was changing direction in regard to 100 Resilient Cities. The 100 Resilient

Cities organization's work concluded on July 31, 2019. Kaasar reflected on this change:

> 100 Resilient Cities is there no more. I have no ill feelings whatsoever with any of the
> individuals who worked here. I don't blame individuals for what is deployed by
> multinational foundations or international NGOs who sometimes feel they are doing good
> by jumping into a disaster situation or parachuting into a situation without necessarily
> respecting or understanding events on the ground. (Kaasar, planner)

> Kaasar felt that RBD provided lessons learned from Sandy most specifically in engaging

and, even, fighting with stakeholders on concrete ways by which to engage the community early

and often. Kaasar also mentioned that, while the lessons learned from Rebuild by Design in the

context of Sandy were important and valuable reminders, the tactics proposed to attain what they

did may have worked in New York but not necessarily in Puerto Rico.

Susan also shared her views on the experience of RBD:

Rebuild by Design was for me always an interesting experiment. I have a lot of
ambivalence about it because I am not convinced that design is always the answer but I
do think if you are going to invest in infrastructure that is supposed to be catalyzing
resilience then [RBD] was a fabulous in making the design profession more
collaborative, better listeners in the design community, and more integrated with other
disciplines. (Susan, urban strategist)

Dawn Zimmer had been Mayor of Hoboken, New Jersey, during the Rebuild by Design

project at the Hudson River. The objective of the design was to protect Hoboken and parts of

Weehawken and Jersey City from rising sea levels and storm surges, rising tides and heavy

rainfall. During Sandy, there was $100 million in damage (Union of Concerned Scientists, 2014).

In our interview, Susan reflected on the support Mayor Zimmer had relied on from RBD.

The access she [Dawn Zimmerman] had to help Hoboken through RBD she couldn't
have done that by herself. It would have been a real challenge. But when you had HUD
and the Secretary so elevating the profile of the role of design and the recovery as an
opportunity to do something different, it meant the Dawn Zimmerman's of the world got
a lot more attention and a lot more resources. I think that part is pretty damn good.
(Susan, urban strategist)

Because of Sandy, understandably, all the focus became about water. Henk Ovink being a

water expert and in a leadership position with RBD, contributed to this awareness, which helped

everyone acknowledge those risks.

Susan continued in the interview with her sense of limitations of this perspective.

A lot of this has to do with policy, codes, and procurement. The agencies themselves are
not very interdisciplinary. If we expect policies to be more place-based and holistic then
the professions will be more collaborative, reflective, interdisciplinary. Again, RBD was
good in that it brought architects together with geologists, sociologists, engineers.

However, Paul (engineer) brought the topic of collaboration back to the need for a wider realm than just professionals.

> The idea was that the community is going to be there from the very beginning. And their input is essential and that must be included in the design process. And really investing in the community's ideas and you would drive your designs. So that was the RBD program, was a game changer. And the head secretary deserves the credit for that, Shaun Donovan. (Paul, engineer)

Melissa, an architect interviewed for this study, spoke about how she engaged with many of these same guiding principles in her own work. It's not a new language for the design/planning profession but it was very much in the forefront as a result of Sandy.

> That's what I did in Sheepshead Bay Brooklyn [hard hit after Sandy] and that's what I did in New Orleans [referring to Katrina] and it was effective in my own little way. But that's what Rebuild by Design tried to do too, to a certain extent. Whether it gets built or not . . . engages people in envisioning a different kind of future. (Melissa, architect)

Rebuild by Design was a unique moment in time. In 2020, it is hard to imagine generating that same level of political will for a federally funded design competition. As staunch advocates for building resilient infrastructure through Governor Cuomo's proposal for the Restore Mother Nature Bond Act, RBD does continue to impact policy on a local level.

*New York Rising Community Reconstruction program*. As previously noted, the New York Rising Community Reconstruction program (hereafter, "New York Rising") was administered at the state level by the New York State GOSR. It was intended to be a community-based program that covered both New York City and New York State. The program actually began during Tropical Storm Lee (September 2011) and provided assistance to New York State communities after Hurricane Irene—which struck in August 2011) as well as after Sandy. As part of the post-Sandy initiative, the GOSR also managed the State's voluntary buyout and acquisition programs (Buy It Back) in which homeowners could ask the state to buy back properties that were substantially damaged or destroyed. A similar buyout program was

developed by Governor Christie of New Jersey. Eli spoke of the multiplicity of actions that

comprised New York Rising.

> We had a bunch of projects for [New York] *Rising*. The process from my standpoint is quicker and much more successful from the design perspective than other programs at that time. From the standpoint of getting the drawings done, getting these things rolling through that process versus the *Build It Back* program. (Eli, architect)

I asked Eli what kinds of responses he would have liked to have for this program seen

from the hindsight of seven years later. He responded, "What would be very helpful is to have

some reflective analysis from the design community. I think there is no sort of feedback with the

lessons learned."

On September 30, 2013, I attended the public engagement program of the New York

Rising public engagement session at the New York Aquarium at Coney Island. This focused on

Brighton Beach, Coney Island, Manhattan Beach, and Sea Gate. The session has been described

in New York Rising's (2013) meeting document, "Working Together to Build Back Better." The

session included an update of recent New York Rising actions, an overview of the public

engagement format, visioning, description of the organizing committee role, a project review and

action items.

This resulted in a plan released the next March by the New York Rising Community

Reconstruction Planning Committee (2014). The report explained,

> In the span of approximately one year, the State of New York experienced three extreme weather events. Hurricane Irene, Tropical Storm Lee, and Superstorm Sandy wreaked havoc. These tragic disasters signaled that New Yorkers are living in a new reality,[and] that we need to rebuild our communities in a way that will mitigate against future risks. (New York Rising, 2013, p. i)

The report explained that Governor Cuomo "led the charge to develop an innovative,

community-driven planning program on a scale unprecedented and with resources unparalleled"

(New York Rising, 2013, p. i). Participant Brianna explained,

> When the Governor's Office of Storm Recovery in New York Rising programs formed, I was nominated to be the co-chair of the New York Rising Community here. I led that process for Red Hook with another co-chair. Because of the way the New York Rising program was structured, I think that it created a structure for us to sincerely get involved. (Brianna, architect)

Part of the funding that is mentioned below is from the Community Development Block Grant Program (U.S. Department of Housing and Urban Development, n.d.). The program is a flexible one that provides communities with resources to address a wide range of unique community development needs. Beginning in 1974, the program became one of the longest continuously run programs at HUD. The Community Development Block Grant Program provides annual grants on a formula basis to 1209 general units of local government and states. These grants are made available to state and local governments that the President of the United States designates as disaster areas. As part of these Federal grants, community participation is encouraged. Participant Brianna (architect) reflected on the block grant program in her interview for this study.

> From an internal structure there are many different perspectives. I was very excited the funding that came down was from the Federal Government and not to be allocated by the Governor's office or politicians alone who were cherry picking their own projects. I feel like by having the communities voice in the process, that's really great and that's super interesting.

Having the communities voice in the process, as has already been established in earlier report of the findings, is important. Brianna noted that even when there was a more integrated community approach time constraints and focusing on specific projects rather than holistic planning limited that actual impact .

> We went through an eight-month planning process. As part of Rising we were given wonderful planners to work with. We didn't come out with a master plan, and we didn't come out with a more holistic kind of thinking, partly because we just didn't have enough time. In terms of funding these projects. We didn't know at the time that we were only recommending projects.

As part of the interview for this study, I asked Brianna, what kind of support would be needed by design/planning professionals if this was going to be addressed in a future storm-related event. She responded.

> I think some sort of community, organizing, training, could have helped—long-term vision planning would have helped. I think helping us get further funding to be able to fund a secondary planning process. It just didn't feel like there was very good closure. It's really just opening the door to the next 100 years of thought process.

*Buy It Back.* The GOSR had a Buy It Back program to purchase homes impacted by Sandy, at pre-storm value. The city offered buyout programs as well as previously noted by Vic, above. On Staten Island, neighborhoods including Oakwood Beach and Ocean Breeze (for location of these neighborhoods, see Figure 4.5), had people who were bought out on the condition that the land was returned to nature and not resold to developers who would buy low and rebuild and sell at a higher profit.



*Figure 4.5.* Location of Oakwood Beach and Ocean Breeze neighborhoods (Staten Island). Adapted from a map by Julius Schorzman. Creative Commons Attribution-ShareAlike 2.5 Generic (CCBY-SA 2.5). From Wikipedia Commons (2005).

Not all properties bought were returned to nature. Yet, this was a condition that Oakwood Beach community residents collectively had put on the buy-back.

Beryl (landscape architect) elaborated on this challenge:

In terms of managed retreat and buyouts, I think we are basically nowhere on that topic. What are the different techniques that states are using and cities in some cases, to encourage people to walk away? We had an experience in one community in Staten Island, Oakwood Beach, where folks did take a buyout.

In an article in an online news service covering Staten Island, Kashiwagi (2019) noted,

Since Sandy hit the region in 2012, the Governor's Office of Storm Recovery has purchased 612 properties as part of its buyout and acquisition programs, spending $234 million in that effort. Oakwood Beach has the highest rate of buyout properties in the state. (paras. 4–5)

In our conversation, Beryl brought the dilemma reflected in the Governor's Office report into the personal and professional context of her life and work:

As a landscape architect, and just as a person, imagine your friends, your family, and your neighbors that you've known for X number of years, and kids that your kids have gone to school with, just sort of slowly disappearing. Leaving you as the only resident on the block. Which has got to feel kind of both scary, and sad, at the same time. So, I feel as if, this notion of managed retreat, does have to be a rather democratic process.

The "dismal prospect" of managed retreat also intersects with economic disparity. Individuals who do not own their own home, but rents are at the whim of a landlord. What kind of flexibility would a tenant have? What kind of flexibility would a working-class, middle-income renter have? Depending on your economic situation, even if you were a homeowner, re-locating could be challenging even with a buyout.

I asked participants in my study, what the profile was for a typical buyout.

The State was looking for a particular profile of community where the area was vulnerable to future storms of people [who] had been hit by storms before Sandy. It also had to be a piece of property that was large enough and ecologically situated enough to be the environmental benefit if they returned it to nature. Then everybody, or mostly everybody, had to decide as a community to stay or to go. (Melissa, architect)

Further it was left to residents to discover where they might best relocate. Some realized that

they could buy a house in upstate New York but there was no way they could take that money

and buy another house in New York City. Esther observed,

> Even where my parents lived in Brighton Beach, there is so much development. There
> was a Sandy auction where they were auctioning off these homes to developers who
> would raze the homes and then turn a profit in rebuilding and reselling. Does that really
> make people safe? (Esther, activist/storyteller)

> It became clear that not all homes abandoned or bought back by a government entity

were returned to nature. Climate gentrification, as described by Baptiste (2019), became a part of

the Sandy aftermath:

> "Climate gentrification is when the response to climate impacts indirectly increases
> disparities in communities," Jennie Stephens, director for strategic research
> collaborations at Northeastern's Global Resilience Institute, says. Wealthy people
> seeking refuge from the effects of climate change are starting to move into
> neighborhoods that were once considered undesirable. The term is fairly new, but there
> are already examples of this new kind of gentrification taking place—and not just in
> coastal areas. "It can happen, and it is happening in all kinds of communities," Stephens
> says. (p. 22)

> Thus, in their professional involvement in what may first seem to be primarily technical

and financial work, the practitioners I interviewed often find themselves embroiled in dealing

with the consequences of much longer-term inequities.

> **Build It Back.** While New York City SIRR (PlaNYC, 2013) was an initiative that

resulted in a report, *Build It Back* evolved from an initiative to a structured program designed to

repair, rebuild, elevate, and in some cases—which Vic noted below—a buyout. While well-

meaning, it has had a very controversial history. The participants' comments underscored themes

of leadership, structure, delivery, and ethical behavior. As described in Chapter I of this study,

the Build It Back Program was part of the New York City Mayor's Office of Housing Recovery

Operations. It was launched eight months after Sandy to help New Yorkers with the construction

funds needed to rebuild their homes.

Vic is a resident of Sea Gate, which is located at the far western end of Coney Island in the borough of Brooklyn in New York City (see Figure 4.6 for locator map). Vic and his family had lost their home during Sandy. His perspective is particularly unique as someone who was both a victim of Sandy and a member of the profession that was relied on to assist others in the aftermath.

> We got into the Build It Back program. It was a very, very badly employed program [and] extraordinarily frustrating in terms of bureaucratic minutiae. We were one of the first participants invited in the program and we jumped in, but it became harder and harder to thank them because the performance and the program was so badly managed. The value really became questionable. Vic (architect)



*Figure 4.6.* Location of Coney Island and Sea Gate neighborhoods (Brooklyn). Adapted from a map by Julius Schorzman. Creative Commons Attribution-ShareAlike 2.5 Generic (CCBY-SA 2.5). From Wikipedia Commons (2005).

It took Vic four years after Sandy to get a house designed, built, and for them to move in. I recall many conversations with Vic during that time. He, his wife, and two sons had to find an apartment they could afford to move into while their house was being rebuilt—which was not

easy in the New York City rental market. All the while, they had to keep paying a mortgage on a

house that no longer existed.

> There were many false starts. Many times they would call us up and say, "You have to come back in. We have to get all of your information again because the system that we used to scan all your information got lost." The people didn't know what they were doing. There were third-party consultants that were hired who, I think, really took advantage of the system. The city really did just a miserable job. (Vic, architect)

After the end of Mayor Bloomberg's Administration in early 2014, Mayor de Blasio's

Administration came in and took the program over. More staff was hired to cut through the red

tape that had led, among other effects, to delays such as Vic had experienced. But after

Bloomberg, Build It Back became a political football. Vic learned there was talk of another

option. He shared,

> At one point they said, "Well, you have an option now, not to continue. We will pay you. The state will pay you for your property. Would you like to participate?" And my first question was, "What are they going to pay me?" And the answer was, "We're not sure—and you have to make the decision before we'll figure it out." (Vic, architect)

Vic was also on the local community board in Sea Gate (Figure 4.5). He understood

building codes, zoning ordinances, and what it takes to get through the design and rebuilding

process. He went on to describe more of the details as noted below.

> If you want to pursue it, you have to commit to it, and thereby, you lose your ability to continue rebuilding your house. You walk away from your property and we'll pay you, but we're not going to tell you what we're going to pay you until you make the commitment. So, it was clearly a Catch-22. It was a very bad offer. (Vic, architect)

I have reflected on just how challenging it would be for someone with less access and

knowledge than Vic had to navigate these same circumstances. Thousands of people were in that

position. Vic was among an informed and savvy minority as a professional architect with lots of

city planning and permitting experience.

*Occupy Sandy*. Occupy Sandy was a major and immediate intervenor in the aftermath of

Sandy. They were on the ground as a post-Sandy relief organization, early and fast in some of

the hardest hit areas such as Red Hook, The Rockaways, and Coney Island. Their work

underscored the importance of community organizations as first responders to the disaster.

Occupy Sandy was a volunteer grassroots disaster relief organization which is the final

and quite independent post-Sandy initiative comprising the first theme of Pillar 2. Each of the

other initiatives arose originally from government intervention albeit, to varying degrees, in

response to public demands; Occupy Sandy did not. While it grew out of Occupy Wall Street,

after Sandy struck, the focus moved to relief work. Eventually the Occupy Sandy initiative

worked in partnerships with local communities, FEMA, the Red Cross, and various

design/planning professionals. Occupy Sandy was by no means the only grassroots group to

address decades-old questions of helping those least able to handle extreme situations like

Sandy's aftermath. Other important efforts include but are not limited to We Act (n.d.), an

organization "to call attention to and organize against environmental racism" (para. 1), and

Uprose (n.d.), a Brooklyn based Latino public interest group. Both have been on the ground in

their communities for decades, fighting for social justice and, increasingly, on climate justice.

Both were also integrally involved in the Sandy recovery as was Pratt Institute's RAMP, which

was referenced earlier by one of the research participants, Brianna. RAMP was initiated by Pratt

Institute's Program for Sustainable Planning and Development by Ron Shiffman (MANY, n.d.).

Students and faculty who were part of the RAMP initiative worked closely with community

partners and clients to develop plans and strategies for rebuilding and adaptation. Occupy Sandy

was a focus rather than on these other initiatives because they simultaneously provided outreach

in a creative and facile manner to a wide range of communities.

> We started talking with friends in the organizing world, Occupy Wall Street was one of
> them but not exclusively. We started tracking the storm, [asking] "What's going to
> happen? What are we going to do?" The morning of the storm Bobby had started a
> Facebook page almost immediately, Laura had a car, and said, "Let's just see what's

where?" And the first place we went was Staten Island, and Red Hook. (Joseph, social
activist)

Joseph and his colleagues were able to marshal resources from outside the community and bring

them to Red Hook. It was the first hub. They started that initiative on the day of the storm. I

asked Joseph how they were able to marshal the resources so quickly.

> We surveyed and talked to people and we put out a call on Facebook, Twitter, email,
> word of mouth. First and foremost, we connected with people in other parts of the city
> that had things that others no longer had, and we started a call out to bring to Red Hook.
> Then more spots started to pop up and from there neighborhoods developed pop up
> donation centers. It grew like that. (Joseph, social activist)

> There was a desire to create a community-led recovery effort based on locally-run

organizing centers, including faith-based organizations, that would act as a hub and spoke,

connecting networks. The Red Cross worked with Occupy Sandy because of their social

relationships with people within the community. Joseph talked about how this would be

transferable to designers/planners.

> The connection is addressing these issues from a systems perspective. I think when you
> look at natural systems there is a diversity of scale and organisms that function at
> different scales and they both need each other. It is really important that they co-exist and
> serve different functions.

> Joseph referred to the relationship of Occupy Sandy with the Red Cross as "the bottom

and the top coming together to meet in the middle" (Joseph, social activist). That's why this

example of the Red Cross and Occupy Sandy is such an important paradigm. It has some

valuable guiding thoughts applicable to the design/planning profession and the concept of seeing

design leadership as points in a concentric circle rather than a linear hierarchical model.

> The Red Cross plays an important function to marshal resources at scale. Occupy Sandy
> helps it to move, be agile and marshal a lot of resources really quickly because of the
> network approach. Like basically there was like all these little hubs and at the center
> spokes—pathways of both information and goods. It wasn't flowing out just to one place,
> it was going to many places. (Joseph, social activist)

Accessibility is key both in the flow of information as well as the funding. This concept is further

expanded upon by Eli in the context of community-driven design, as he noted the innovative

nature of Occupy Sandy.

> Since Hurricane Sandy, you could talk about community-driven design, and before Sandy, it existed but did not go into full power. With Occupy Sandy, I think it was the first time you could see how the power of social media, and that type of technological awareness at the grassroots level, could bring to a community-driven design effort that turned into action. That was actionable in real time. (Eli, architect)

> Eli further expanded upon the point in the context of communication and being part of a

system that is already a trusted structure within a community.

> If you engage a group, like Occupy Sandy, or We Act, or any of the other really amazing groups out there, they are already set up for communication, and you are part of that stream, then there is an extraordinary real-time design that goes on. It has a level of pragmatism and practicality and it reflects the intimacy of the neighborhood and then you can begin to infuse into that conversation, long-term goals and objectives and completely driven by a hugely successful buy-in. (Eli, architect)

> Eli also discussed how the design/planning community could leverage a type of approach

as part of the profession's own model of leadership.

> I'd love to see more of it. I'd love to see that, that opportunity taken hold, and taken out by either side. Or in a sense a sort of partnership of the grassroots folks saying, "Hey, we're going to bring on these designs and designers as we did in the past and begin to reflect where we want to go and where we want to be." To me, that is a business model that doesn't exist yet, and if it does, I'd love to see who's doing it. (Eli, architect)

> Susan also focused some of her discussion on the changes people experienced as a result

of the involvement of Occupy Sandy.

> Occupy in my view was tremendously important. I was fascinated to watch how the Occupy movement morphed because of course it existed pre-Sandy, and then Sandy happened, and it immediately moved into this on the ground resourceful responsive community-based ground up. (Susan, urban strategist)

I asked her if and how she thought Occupy Sandy had important lessons for the design/planning

profession. She began by referencing their resourcefulness.

> This is one of the smartest things, and I use it all the time as an example [in the profession]. In the past we would have said, "Oh here is a community in trouble and we are going to send them what we think they need"—[even] when we don't have a clue what it is that they need. Then there is Occupy. They set a function on Amazon and create an Amazon wish list to ask for what is it they [the community] needed. (Susan, urban strategist)

Thomas also referred to Occupy Sandy and FEMA. He pointed out how the U.S. Department of Homeland Security (Homeland Security Studies & Analysis Institute, 2013) had actually been studying Occupy Sandy to "broaden future disaster relief efforts" (Schjonberg, 2014, para. 1). He stated,

> Occupy was so efficient that FEMA ended up hiring a few of the Occupy Sandy, computation managers to make FEMA more efficient. And, what happened theoretically is that you have the slow-moving vertical system, and you serve the horizontal system formally for employment and both of them were improved by it (Thomas, landscape architect/urban designer)

***Summary—Pillar 2 (Professional) Theme 2.1: Five post-Sandy initiatives.*** These initiatives were foundational to the direction of post-disaster planning and post-Sandy recovery. They also served as points of reflection for those design/planning professionals in the study.

**Pillar 2 (Professional) Theme 2.2: Design strategies and challenges**. It was difficult at first to grasp the magnitude of the storm and even once on the ground in the most heavily hit areas, devastation was mixed with disbelief. The seasoned professionals, those who had been through similar events like this before, were better prepared to cope with the aftermath. While it did not diminish the shock, it did diminish the paralysis. Brianna, as previously noted, lives in Red Hook and was hit hard during Sandy.

> I would say that it didn't resonate right away because it was almost too much to deal with. I started participating in work that Ron Shiffman had started with the students as a reaction to Sandy to figure out how they could help mobilize communities. That was called the RAMP program. That was when I started to realize just how big an issue this was. (Brianna, architect)

Leah, also an architect/planner, left her home near the Gowanus prior to Sandy and returned after the event, helping friends and colleagues hard hit in Red Hook. During this period, Leah brought in Architecture for Humanity, an organization now sadly defunct, that was dedicated to rallying "the world around the cause of humanitarian design, inspiring designers . . . with the idea that design can make a difference in improving people's lives" (Winter, 2015, para. 1). The organization helped to clean up on Coney Island in areas that would not be eligible for government funding. Parts of Coney Island were filled with small business owners who did not own those spaces and the land. They were therefore ineligible for money from FEMA to rebuild their businesses. Leah also used her connections in academia as a way to bring resources into that community. She cites one specific example through the RAMP initiative.

> I encountered you [referring to me] because of RAMP . . . so you saw the resources that we were able to channel at RAMP because of Ron Shiffman being such a trusted community advocate and planner. . . . RAMP, for me provided that piece that I had not experienced before . . . engaging the community on their terms. . . . that was the platform for me that had been missing. It was that thing that drove me to planning school. (Leah, architect/planner)

When Hurricane Sandy hit, Paul had already retired from the Corps and had just begun a consultant career at a firm that I also had joined about six months prior. There were a number of public clients that needed services after the storm to begin the process of recovery. Given Paul's background, he was assigned to this role in the engineering firm he had joined. He reflected on what he had learned from the Sandy experience during the interview:

> What were the takeaways and what do we have to do in terms of design strategies in response to Sandy? How to marshal the logistics and the resources that are needed to respond to the needs of the communities?—food, water, shelter, and debris removal to open up the roadways and so forth. With all that preparation that has to go into it, and then the recovery to get sorted out. (Paul, engineer)

Post-disaster recovery is the most critical initial step. The focus then becomes about how to rebuild in a manner that can prevent and/or reduce these vulnerabilities in the future? Paul continued,

> Recovery is all about establishing normal operations, if you will. But I think the real part of the discussion here is how do you prevent the level of damages in the future? How do you reduce them? Or, never deviate from them because you've got systems that allow you to operate throughout the event, whatever it is. I think that that is probably where we need to focus our discussion in terms of design strategy. (Paul, engineer)

While Paul was focusing on a preemptive holistic systems approach in advance of the next Sandy-like event noted above, he also spoke about the importance of acknowledging what has been accomplished in both policy and small projects rather than just focusing on the large projects that require a different level of funding and buy-in.

> There have been lots and lots of policy progress. And then smaller scale solutions, at the building level or transit station level, that they've implemented. So, let's not forget that. But it's the larger scale projects, that's the piece that really people focus on when they answer that question about design strategies in response to Sandy. (Paul, engineer)

Similar to Paul, Eli focused on incremental steps through small-scale post-Sandy projects that actually got built. He referenced a demonstration project in Breezy Point, Queens (for location, see Figure 4.7) that had been devastated during Sandy.

*Figure 4.7.* Location of Breezy Point (Queens). Adapted from a map by Julius Schorzman. Creative Commons Attribution-ShareAlike 2.5 Generic (CCBY-SA 2.5). From Wikipedia Commons (2005).

Flooding and high winds and fires destroyed more than 300 homes. The project was designed and built by Eli with a team of nationally recognized experts. This model was designed to withstand future Sandy-type events and to be replicated in other vulnerable communities. Eli contrasted the demonstration project with large-scale ideas that emerged after Sandy but how few of them had actual been funded:

> Post-Sandy, each of these little projects is a bite at a time. I have some reservations about overarching statements like some of the ones coming out of COP 21, and a number of other conferences. These are all great, really large-scale amazing decisions and ideas but how do we actualize down to the common person, is not measurable yet and that to me is one of the most critical questions.

The demonstration project at Breezy Point has drawn public attention as in a recent article in *Wired* magazine that elaborated on the redefinition of both resilience and sustainability.

In architecture, resilience refers to a building's ability to withstand the natural elements (hurricanes, tornados, fire), while sustainability refers to its ability to reside in harmony with its natural surroundings (passive heating, cooling, minimal footprint). Often thought of as separate practices, the two approaches were integrated like never before in the Hurricane Strong Home—a potential new direction for homeowners everywhere. ("The Future of Resilience," 2019, para. 2)

Hannah (planner) was similarly focused on tangible implementable steps but in the context of regulations and codes. She emphasized, "Focus on practical solutions" such as flood regulations and building codes and other solutions that people could be educated about and put in place. In contrast to both Eli and Hannah, Jeanine described a specific community-based scenario in which the damage incurred during Sandy, and the potential vulnerabilities in the face of another storm, were at odds with a potential solution. A number of members of the community did not want to relinquish their vistas or accessibility to what they consider key parts of the intrinsic value of their property and, ultimately, what it was they loved about their community—the beach. Complicating this were the site-specific challenges. Landscape architect Jeanine explained,

This community wants to see the beach, but they also want to be protected. So, doing a levy, for example, they wouldn't be able to see the beach anymore. The design that came out of the Governor's office storm recovery workshop was really a sand capped, stone cord, a dune. Which worked in some places. This is not going to keep water out. (Jeanine, landscape architect)

In the interview, Jeanine and I talked about some of the communities she has worked in and rebuilding in areas that remain vulnerable, including what has been built and if it should have been built at all. She stated,

People don't have the money to go somewhere else and to wholesale move The Rockaways or Coney Island; you're going to have to rezone Brooklyn or Queens, and how do they afford that? Some people have lived there, their families have lived there a long time. (Jeanine, landscape architect)

As Jeanine mentioned, even in the most heavily hit areas post-Sandy, there is a plethora of new high-end development:

I mean there are still a lot of developers to build on The Rockaways and Coney Island and sell those houses to people. It's as if Sandy will never happen again. And it won't not in the same way. Would it be better or worse? No one knows the answer to that.

I asked the study participants about how they dealt with the rebuilding process navigating both the governmental and the professional challenges. Melissa provided a specific example in Sheepshead Bay, Brooklyn (Figure 4.8), an area that suffered severe flooding and damage.

So, when you give a presentation about how to get the mold out of your house, or how to get through the paperwork to file forms to get your insurance back, you address the immediate needs, with your professional advice. You start to hear people's stories and you start to get the lay of the land. You survey buildings, and you look around, and you inform yourself. But you build the relationships. (Melissa, architect)



*Figure 4.8.* Location of Sheepshead Bay (Brooklyn). Adapted from a map by Julius Schorzman. Creative Commons Attribution-ShareAlike 2.5 Generic (CCBY-SA 2.5). From Wikipedia Commons (2005).

Communicating common lessons is essential among design/planning professionals. In fact, part of the impetus for this dissertation was to have the voices of these professionals heard. Grace (engineer) discussed this in the context of the 100 Resilient Cities Program:

> Sharing learning [among professionals] is something I find a little bit sad about the 100 Resilient Cities program going away. That was one of the benefits—the common lessons we can learn and can be acquired so that the risk assessment and the resilient building process before something happens . . . then use that to transcend more broadly the potential risks that we face in our own communities.

This exchange brought me to the question of where, in professional design/planning roles, does educating clients fit—and how that part of the work may have been rethought as a result of the post-Sandy experiences. As a number of participants in this study noted, for many seasoned professionals' "normal" practice had not really prepared them for the challenges faced in post-disaster rebuilding or in longer term planning in climate vulnerable locations. Grace, one of the engineers interviewed for this study, observed,

> There are definitely lots of people who are resistant to it [understanding the unique design challenges working in post-disaster recovery and planning] . . . a lot of my role has been to educate clients and design teams in recent years about the different aspects of it . . . if they come into it with one specific risk or resilient item . . . Then you open the door wider by deepening the education process by widening that conversation.

> Similar to Grace, Beryl (landscape architect) felt that since Sandy, she has engaged in a design process post-disaster recovery in educating people so they can make the best informed decisions. This educational process has been for both other professionals and for herself. While design/planning professionals are bringing a specific level of expertise to these situations, on the other hand they are all in a process of educating each other. Beryl observed,

> So, I think that what I've spent, really from December 2012 up until now trying to do is to help people understand the choices that are being offered. If it's a project I'm designing, say, I try to make it clear, so we have lots and lots of charts and graphs and whatnot sections to show what all of these words mean.

She stressed the importance of sharing the meaning of fundamental nomenclature that can be confusing and often misleading.

> What does "storm surge" mean? What year are we talking about, in terms of the data? Is it in 5, 10, 20 or 30 years? [We are] trying to equip people with knowledge so there is less time spent arguing over misaligned facts and more time spent on evaluation of their options. So, that's number one, some form of education, without sounding like an

instructor in a classroom, trying to do this in an empathic way, tailored to that specific community. (Beryl, landscape architect)

One of the other key lessons is to not mislead people about protection but to encourage them to investigate adaptation in the short- and long-term.

> Encourage people to think about adaptation rather than protection. So, for those folks, who have a direct personal involvement in a place, their concern is [that] they want to be protected. They don't want to hear that they are at risk by 2080, 2100, that notion of being protected is really not even possible to predict. That's where things get really challenging. (Beryl, landscape architect)

There are no federal subsidies for people who rent their homes or those who lose their businesses and do not own the space or the land. Those who rent, live in NYCHA housing, or own a business but not the space or the land the business is located on, will not be eligible for government subsidies in the same manner as owners would be. While people may carry homeowner's insurance, they might not be aware that this does not usually cover flooding. Beryl (landscape architect) explained the delicate challenge of getting this across to people already reeling from the storm:

> I think it's important to keep in mind, some people are homeowners that could have a choice of buyout or relocation. There is another whole very large group of folks that can't move because there is no alternative for them. We can't just say, "Too bad, so sad, you live in a vulnerable place and there's nothing we can really do about it." That's a huge issue that I think the city really has to grapple with.

We further discussed the importance of not being lulled into a false sense of complacency and for design/planning professionals to have conversations with people within communities as honestly as possible. In this regard, it is important to admit to not having all the answers.

The issues surrounding intergenerational communities and how to have this tough conversation with communities that may not survive staying in place several generations from now has also been raised within this study. These are not easy conversations for design professionals to have and in many cases, the data changes based upon the science.

Beryl reflected,

> If someone [a design professional] goes in and says, "Well, we don't have all the answers, and what we're doing now, we're planning for the next 10 to 20 years." In a lot of intergenerational communities, that's not going to suffice. So, how do you deal with that? You need to be honest but because you are dealing initially with a traumatized group, you don't want to, have people feel like, they've been traumatized again.

I asked Beryl, as I did others in the study, how equipped she felt for communicating these ideas. Her response was,

> Well, I feel very strongly that designers are very well equipped to explain things. To explain a problem, to offer alternatives, and to help communities, again, understand what their options are. That's not to say that those options chosen to move forward may not be the ones that we feel are most appropriate. But at least we're giving a community the tools to push back. (Beryl, landscape architect)

Trust—how it is built, maintained, or lost—has been a theme throughout this research and more broadly, throughout the post-Sandy work of design/planning professionals. Communicating technically challenging and emotionally stressful ideas takes a lot of trust between the designers/planners and the recipients of these messages, the community. Designers/planners are hired by a client—the Office of Management and Budget for the City of New York, for example. A project is pre-budgeted, the funding is set, and so on. How do designers/planners have these larger conversations and stay within these pre-set structures? Beryl expressed her response as follows:

> I think that we're pretty good at listening . . . that communities are more likely to trust a designer than a city agency. But, if we can't deliver on that trust, then we have a problem. If we [designers/planners] could be at the table earlier in the process [with the city], we could have larger conversations about how the city should be thinking about vulnerable pieces of geography, vulnerable populations.

Often it is not just a governmental agency that is not addressing a site's vulnerability. It can also be the planning team working on the design. This reflects an earlier theme of educating not just oneself, the community, and the client, but other design/planning professionals.

As part of the Design Commission I was reviewing a project in Red Hook [hit hard by Sandy]. I said to them [the design team presenting], "How could you possibly present this project without presenting its vulnerability? . . . I can't review this project until you tell me how you're addressing its vulnerability." (Beryl, landscape architect)

What shocked me most in Beryl's vignette was the client agency's response. These are the people who as the public servants are supposed to be the custodians of the communities they serve.

The client agency said, "Let me see if I understand what you're saying. Are you saying that this project is supposed to protect Red Hook?" I said, "No, but it's got to have an approach within the design as to how it's going to respond to these existing vulnerabilities." (Beryl, landscape architect)

Beryl went on to describe that the project she had worked on in Red Hook was designed with elevations that were lower than most elevations in the city. She explained to the team that they were designing in a community that was already vulnerable and impacted heavily by Sandy and that there were guidelines. I asked if she had felt discouraged or conflicted by this experience. Beryl noted that she was "not conflicted but felt an urgency that she had not felt in many years." In that context, she shared the story of a project on the Lower East Side. It was not a predictable outcome. It was a choice the community made after assessing the information shared by the design team.

I think Sandy hit about a week after we were given a project on the Lower East Side. It was flooded. Over the course of the next year, 2013 it was a robust engagement process. We reached out to the Chinese-American community—the kids that went to school in the neighborhood but didn't live in the neighborhood . . . [and to] all the NYCHA buildings because they were also not attending the public meetings. (Beryl, landscape architect)

Beryl is describing a very detailed and democratic engagement process in which alternatives were discussed and exhibited during the meetings. People were asked to vote on the programs. At the end of the process there were four alternatives. She further reflected,

What really struck me is that the community voted for the river ecology scheme in spite of the fact that the river had flooded them… to let the water into the site . . . it was like we were playing with fire, right? This is the body of water that had damaged a

community for four months. Now, we're actually welcoming that water into the site as part of an educational process, as part of a way to engage with water, et cetera. (Beryl, landscape architect)

The community wanted a park that was just for them, that would give them a sense of

pride, that would help educate their children about the water. And so, for them, being in an

environment where they could watch the processes of nature was something that they felt

outweighed the negative impact.

And because we were going to provide a buffer on the backside, they felt that the trade-off was worth it. But, a lot of it had to do with education of the next generation. It was very touching, it was probably one of the most interesting experiences I had post Sandy, because rather than the other communities I worked with who said, protect me, protect me, protect me. This community said, educate me. (Beryl, landscape architect)

Beryl was transparent in her discussion of the challenges of working with public agencies. The

narrative about the project on the Lower East Side goes to what will be discussed below under

Pillar 3 (societal), Theme 2—the intersection between nature and the built environment.

I asked then what the biggest take-away from this project was that she would want to

share with other design/planning professionals as part of this study. Beryl responded as follows:

I do remember one woman. She was actually a woman who lives in one of the NYCHA projects said, "I just want a place where I can see the horizon, and I can just be." And I've never forgotten that. [She said] "I just want to see an expansive space. I want to let my kids run around . . . I just want to be." That woman has actually made me go on to think about a lot of things, which is, are we effectively over designing out public space.

I followed up, asking if this compared to her other post-Sandy experiences? Had they all

been this positive?

Yes, it's a good story and it helped balance some of the tougher experiences we had on Hunts Point, and certainly The Rockaways, Breezy Point. What was tough were the people. Facing people who were really hurting because of all that they had lost and experienced. The people on the Lower East Side were also hurting, but there are different degrees of suffering and loss. (Beryl, landscape architect)

I discussed with Beryl how to grasp and deal with the high level of aggression that could

be provoked in these meetings. She shared her own residual feelings about public meetings

having grown up in a NYCHA community. Outsiders, she regretted, would come in and make

promises that were never kept. They would "study you to death" and then nothing ever changed.

> There was a rabid determination, like we won't be put down, we will fight, we will come back. It was extremely macho, extremely suspicious. Anything that came out of the mouths of the Parks Department or FEMA was mistrusted . . . people felt that the response had been too slow. It comes down to trust, people feeling heard, believing they are sincerely being asked, listened to, and not lied to. (Beryl, landscape architect)

It should be noted that the FEMA regulations in the context of New York City have been

raised as problematic by other design/planning professionals who participated in the study. This

comes out in the NYC SIRR report *Stronger*, *More Resilient* (PlaNYC, 2013) which implied that

New York City and the federal government need to better align their objectives. These issues are

further compounded by flood insurance and the national flood insurance programs.

Robert, one of the architects interviewed for this study, further explored the importance

of designers/planners making people more aware of their options and helping to educate the

public. He described this as getting a seat at the table on community planning boards and

planning agencies.

> More people need to get involved with local community planning boards and become members of various planning agencies. It is important, as architects . . . getting the word out about the growing vulnerabilities we face . . . it's a requirement that architects and planners have to take on to make people aware. We are the ones that have the knowledge, we need to get that knowledge out to the masses somehow. (Robert, architect)

Robert and I discussed how much of a bubble New York City is in. I asked him how he

would deal with climate deniers. Earlier in this dissertation note was made of Mayor of Tangier

Island in the Chesapeake Bay, James "Ooker" Eskridge a climate-change denier on an island that

is rapidly submerging (Johnson, 2018). I asked Robert how he reconciled the position of climate

deniers in the conversation of getting the word out to community groups. He replied,

> You have the climate deniers, who will literally get into fist fights with you if you even bring up the topic. . . I've had situations like that with my own family. . . It presents a challenge, but architects and planners should seek opportunities to really bring this out

into the open with community groups and specifically addressing planning and zoning boards. The facts are the facts whether you attribute it to climate change or not. (Robert, architect)

The phenomenon of climate change denial is widespread enough in the United States that there is a strong likelihood that community members and even some professional designers/planners might be skeptics. Yet, no one I spoke with in the study claimed to be climate deniers or reported significant pushback after Sandy in public engagement in the New York area on the reality of anthropogenic climate change. Instead, there was a sense of unavoidably heightened awareness that storms of increasing intensity would be faced.

> I think that there is a lot more awareness than what there was before [Sandy], building codes have been changed—that is good. There is a lot more awareness about equity, environmental justice, and design justice. I think that there's a realization that, in a lot of communities economically disrupted that they've been neglected for so long, that when there is a disaster, it's even worse. (Penelope, architect)

I asked Penelope what role she felt architects needed to play in this as part of their inherent design strategy. She responded,

> [In economically disrupted communities,] they don't have, they don't know, necessarily, where the resources are. If you don't have your paperwork, if you don't have certain things in order, you can't get help. You don't know how to get it. It's like how to help them through this process. That's not really for architects; that's more a question about community organizers. Architects need to look at where people cannot shelter in place. (Penelope, architect)

Within many of the economically disrupted communities, as referred to by Penelope, people don't leave their homes for safer ground because they have nowhere to go or no way to get to a safer space within the community. I followed up, asking Penelope how she thought designers/planners could contribute to this strategy.

> One of the things I'm finding after Sandy actually, the libraries became shelters. And that's not something that we're all thinking about. What are those spaces that you can build like cooling centers or heating centers or shelters or information centers? How you build to accommodate for that, is important. I feel like, as architects we can be more facilitators between government and communities. (Penelope, architect)

Brianna's thoughts in terms of implementing design strategies in response to Sandy are

also ones of incredible frustration.

> I know that the dollars are astounding in terms of what we've looking at to actually get projects off the ground and construct it, but at the same time, there's too much planning, and too much talk, and too much lack of actual action on the ground. (Brianna, architect)

> This goes back to an earlier point raised about post-Sandy lethargy of designers/planners

being related to funding.

> There is a wide range of resilience, not just flood protection. For instance, putting solar lamp posts out, that should have been done from the day Sandy hit. Or, dealing with green infrastructure on a much wider greater scale. And flood protection, there's a huge one, and with the Army Corps of Engineers' new study maybe that's going to push something in one direction, but [not] at the moment. (Brianna, architect)

> I then asked Brianna about the progress specifically in Red Hook in Brooklyn, as she has

been engaged in efforts there since Sandy. She recounted,

> I was at the Mayor's office, December 2018, when they were presenting their flood protection system. I was like, I'm done talking about this, we all know what needs to happen and you're not taking any action. You can raise a street six inches, 18 inches, and I know that the FEMA money is restricting you, but you need to come to the table with another solution because that's not the solution. (Brianna, architect).

While Red Hook recently created its own community recovery and disaster response plan (Ready

Red Hook, n.d.), Brianna was also referencing new development coming into Red Hook since

Hurricane Sandy.

> What they [the city] are saying is, "Oh, we don't have to use our own money, or spend our own money because each developer will come in and they will build their own sort of raised buildings that could then be connected through a wall system that they would have to build and that would protect the community."

This kind of building of approach would not include existing building stock of NYCHA housing

or the middle-income wood frame homes on Brianna's street. It is an approach that can be

perceived as favoring the wealthy and that does not extend risk reduction to the entire

community.

*Summary—Pillar 2 (Professional) Theme 1. 2: Design strategies and challenges*. We

can't "fight the next war based on the last war" because no two storms are alike and, thus, the

strategies and challenges are as unique as the communities and the individuals that are impacted.

That said, there are lessons learned that are translatable to a variety of storm related events. What

is clear from this study—and reflected in this theme—is that there is no room for complacency.

**Pillar 2 (Professional) Theme 2.3: It's not just about design . . . it's about data**. A

main thread through this study has been the tension between the aspirational and the pragmatic.

Part of the pragmatism in the context of design strategy in response to Sandy is tracking and

evaluating the data within the decision making in the recovery and rebuilding process.

> I've been in so many different situations where I've been presenting in conferences and brought up . . . the importance of benchmarking, tracking data and evaluating our decisions in a more pragmatic way. People just say, "Well that takes all the creativity out of what we do." But at the end of the day, it really doesn't do any of that. (Samuel, architect)

> I questioned Samuel on how he felt this had a particular impact in regard to Sandy and

responses to rebuilding or planning in climate vulnerable communities. He responded:

> Benchmarking of information or data that we're getting from other places globally, but then also using local or contextualized benchmarks so that we can understand how the situation is progressing to a specific area, or a specific region. It's an interesting question because the concept for all of this actually started before Sandy. (Samuel, architect)

> In the context of Sandy, Samuel explained how, as a design professional, he would

use data to inform communities so that they have a sense of ownership and he would then create

design solutions based on that shared data.

> This is exactly the basis for setting up a platform, that doesn't just track physical development; it tracks policy issues; it tracks issues of income, issues of diversity. We agreed to do this with Red Hook. To develop this platform, which, by the way is pro bono. The data was going to be collected bottom up. We were going to build the analysis around the views and the aspirations of the community. They are right now, very worried about gentrification and overdevelopment. (Samuel, architect)

What Samuel described is a platform that is built to capture, store, and analyze data creating a matrix of decisions that provide the 10 or 15 things we need to do to get the outcomes we want across the different sectors within a community. Samuel was expressing that the design/planning profession had lost a degree of rigor.

After speaking with Beryl, I began to have a deeper understanding into Samuel's concerns. Still, it seemed difficult to fathom how this could go unnoticed. In terms of the importance of data in the context of design she noted the following:

> We realized that the high tide was going deeper into the wetland than we had anticipated. We went back and realized that our survey and all of our design drawings had been based on the 1929 NAVD (North American Vertical Datum) elevation. Since 1929, sea-level had gone up a foot. So, our tidal wetland was essentially a foot off, just from the word go, as a result of using a 1929 survey. (Beryl, landscape architect)

That was Beryl's first glimmer of awakening to the realities of not only sea-level rise but to the data used to produce the design. She went on to describe another type of data vulnerability in Rockaway.

> When Sandy hit, I'll never forget going out to Rockaway to do, what the Mayor called, an emergency beach restoration. Everyone was of course highly traumatized and anxious, and folks were just throwing numbers around like crazy. They were saying, "Well the flood waters went to 13—no, they went to 14. We have to build this to 16." (Beryl, landscape architect)

It became obvious at that juncture that no one was really using the same baseline data. And after Sandy, everyone realized that the Borough Datum System was just beyond antiquated, and that we need to be on the National Datum. So, that's why, as Beryl explained, everyone now uses NAVD 88, which is the last time the benchmark was created. So, all surveys now, throughout the United States, are based on that baseline number.

***It's not just about design . . . it's about safety training/deployment.*** The lack of

accessible data was something that Vic (architect) deliberated on. How do you determine the

damage? How does it compare to other similar situations locally and nationally? Based upon that

data, can we salvage our homes? Can we fix it? Is it reparable? What does the data show? Vic

found answers to a number of these questions by embarking on a safety training program.

> I became a certified disaster service worker. And the reason I took it from California is
> that New York State at that time did not have any kind of Good Samaritan system. So
> that means that if I, as an architect, came on the scene to help people identify dangerous
> building conditions, even if I weren't charging for my services, I could be held liable and
> sued. I'm not sure New York State has fully satisfied the problem. There is a program
> CEDAR (The Code Enforcement Disaster Assistance Response) that allows us to provide
> disaster service in the event of an event. (Vic, architect)

As Vic noted, "It's a bureaucratic nuance to be able to affect a solution." Vic also took the

HURRIPLAN training course—one that I also took. This training has been described as follows:

"*HURRIPLAN Resilient Building Design for Coastal Communities* provides the necessary

training to integrate resilient community planning and building design strategies for hurricane-

prone sites" (American Institute of Architects, n.d., para. 2). Describing this experience, Vic

stated,

> HURRIPLAN was a real eye-opener. It's basic common sense training that kind of opens
> your eyes to areas that you just never thought of before. Like, evacuating people, where
> do you evacuate them? How do you make that work? How do you build environments
> that are setup to support people that have been displaced? Services related to that
> displacement that we just never thought about, cell phone service, pets?

> When design/planning professionals are trained in the safety assessment program,

training, and deployment, you are training them not just to handle the psychological aspect but

also to function as a team and the strategy for working with homeowners who may have lost

everything. Eli (architect) also addressed the need for specific training:

> You are in a team, a minimum of three, one or two of you set off to do your job, the other
> one is tasked to just listen, talk to the homeowner, neighbor, directly affected. They are
> seeing the devastation, realizing what they've lost, and all of those pieces and all of their

grief and transformation is happening right there. As a team, you are training to be there to listen to them. (Eli, architect)

I asked Eli how widespread this training was for designers/planners. There was not much mention of this in the interviews by others, and frankly, it had not been on my list of initial questions for I had not previously understood how essential this type of training was.

I think what you're bringing up is right on. And the profession does have a role in that. You are bringing your expertise to evaluate rapidly, is that building safe? And right now, it's not safe for, or maybe you can go in and retrieve your goods and its needs a later inspection. Or, don't go in there, it's about a life safety and immediate relief of pressure on the shelter systems. (Eli, architect)

Eli noted that a lot of architects have trained in New York State. He estimating that almost 300 architects in the last 30 years have fulfilled that role. Across the nation, AIA National has put together a program that has been pushing very hard to train architects all across the United States to do the secondary response effort. Eli further discussed the leadership role the profession has to play with more climate-impactful events happening locally, nationally, and internationally:

You're not calling the architect to build an addition onto your house or pick out what your new porch might look like. It's not only how the building operates, how all the systems work, but is it still functioning properly, is it safe? That is a really powerful thing and not a lot of people out there can do it. There's a huge leadership position that the profession needs to step up and step in and I'm glad many of us are.

After 9/11, the design/planning community realized that they were less prepared to tackle a disaster than they should have been. In response, one of this study's participants, Ross (architect), formed a task force called the Disaster Preparedness Task Force. Without knowing it at the time, this actually became a critical step for setting up a structure that would serve designers/planners well in the post-Sandy context of disaster preparedness. During this time only three states had this type of manual: California, Texas, and Kansas.

The manual was delivered to the AIA chapter and state offices. Ross met with the New York State Office of Emergency Management to discuss the adaptation of the manual. This *Disaster Assistance Handbook* was published to help professionals better prepare and respond to disasters (American Institute of Architects, 2017). As Ross explained it, the reality is this: If something like Sandy happens again in New York, the New York Governor calls the California Governor to activate the California sanctions for second responders that were trained in New York to be sent to respond in New York.

In 2010, the Task Force morphed into a standing committee of the AIA's New York Chapter, titled the Design for Risk and Reconstruction Committee. Ross and Eli became the co-chairs. I also have been engaged with this committee since Sandy.

***It's not just about design . . . it's about deployment of codes and policy.*** Changes to the building codes and policy were crucial after Sandy. Like data assessment, it is certainly not the "sexy side" of design but it is critical to implementing design decisions and planning approaches. This issue was brought up and discussed by several participants. Codes and policy issues are critical to creating structural changes in the system. After Sandy, the Mayor and City Council asked Urban Green Council[13] to convene a Building Resiliency Task Force that would look at changes in the building code for best practices in flood conditions.

> The first component is policy. I think a lot has been done [since Sandy] that everyone should feel good about. What I mean by that is zoning changes, the building code changes, design guidelines being integrated into capital investments. Those kinds of things, that had to get done or should have got done so what goes up, new, in the future, is not subject to the same type of damage that happened with Sandy. (Paul, engineer)

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[13] The Urban Green Council is a non-profit organization working to "transform buildings for a sustainable future in New York and around the world . . . we convene, research, advocate and educate" (Urban Green, 2019, paras. 1–2).

How then, I asked Paul, when one is looking at sea level rise and climate change do you work with science to inform policy from the perspective of designers/planners? He responded,

> You're looking at sea level rise, climate change, climate stressors that inform building codes. We can't predict the future, but we sure have science to get us to understand what the range in the future might be. And then, let science inform policy. That's what I mean by good policy change. Science-based policy, so we build in codes and zoning changes and what you can do if you build, the must dos or the can't dos that are now in law. (Paul, engineer)

The manual, *Climate Resiliency Design Guidelines*, was first released in 2017 with revisions twice since (New York City Mayor's Office of Recovery and Resiliency, 2019). Paul and his firm were integrally engaged with that effort.

Paul described the identification of climate datasets that would be needed by the design/planning community in the quest for climate resiliency. Future climate data was included in the framework that would take into account heat, precipitation, and sea level rise/coastal storm surge. A benefit-cost analysis methodology was developed from that.

Grace, an engineer, also brought up the role and challenge of professionals establishing codes that would mitigate future climate-related disasters. She observed, "One of the challenges is that the building code has been designed specifically to protect life safety but not designed to think about the future and how risks are changing, think climate change, sea level rise." Grace described how these challenges varied in terms of the owner and the building type:

> They [developers] are not necessarily willing to go above and beyond the codes to provide long term protection for a property they are just looking to flip today or tomorrow. If it's an institution or a hospital they often have a much longer term view or a real estate developer who is looking to hold on to the property for a long time it is as an easier conversation to have with them because they care about the long term ROI.

I then asked how design/planning professionals could best address this in response to design strategies after Sandy. Grace responded,

Climate science is so complex. And as engineers I don't think we are in a position to comment on the work that has already been done other than it is science and evidence based. We should be on board with it because it is also what we do, right? Designers/planners are still hampered by regulations or the lack of regulations to include the data and projections into their design.

Grace referenced what some cities, for example Boston, are now requiring in terms of future planning. It goes beyond guidelines. The Boston Development and Planning Agency requires climate change projections into any new significant developments.

While codes are vital, so is policy, which is what Grace was underscoring in her example with the Boston Development and Planning Agency, "that until we move to a point that banks, insurers, governments, departments of buildings are all on board with requiring it, it is very hard to actually change the tide." In our interview, Liz, an engineer, also connected building codes and disaster preparedness:

I was a co-leader collecting data on Hurricane Sandy. I worked with NYC Department of Buildings post-Sandy and heavily involved with the NYC Building Code. There have been two revisions of the NYC Building Code, one in 2015 and the other this year in 2019 that is trying to incorporate new information from Hurricane Sandy.

An elevator or water system that is not to working renders a building useless. It also puts people's lives at risk. There were many people during Sandy that were trapped in residential buildings where they were unable to walk down the steps and the elevators were non-functioning as was the water and heat. Liz elaborated on this issue in the context of life safety. The question of defining life safety is critical to the discussion on codes and policy.

Life safety referring to if the extreme happens the building is going to give you a chance of getting out of it alive. That is what it means. It doesn't mean it is going to be occupiable. And it doesn't mean it is going to return to service immediately. (Liz, engineer)

One of the issues that came up in the discussion of policy was the mechanism of financing and execution to be tied into policy. There is the issue of funding for some of the larger-scale projects either being cancelled or put on hold. These are shared perspectives between

the range of design/planning disciplines. The following narrative succinctly summarizes that

viewpoint.

> There is a lethargy in the mechanism of financing and execution. That causes lethargy or sluggishness in the design profession because you have people who are no longer really interested in trying to appropriate or go after these types of projects knowing that if they are very large federally funded projects, that we've seen the failure or the stopping of these, or so many things that get in the way. (Eli, architect)

*Summary—Pillar 2 (Professional) Theme 2.3: It's not just about design . . . it's about*

*data.* As illustrated by the designers/planners within this pillar, ideas are strengthened through

the tracking of data after a disaster. It can range from the views and aspirations of the community

to the decisions and outcomes that have led to code, policy and on-the-ground training for

professionals being deployed after a disaster to assist with recovery.

**Pillar 2 (Professional) Theme 2.4: Lessons learned from Hurricanes Katrina and**

**Maria.** The fourth topic drawn from the coding of Pillar 2 results was the salience of Hurricanes

Katrina and Maria. Hurricane Katrina was a Category 5 hurricane that made landfall in Florida

and Louisiana in August 2005, causing catastrophic damage, particularly in New Orleans.

Hurricane Maria was a Category 5 hurricane that struck in September 2017 devastating Puerto

Rico, the U.S. Virgin Islands, and Dominica. Maria was especially deadly and, like Katrina,

precipitated widespread condemnation of the federal government response.

***Learning from Hurricane Katrina.*** Lessons learned—both effectively, and not so successfully—from Katrina, in subsequent responses to climate disasters, could be a lengthy study in itself. Therefore, the focus in this section is on the participants whose experiences of Katrina informed decisions and insights during and after Sandy. This discussion is organized under the headings of each participant's name and profession to describe the lessons each drew from Katrina.

*Hannah*, *planner.* Hannah volunteered a number of times in New Orleans. While Hannah was not there during the actual storm, six months later she began to volunteer on the ground. While the water had receded, the damage was still obvious. Sandy was seven years after that.

> I volunteered with Habitat for Humanity to build houses. I think the thing about New Orleans that's pretty amazing is their sense of community. In neighborhoods people really come together. I think one of the things that I thought was amazing, people in New Orleans all had hurricane insurance, which is mostly for wind damage, you know, roof, stuff like that. But nobody had flood insurance. (Hannah, planner)

Hannah also emphasized that one aspect often forgotten about Katrina was that the levees were breached largely because of prior corruption and flawed engineering. This was summarized in a report by the American Society of Civil Engineers, Hurricane Katrina External Review Panel (2007).

With all of America's political polarization around the issues of climate-impactful events, it has never been more important for designers/planners to remain vigilant as they plan and design in climate-vulnerable communities whether pre- or post-disaster. As Hannah and I reminded each other, Katrina is a cautionary tale.

*Ross*, *architect*. Ross had gone down to New Orleans, not under contract, but by invitation to speak on panels or to advise communities on assessment and strategies for rebuilding. He had a group of friends who were victims of Katrina and another group of friends who were the professionals working on planning for the future of New Orleans. He relayed to me this story of exasperation:

> One day without any plan, I found myself screaming at my friends in New Orleans saying, "Wake up, wake up!" You've had a terrible, terrible tragedy and disaster and life is never going to be the way it was before. You can't have your old New Orleans back; it's gone! You have to look to the future of the New Orleans you're going to get. You can't do it by keeping your heads in the sand about what you want of the old days. (Ross, architect)

As he reflected years later in our interview on this dialogue, he stated,

> I don't know. It was at the time, the side I came down on at the time . . . and then the whole Ninth Ward idiocy with Brad Pitt and the failure of that to do anything other than hire some fancy architects.[14] The urban attitude, the urban strategy, was wrong. And not as many people came back to that area wanting exactly what they'd had. New Orleans, for a while, became a bit of the primer for how we went about looking at a city. (Ross, architect)

*Susan, urban strategist*. Susan, who was on the ground for both Katrina and Sandy, brings an interesting perspective. Susan was on a fellowship with a national foundation and it began the day the levees broke. The foundation was from the Gulf Coast and Susan was their person on the ground. She reflected,

> How do people self-organize to realize their aspirations and meet their needs? I got a bird's eye view of that because so many of their systems had been broken as a result of Katrina, and many of which had been broken before the storm but then were completely shattered after the infrastructure failures. In the case of New Orleans, everything was wrecked, people's homes were gone. It was a massive devastation. (Susan, urban strategist)

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[14] Actor Brad Pitt established a non-profit organization called the Make It Right Foundation in the Lower Ninth Ward after Katrina. For a description and critical analysis of this initiative and its problems see Fuqua (2011) and Menza (2019).

That was of course quite different from Sandy, where most people went back to their homes and the city was still able to function. New Orleans could not. When Susan came to New York City it was to focus on urban livability:

> We found in New Orleans resilience became *the* best term, but the recovery needed to hasten. In other words, the community there wanted the city back, but they appreciated that they didn't want the city back to the way it had been, but they weren't willing to just have structures pushed upon them by outside experts.

As will be noted in the next pillar, concerning resilience, it has taken on both positive and negative overtones in the design/planning profession. It is therefore important in the context of this discussion of Katrina as part of the impact of Sandy upon design/planning professionals to fully note the concept of resilience as described by Susan:

> In New Orleans we started using the term resilience but was trying to create something that wasn't an end state but something rather we would choose as a filter of what to rebuild. What New Orleans was doing was incubating its own made in Louisiana approach to this which was quite innovative. I became a convert to the right to return the choice to come back to your home and be engaged in that conversation of resiliency.

*Paul, engineer.* Paul, a former Colonel in the U.S. Army Corps of Engineers, indicated that a lesson from Katrina for him was the need for greater transparency between designers/planners and the community:

> Engineers and designers have to figure out how to communicate in layman's terms what their solutions are going to look like and what the impact might be. And what the risk is, even after those solutions are in place. (Paul, engineer)

Paul explained how the U.S. Army Corps of Engineers built interactive tools so that people within the community could see it and understand what it meant in terms of water in and around your property. You could go online and put in your address and it would show you the water depth around your residence in different levels of floods through a simulation. It doesn't make people happy to know they are not completely protected but it also respects people enough to value their lives by not creating a false sense of security where there maybe none.

*Melissa*, *architect*. Melissa has written about New Orleans in a number of books

including *New Orleans Under Reconstruction: The Crisis of Planning* (Reese, Sorkin, &

Fontenot, 2014). She shared with me a number of similarities she found during Sandy.

> There are extended family networks that are in need of the properties. So, you might get somebody owning three or four houses or these little bungalows in Sheepshead Bay next to each other. It's legacy and it's their only form of wealth. It was shocking, but in New Orleans and Sheepshead Bay, the people didn't necessarily have bills of sale or deeds so they're kind of stuck. (Melissa, architect)

> Melissa also told a story about the Alexander family in New Orleans East, who owned

about 20 properties. This goes to the importance of intergenerational communities and their

preservation. She explained,

> If there is a young person and they want to move out of the house they'd live in somebody else's. And then they would be able to buy one of the houses when they came of age. It was a whole little self-sustaining socio-economic group of people who build and take care, repair, and trade houses, employ each other, take care of each other's kids. (Melissa, architect)

*Esther*, *activist/storyteller*. Working with Sandy Storyline, Esther had spent many months

in New Orleans doing a lot of post-Katrina storytelling around the housing crises. People felt

disenfranchised and that they had lost their voice. Decisions were being made for them in terms

of the rebuilding: schools were privatized, public housing was demolished, people got sick from

FEMA trailers.

> One of the projects that grew out of Sandy Storyline was a project called Land of Opportunity in New Orleans. On the 10-year anniversary of Hurricane Katrina we developed a project called Katrina/Sandy. It's a timeline project where you can see the Sandy Storyline alongside Katrina. That is one of the big reasons we started Sandy Storyline as we knew housing would be a big issue. (Esther, activist/storyteller)

*Leah*, *architect/planner.* Leah has spent a lot of time in New Orleans, initially to help her friends with their flooded house and thought she would be there for only a few weeks but that turned into on-and-off for five years. She stopped working there in 2012. She recounted,

> When I went down there, I didn't understand. Obviously you can't. You can't understand what these things are like. One of the many differences between Katrina and Sandy was that in New Orleans people were forcibly evacuated. It took people a long time to get back, if they ever did. (Leah, architect/planner)

Leah spoke specifically about the public housing residents. I shared with her how I had been part of a team that went to New Orleans to do a HUD-sponsored study for a WPA art deco public housing development. After Leah walked the HUD study site it became clear that the buildings needed to be dried out but would be livable again. They were not damaged in a manner that would have required demolition. Our assignment was short-lived. The buildings were bulldozed to the ground. Leah then further reflected on the direct action of affected residents after Katrina:

> One of the things that we were doing in New Orleans that was such a great demonstration is that housing residents . . . [was building] these tent cities on the neutral ground in front of their development. Then they would break into the buildings whenever they could, cut down the fencing, climb their way in, and try to occupy their units again. I don't know, it's hard to fight, fight, fight, fight. (Leah, architect/planner)

**Learning from Hurricane Maria**. As noted, Maria was a Category 5 hurricane in September 2017 devastating Puerto Rico, the U.S. Virgin Islands, and Dominica. Four of the participants in my research had been influenced by and made note of their experience with Hurricane Maria.

*Eli*, *architect.* Eli described getting colleagues ready for deployment to Puerto Rico after Hurricane Maria and sharing documents that he had referenced in some of his own safety assessment/deployment training earlier discussed:

> If you are going to go down, I need to tell you guys something. You need to take this with you, and you need to read it before you get on this plane. And they did, and they thanked me backwards and forwards for it because I gave them the psychological stuff. (Eli, architect)

Eli had explained to them that what they were going to be running into was "not The Rockaways":

> You're going to go into a country where you don't speak the language. You're going into the jungles and you're going into that had been totally wiped out and the federal authority hasn't reached them yet. You are going to reach them first. When you get there, the Urban Search and Rescue, has not gone all the way thoroughly through the jungles and the rural community sites. You may be running across dead animals and dead people. (Eli, architect)

While this particular group of design/planning professionals didn't run into the worst of what they could have, they ran into grief-stricken people seeing someone from the outside coming with aide for the very first time bringing solar panels. What they needed was food and water.

*Kaasar*, *planner.* In the context of disaster recovery, Kaasar looked at both Sandy and Katrina as what he termed "shadow cases" to the experiences in Puerto Rico.

> Sandy is, in a way, the storm that devastated a very important area of the United States. Nonetheless, it is a different area of the United States if we compare it to New Orleans, Louisiana, and the Gulf area and of course, Puerto Rico. I've begun looking deeper into the Katrina experience an interesting point of comparison, into what is happening on the ground in Puerto Rico. (Kaasar, planner)

Kaasar underscored how the colonial racism they experience in Puerto Rico as a commonwealth of the United States was not too dissimilar from the way in which the U.S. government had responded to their own citizens who are part of marginalized communities and communities of color in New Orleans post-Katrina.

*Thomas*, *landscape architect/urban designer.* For Thomas, Hurricane Maria's impacts struck close to home.

I get a call from my father. He says, "It's really bad here, the neighborhood is flattened."
He says there's no power, no water, the elderly on the block, some of them can't get
access, they're diabetic, they have no power. The hospital doors [were] closed and it's a
hospital for 60,000 people. We found it was much worse than what he described—it was
the entire island. It was flat, like pushed back to the stone age. (Thomas, landscape
architect/urban designer)

Puerto Rico is an island about the size of Connecticut. Thomas rhetorically called on me
to imagine a devastation like what Maria wrought, all across that state. He continued, "There
were food lines and there were mothers with five kids waiting to get water and this clips onto a
little bit of my experience with Hurricane Andrew growing up, getting that water in the first few
weeks." In terms of navigating on the ground, Thomas said that he interacted with folks he had
worked with under the Obama Administration, who were still in power and had been engaged in
post-Sandy efforts.

*Penelope*, *architect*. After Hurricane Maria, Penelope was active in the recovery
conversations as she was personally impacted. She convened regular Puerto Rico expat meetings
to talk about empowering people there and translating resilience through culture and through
looking at just transition, and recovery. She explained,

Personally, it was a pretty big hit for me and my family. We couldn't communicate with
anybody on the island. The only way people could communicate was with hand radios
and Facebook for those people who had access. So, there were literally Facebook groups
where people would just read off lists of names, to say, these people are here with us. So,
we were moderating and scouring Facebook groups, to try and figure out who was okay.
(Penelope, architect)

One of the root problems for Puerto Rico in coping with Hurricane Maria is that it is so
dependent on outside electricity and fuel that the disruption of transportation and transmission
was severe. Other parts of the Caribbean were not so dependent on these kinds of infrastructure.
They already had alternatives of energy, and were able to come back online, at least on the

power side and for potable water as a result. Penelope considered disruption in Puerto Rico in terms of both political and social economies.

> They are very matriarchal in the grassroots effort that is leading the recovery. And they are very much taking on the form of collaborative and cooperative in what's happening in the recovery stuff. I think that goes back to Indigenous roots if you really start to look at it. And I think there are also understanding that you have to work with nature. And one of the ways that that happens, how do we build in a way that can keep us connected? (Penelope, architect)

Penelope further described this in the context of her own childhood in Puerto Rico:

> Like, collecting water is really important. We had to do it out of necessity, I remember growing up, we would go and have barrels that we would collect the water, because the water would just shut off, for weeks. So, the resiliency concept sort of translates into a lot of different things.

Penelope shared how her grandmother took her to a location and said, "Here, this is clean water. It's like a hole in a cliff. There's like a fresh stream of water coming out of it and this is how you get there, and if you ever need water, you come here." Penelope reflected,

> And one of the things that happened post-Maria, literally, he [someone in her family] was trying to figure out how to get water and remembered what his grandmother said. He went there and brought people from town and they went to this one location to get the water. The idea is the telling of stories, passing down institutional knowledge, like neighborhood knowledge. That's part of understanding your history and your roots.

*Learning from 9/11.* The September 11 attack in New York City by the Islamic terrorist group Al-Qaeda against the United States was probably the most impactful single event in contemporary city history. Not only was there massive loss of life and property all within the space of a few hours, but the shock and the pains of rehabilitating and building appropriately on the "ground zero" site severely taxed the capacities of many different kinds of professionals, not least those from design and planning. For me, 9/11 brought together the personal, the professional, and the societal. How 9/11 became a catalyst for the design/planning profession and how that impacted their response to Sandy is the subject of this section of the research. The

focus in this section is limited to the response of one professional interviewed for this study, a man who was enormously impacted[15] by the human-made disaster of 9/11 in the context of the natural disaster, Sandy: Ross, an architect. His description began centered on the report of a "pro bono coalition of architecture, engineering, planning and design organizations committed to honoring the victims of the September 11 tragedy by rebuilding a vital New York" (New York New Visions, 2002, p. 3).

> 9/11 is my fulcrum . . . the first instance was *New York New Visions.* Everyone came together and did such monumental work on so many sectors of response. So, in a funny way, we kind of had a model for what to do with the man-made disaster but we weren't even . . . weren't nearly prepared for the magnitude and the effect of such a monumental natural disaster—which I think people thought would never affect New York City. (Ross, architect)

So, I asked, how much have professional lives and practice been changed because of 9/11? He answered,

> The planners, urban designers, architects, landscape architects, engineers . . . I still think it's something that people still feel as they are touching a hot stove or like you don't want to get burned. You don't want to go through it, you don't want to quite do it yet. It's not what you signed up for [as a professional] . . . but it's a responsibility that is entirely ours. And something that we have to do considerably more about. (Ross, architect)

> Ross's history on the World Trade Center site began when he was 18 years old for four or five months. At the time he thought he had contributed to something that would last forever, as he notes below, like the pyramids. He felt a personal relationship to those buildings.

> I worked on the design of those two towers—the elevator system, tenant layouts, the dramatic design for Windows on the World [the complex of venues and restaurant at the top of the North Tower of the World Trade Center]. I think they helped define my attitude towards architecture. Without going too much into the romance of the stone, I thought this would be my pyramids. I said, I worked on something that will last forever. (Ross, architect)

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[15] This is not to say that others among the participants were less affected or involved; Ross was selected primarily because our interview turned to 9/11 considerably more than did other interviews.

After 9/11, his world view was profoundly altered as was his relationship to the concept of a building's permanence.

> I can't tell you how profoundly it altered my view of the universe when those buildings came down. In terms of understanding, I guess, what the Buddhist understand when they do those sand mandalas. It's about change and not permanence. It altered my attitude about my work, what I'm interested in, the preparedness side of the work, the human support side, rather than the object through the aesthetic nature. (Ross, architect)

Before Sandy, the 9/11 experience and then Katrina began to condition people in the profession to the fact that big disasters really can happen in the continental United States.

*Summary—Pillar 2 (Professional) Theme 2.4: Lessons learned from Hurricane Katrina and Maria.* Katrina was a cautionary tale for designers/planners before Sandy, not only in terms of the level of devastation to New Orleans but also, about the vast inequities in the aftermath of the recovery. For those designers/planners later deployed during Hurricane Maria, the Katrina crisis provided another bookend to what has becoming an increasingly morbid story. It is not the storm that discriminates between class, race, and wealth but how these same communities are treated in the aftermath and the rebuilding. 9/11 established for so many designers/planners that this kind of unthinkable devastation is possible in New York. Hurricane Maria further underscored a sustained horror and loss of life that was met with a level of indifference by some public leaders.

**Pillar 2 (Professional) Theme 2.5: Overall reflections post-Sandy.** With the passage of time comes reflection. Urgency wanes. Lessons are (or are not) learned. The disaster once on the front page as the hot item of the moment, goes into the archives. I asked designers/planners within this study their own personal reflections since Sandy. Did they have any closing statements about professional lessons they learned as design/planning professionals for themselves and to share with others for the future.

Grace, an engineer, stressed the ingrained and risky inclination that people have to build

and rebuild in vulnerable areas.

> Exposure and vulnerabilities are increasing because we continue to build in more and
> more vulnerable locations as development continues to expand and we build in places
> that weren't so smart previously. Until regulators and insurance come to the party with
> government it is going to be hard to see a full resilience resolution which I think is what
> is required. (Grace, engineer)

Brianna, an architect, similarly, worried about the short memory that residents, especially

new ones have about the risks of places they want to live in.

> There are so many people moving to Red Hook, and all sorts of other low-lying places,
> that just have no concept of what happened during Sandy. They're like, "Oh it did, oh
> that's interesting." And then they don't really care. (Brianna, architect)

For Beryl, a landscape architect, what came first to mind was again the doubtful reliance

on engineering and constructing protective barriers.

> It's 525 miles of shoreline in the city, so just do the math. We have barriers flopped
> around and a couple of sophisticated building [owners] said we're not waiting around for
> the city to get their act together. They've put in their own flood barriers. If another
> hurricane came, we would be as vulnerable as before. (Beryl, landscape architect)

Hannah, a planner, also focused her response on barriers, human-made and natural, and

the foreboding prospect of their failing through time and climate change.

> You have some of the Corps of Engineers-approved projects. They're not going to build
> the Big U [RBD project] the way that it was designed. You have the debate about the
> barrier from Sandy Hook, NJ, the Breezy Point side. It will take 40 years. Maybe it won't
> exist anymore. I think it's ridiculous: it's the ocean. You can't fight the ocean. (Hannah,
> planner)

The issue of how to create resiliency for critical infrastructure, such as hospitals, is to

first understand why it has failed in the past. Lyla, an architect, boiled it down to four things:

first, the threshold you designed your building for was exceeded by the storm-related event;

second, the geography for these events has evolved—Sandy is a perfect example, a hurricane

further north than anyone had ever thought a hurricane would be; third, the extended duration of

an event that is not measured in hours but days; and fourth, that critical infrastructure is impacted by municipal infrastructure going down for an extended period of time.

Since Sandy, I and a number of the people interviewed for this study have observed that major medical facilities within New York City have worked hard to upgrade their facilities and develop resiliency plans and redundant systems with design/planning professionals. The stakes are very high for hospitals. A massive evacuation of hospitalized patients could result in loss of life during a disaster. When a hospital is getting billions of dollars in National Institutes of Health grants for research, it cannot afford to lose decades of that research by inundation from a major storm. Lyla pointed out that in Houston, the Texas Medical Center is completely off the grid with their own powerplant which was installed after Hurricane Ike in 2008. Lyla, an architect, saw instituting similar protection and back-up as essential in New York City.

Jeanine (landscape architect) wanted to stress the seemingly neglected but obvious fact that Manhattan is an island. Perhaps only during a major disaster do New Yorkers, including designers/planners, grasp this. How do you get where you need to go when travel becomes restricted and there are checkpoints and lines? How do you get communities to be inherently more resilient and self-sustaining? We can't rely on evacuation. We need then to be able to shelter in place.

> I guess maybe I have always felt that New York is invincible. Now after Sandy maybe there are just places where you can't live anymore. I think I learned a lot more about that than I did about design. It's like those houses kept getting rebuilt and rebuilt, and we kept paying for people to live on the water. (Jeanine, landscape architect)

I followed up asking how has this changed the profession—Or has it? Jeanine responded,

> The one thing I didn't say was I also see—within the design profession—that it's become a market. Before Sandy, yes, there were engineering firms that did work for FEMA, but it wasn't a New York thing. So, right after Sandy, it was more of an emotional reaction to helping and I'm not going to say it's a bad thing . . . now it's getting into a new market.

Muriel (communications specialist) stressed the pressure that community expectations apply to professional work:

> The Department of Parks is doing a study in East Harlem. Like New Orleans, it is low-lying. These are poorer communities and it is where Hell Gate comes in and the water table is very high. I went to a few of these meetings and it is always the community that brings the awareness and thinking OMG are you going to be able to fund it so something can happen? It's how many years since Sandy? Has anything really happened?

There are good exemplars of design/planning professionals, the community, and the city, coming together to achieve heroic results. This is from one of the landscape architects.

> Sandy happened at the end of October 2012, and literally, the day before Christmas, I got a call from the Mayor's office, asking whether we would be part of a team, to rebuild all of the beach access in Brooklyn, Staten Island, and The Rockaways . . . I've never seen such focused collaborative, and hard work to make this happen. (Beryl, landscape architect)

Other professional disciplines represented in this study did not bracket their experiences with that same level of impressive outcomes. Rather, the focus was on small projects being accomplished over time. That was how success was gauged. The model house for sustainability that one of the architects in this study completed in Rockaway was used as a notable exemplar. Although one landscape architect did question in this context rebuilding there at all.

It is difficult to come up with plans that take into account the possibility that rebuilding may not be the wisest action when there is no alternative place to either move or stay and have community-based actions in place so that communities could mobilize themselves. Eli (architect) concluded,

> There is no silver bullet. We can go through all of those analogies that we are all really, well, at saying: we can pledge to become the greenest and most resilient county on the planet. But then to get there it comes down to the common person [and] engaging them with the profession.

With professional guidance comes transparency about real-world constraints. For example, while a budget of $20 million may sound like enough to make a community safe, in

reality it will take years to build and it may protect you to a degree but not to the point of the

next Sandy having no impacts.

I asked Paul how we could do better than for the next storm, yet with measures that do

not cost billions and/or take too many years to build? He responded,

> If we do a little bit better planning and preparation for the next storm, we might be able to
> move certain assets that are part of your life and important to you, out of the way, and get
> you and your family out of the way, so there is less threat to your life. You may not get
> all of your risk reduced, but you can get some of it reduced. That's the buying down risk.
> (Paul, engineer)

And Roberta also summed up her concerns and frustrations ending on a note that captures

much of what the design/planning professionals I spoke with have as abiding aspirations and

concerns.

> I really think that we have to get quite savvy when it comes to the way to finance
> resilience and make financing resilience part of the beginning conversation not what you
> do when you've figured out what you wanted to design. (Roberta, architect)

Design/planning professionals do not go into their profession with a focus on

disaster-recovery or to work within communities impacted and traumatized by natural disasters.

Yet as this pillar shows, there is a willingness and a commitment to be on the front lines

developing and implementing approaches that will guide communities through these

unprecedented challenges. There are no simple answers and no quick solutions. Yet despite

challenges and frustrations there remains a cautionary optimism.

**Pillar 3: Societal Impacts**

This pillar comprises local and global impacts pertaining to design efficacy—and justice

—especially for vulnerable and marginalized communities. My interviews revealed that

participant professionals were especially moved to discuss issues of equity and social justice.

Additionally, the other themes that emerged under Pillar 3 were at the intersection of the natural

and built environments; the meaning of and struggle for resiliency; the importance of thinking

internationally (i.e., about approaches being used in other parts of the world), and finally,

leadership—how the greatest adaptative leadership challenge—using Heifetz's (1994)

terminology—is being met, and how it must change. Figure 4.9 summarizes the themes that were
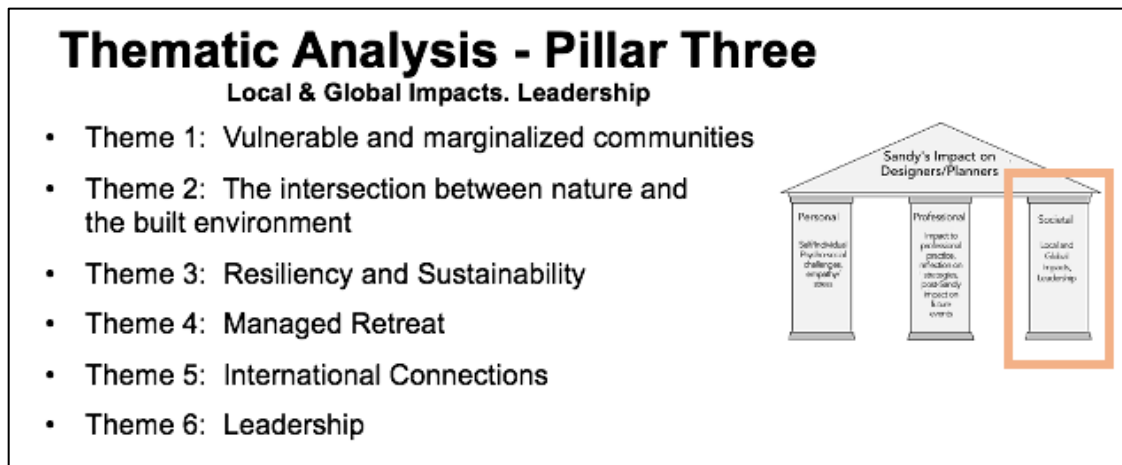
identified with Pillar 3.



*Figure 4.9.* Themes identified for Pillar 3 (Societal).

**Pillar 3 (Societal) Theme 3.1: Vulnerable and marginalized communities**. How does

one map power, authority, and silence? Who becomes authorized to know? What voices have

been silenced? How can we uncover the silence? How can we privilege the unprivileged voices

in the system? What are the voices that are not heard? These are the core questions that

participants returned to when considering Sandy's impact on their own consciousness and the

social structures of community.

> I think there is a part of me that's a bit tired, a bit kind of fatigued by the constant
> sensitivity training or desire to become aware of somebody else's reality all the time.
> Instead of just allowing people who have a different reality than yours to exist in their
> reality. (Talib, architect)

Talib's words resonate with what Anthony (2017) wrote in *The Earth, the City, and the*

*Hidden Narrative of Race*. Anthony referred to the invisibility of African Americans in the

context of narratives about the city and how that "reinforced the perception of Black

communities as contained by and subordinate to so-called white people rather than as actors in

their own right" (p. 185). The reclamation or space and place after a climate impactful event for

marginalized communities or communities of color can also reinforce the racialization of space

and how the dynamics of class and race have been reflected multi-generationally in the built

environment. As this research shows, vulnerable communities, whether denoted as such because

of climate-sensitive location or due to class and race, face the greatest challenges prior to and

after an event such as Hurricane Sandy.

> So, you just kind of create your own reality and take care of your spaces, take care of yourself and allow or empower others to do what they want to do with their own spaces and their own realities. If people are underprivileged or underpowered then give them more privilege and power. (Talib, architect)

> Participant and social activist, Joseph, chose to frame the post-Sandy work in this more

connective way of seeing and being. He asked,

> On a more universal level, how can we problem solve better with people who don't look like me? I've experienced this as an organizer. You don't know what it's like living here; you live five blocks away; you have no idea what my situation is like. (Joseph, social activist)

Joseph was reminding the profession that all too often assumptions are made based on

unconscious biases and sometimes not so unconscious when working within vulnerable

communities. People coming in from outside think of themselves as leaders and often don't

consider that what may be needed is working with and listening to individuals who more than

likely have a history of self-organizing and leadership within their own communities. Joseph

continued,

> We need to take a hold of the complexity recognizing the leadership of people who are directly impacted; leadership of women, Indigenous people, folks of color, who have borne the brunt of marginalization and exploitation. We absolutely have to do that and we also have to understand that we don't play the oppression Olympics of people saying,

"Well, you don't have it as bad as I have so you need to shut up, step back and go the fuck away." (Joseph, social activist)

Ideas about "design justice" came up often in the discussions. The participants suggest that it requires a paradigm of organizational thinking where people work together as a team that offers different skills and perspectives. While particularly challenging after climatic events, staying the more usual course of just tackling solvable technical problems will just add to further marginalization. Penelope echoed such sentiments and concerns, saying:

Justice, equity, diversity, and inclusion, all of those things really need to be thought about when we design. What happens now is we sort of fill in later. And there's not these integrated designs. Design justice is sort of designing for—I want to say—for the people. It sounds really silly, but I think a lot of times we design for the client. But the client isn't necessarily the end user. (Penelope, architect)

Penelope went on to say,

It's looking at how we can look at the design process and all of the communities that maybe weren't considered in the initial process and rethink what their design is doing. To be more self-reflective and honest with each other as professionals.

One of the questions I asked was what direct experience design/planning professionals may have had working in NYCHA (public) housing before Sandy and how those perceptions may have been impacted after Sandy. One of the architects who lives in an area with a high concentration of NYCHA affordable housing shared the following insights:

It wasn't until the storm [Sandy] that I began to realize the bias and the judgment I had and things I never considered. What their issues were, the challenges they had to face. How so many people living in NYCHA Housing, despite what so many people think, are working. Just because you work doesn't mean you can afford a place to live. (Vic, architect)

There are a lot of prejudices about people who live in government-supported housing and many myths about those relying on government assistance programs such as welfare. I recall the denigrating remarks and racial slurs that I experienced when attending school in a White

middle-class neighborhood outside where I lived. That was a number of years ago—a stark

reminder that these attitudes linger from generation to generation.

Paul spoke emphatically about his sense of the problem and ways to redress the inequity

that is almost inevitable in times of social crisis:

> Vulnerable and marginalized communities are engaged in the conversation about what
> makes sense to them, as well as any other community. And, sometimes, you have to use
> different methods to reach out to that community, [to] respect the community's own
> internal structure for self-organizing. (Paul, engineer)

Joseph added specific thoughts about the accentuated vulnerability and what it should

mean to planners in the aftermath of disasters:

> Through Sandy Storyline we encountered a mobile home community in upstate New
> York and are typical of what land/home ownership looks like for working class people in
> America. Their mobile home—they are not actually mobile; if you tried to move them,
> they would fall apart. (Joseph, social activist)

It was further explained that the after Sandy people were unable to return to their homes.

While they were still sorting their lives out, people from the real estate office came to collect

their rent but no one was there as they were still not able to return. Joseph further expanded upon

what happened next:

> They came to collect even though people still in the community were dispersed and
> couldn't even find each other but somehow this company did find them in shelters. *And
> they went to the shelters and said if you don't pay your rent you will lose your property.*
> [emphasis added] Many of those people lost their property.

I asked Joseph if he thought this type of behavior was generational. That younger

generations who had not yet gotten into the workforce might share a different perspective on the

poor and therefore would be less apt to enforce this kind of racial/economically motivated

actions of injustice? This was his response:

> I gave a talk at the Columbia Journalism School. A student said, "I really want to find
> people who are abusing the system and getting aid when they don't need it." I said, "Why
> is that important to you?" [The student answered] "Well, because it happens all the time."

I said, "No, it doesn't happen all the time. It is like this racial myth [that they are] exploiting the system and living in opulence.

The designers/planners on the ground in communities during recovery were humbled and reminded that when a climate-related disaster hits it can change people's lives in minutes, sometimes in mere seconds. I visited Coney Island after Sandy with Hannah, a planner who was interviewed in this study. She came back to our mutual experience in our interview:

> Remember when we were serving that food in Coney Island? Most of those people had never stood in line for food in their lives. I was like, "Oh my God! These are regular middle-class people who have never had to do this in their entire lives. You know, it could be us." (Hannah, planner)

*Summary—Pillar 3 (Societal) Theme 3.1: Vulnerable and marginalized communities.*

Vulnerable and marginalized communities, whether noted as such because of climate sensitive locations, class, or race, face the greatest challenges prior to and after an event such as Hurricane Sandy. Sandy was also a reminder of the critical nature of dignity, justice, equity, and inclusion being fundamental to design/planning. While those are factors that should be present in the design methodology, the absence of this is particularly evident after a disaster, as was evidenced in Sandy. Additionally, what came through time and time again was for design/planning professionals to respect the community's own internal structure for self-organizing—stand with them not for them.

**Pillar 3 (Societal) Theme 3.2: Intersection between nature and the built environment.**

The theme of intersection between nature and the built environment was most often raised and discussed by landscape architects and a small number of architects within this study. A philosophical approach of human beings as custodians of the land (an Indigenous perspective) rather than the colonial dominance mindset of having dominion over nature, was raised often. My purpose in asking about these two perspectives was to see if design was really being influenced by an epistemology that looked at land as a place that shapes humans and their

communities. I wanted also to understand the impact nature has on design decisions in the built

environment. It is also a bridge between the challenges facing vulnerable and marginalized

communities and the dark side of the historical precedent in this country—the "original sins"

(Wallis, 2016) of how Indigenous peoples and African slaves were treated. Anthony's (2017)

comments make the connection between social justice and design in a way that resonates with

many comments I heard in the research interviews; for example,

> Recognition of the price paid in human life and liberty for economic advancement—and the costs of resources extracted as nature's systems were exploited—must inform and guide us as we work to transform our cities and regions. We must forge a new path illuminated by justice, respect for the dignity of each and every human being, and determination to maintain and restore the web of life as the foundation for health and sustainability. (p. 168)

For example, Vic (architect) reflected,

> How to start to connect people with the earth? You feel that aliveness every day. And that to me, is the human and nature experience together. It is what makes living so powerful. How does one, within the profession, start to translate that into their work? It would be easy out of anguish, or grief, to further dissociate. And yet, what's important is to associate.

How this kind of connection with nature gets specifically translated into his work as an architect

is, for Vic, an evolving question; but his ability to associate nature with living powerfully is an

important reflection from a design professional who lost everything during Sandy. Eli, another

architect who was among the study participants, also made the connection between natural

environment, its hazards, and the built environment:

> My background is in geography as well as architecture. The geography's physical as well as social economic. It is understanding the truth of the land that I saw from the Indigenous perspective working in Dominica. The underlying circumstances that pre-dated us and still underlying the city itself. So, I think that is where we start.

> This approach makes designing with nature more tangible, connecting geography,

ecology, hydrology, and geographic information systems. What Eli referred to in terms of his

work from the Indigenous perspective is his work on the small and hurricane-prone Caribbean

island nation of Dominica. This work after Maria in 2017 utilized the practices of the Kalinago people (Indigenous people of the Lesser Antilles) and their council of chiefs (Azaroff, 2019).

Hannah (planner) poses the challenge of integrating nature and the built environment as an unsolved mystery:

> Post-Sandy one of the things that strikes me about the intersection between nature and the built environment is that we learned that the East River is eight inches higher than it was in 1970. I think five years ago it was seven inches higher now it's eight inches. The river is our backyard. How then do you design without listening to what nature is telling us?

What Hannah states is so obvious, yet to many there is a level of wilful ignorance. Listening to what nature is telling and showing must become part of the public's and, specific to this study, design/planning professionals' reframing of life and work. Brianna (architect) commented as follows:

> The whole geo-mythology is a very big unknown. We don't know how high the seas will rise and when they will. Why don't we just start flooding some locations? Let's just flood it now where we want it to flood and how we want it to flood and what that looks like. We have to be working in a natural system. We have to adapt a model about how we're going to let water be a part of our landscape in ways that we really haven't thought about before.

Deliberately flooding some areas to allow water in as part of our landscape has been tried in other parts of the world, a point raised by Paul (engineer). Sometimes engineers will flood an area to restore an ecosystem. Sometimes hydrologists may deliberately flood an area to prevent damage to a dam during heavy rainfalls; engineers may also flood an area to prevent worse flooding during a storm. In the Netherlands there is a Room for the River program (ClimateWire, 2012; Rijke, van Herk, Zevenbergen, & Ashley, 2012) which emphasizes flood safety with deliberate flooding. Thomas built on the theme of designing with not against nature:

> Even the most advanced society on the planet . . . has to reconcile with nature. You can't just tame . . . harness nature. We didn't know until we had a real-time planetary monitoring that we had an impact on the earth on a planetary scale with a lot of the way we're building our cities. (Thomas, landscape architect/urban designer)

In the Bible it was written that humans have dominion over nature, and some have argued that this ingrained religious perspective now dooms humans to fight rather than work with nature (e.g., White, 1967). In America, this was further underscored by the colonial perspective of Manifest Destiny. Perhaps, as participant Thomas stated, our "real time planetary monitoring" will shake loose the need to control nature so embedded in most Western dominant cultures. Participant Jeanine had this to say about awareness of nature as it interacts with designed environments:

> At the city around you that's all concrete, you say, "Where is nature? There isn't any nature in the city." But every crack in the sidewalk tells a different story and a crack in a parking [lot] is a place from which a plant can grow. I don't think it's so dissociated in my profession between nature and the built environment. (Jeanine, landscape architect)

While architects speak about contextual design, finding nature in a city of concrete can be a challenge, yet we are increasingly reminded, especially since Sandy, that we live on an island. Nature (the water) is our backyard. As a landscape architect, Jeanine has developed a more holistic perspective. This is also evident in Roberta's remarks:

> There is a lot of expertise around the world that shows us how living on water or living with water can actually be quite positive. But we need to change our mindset of what that means that maybe we aren't looking as carefully as we might in nature's geology. (Roberta, architect)

Consider the approach from the Netherlands to adaptive water management as it influenced post-Sandy practices: it is based on the premise that if water is afforded more space in designs, it will not have to take space by force (Metz & van den Heuvel, 2012). This is what Roberta stressed: the need to understand natural geology so as to make informed decisions based on the history of the landforms, the geology, predictions, and patterns. It is too often forgotten that nature and especially rivers like the Mississippi have their own personal histories just as people do. That is a level of reverence yet to be embraced.

*Summary—Pillar 3 (Societal) Theme 3.2: Intersection between nature and the built environment.* A philosophical approach of human beings as custodians of the land (an Indigenous perspective) rather than the colonial dominance mindset of having dominion over nature, was raised often. I wanted also to understand the impact nature has on design decisions in the built environment and how one develops a mindset of working in a natural system where one adapts to nature and not always defending against it. These designers/planners recognize that the power of nature is a force far greater than humankind and that it will take a fundamental cultural shift to see nature as having intergenerational histories just as people do.

**Pillar 3 (Societal) Theme 3.3: Resiliency and sustainability**. The concept of resiliency and of creating structures and communities that will be able to "bounce back" from significant, often harsh and unexpected events, has high currency in this time of climate change. Not surprisingly, the word and the idea arose repeatedly in the interviews for this study. Rather than begin with a definition, I will allow the meaning and interpretations of resiliency to emerge in what participants had to say. Referring back to discussions he and I had had previously, Eli said,

> When I talked to you years ago about being at a crossroads of leaving the profession, leaving and going and working at 100 Resilient Cities [a Rockefeller Foundation program] or someplace like that, that was very real. I often think those things because the greater voice that you have to try to affect change at a larger level. (Eli, architect)

When Eli spoke about leaving the profession, he spoke of the daunting gap between the early optimism of what could be achieved in Sandy's aftermath and the reality of recovery years later. Many of the big, exciting, and innovative ideas and painstakingly designed large-scale projects remained in the planning stages and were never implemented.

> Right now, we lack these artifacts. So, these past several years, my tiny little studio has been producing these artifacts, resilient projects. There are few and far between resilient projects. I think that drilling down, into making the actual project, has been my saving grace, into not leaving the profession. (Eli, architect)

Another issue Eli grappled with was how to make what he had begun to do more accessible to other communities and professionals. He spoke of creating a groundswell, a "critical mass" of resilient homes built within working class and middle-class communities. He explained,

> Like the house at Breezy Point, we're giving the design of that house away. People can download the drawings. People can take these drawings, alter them, and make them their own. So, hundreds of thousands of people can see, here's an example of something resilient that I can build, or have my contractor build, or give it to my architect. (Eli, architect)

I then asked how he felt this addressed the lack of impact he had just expressed as an architect and the struggle of co-creating with the community.

> Knowing the scale of the problem we have the impact is that I'm training other architects and people within their own communities to do these things. Now I am really looking deeply into what I'm doing. How do you leverage that into making a bigger change? [How do you help] others have a bigger more profound change? (Eli, architect)

The participants emphasized that a disaster can be an opportunity for turning another person's pain into a money-making capitalist venture. Financing the recovery from climate impactful events, or planning for adaptation in advance of them, does require professionals who can navigate the solutions and requires capital to concretize them. However, there can be a fine line between creating solutions that are more about turning a profit than evolving accessible solutions. Samuel, one of the architects interviewed for this dissertation, said this:

> I think one of the challenges we've seen globally is that everybody's trying to come up with a kind of branded and graphically fascinating attempt to address resiliency. We care less about that, about the brand of the thing, right, whatever that ultimate platform is. We care more about getting the information out.

> Landscape architect, Jeanine also reflected on the shift towards resilience:

> I think more people understand that they have to have a relationship to resilient design, but I've also heard people, this was a couple of years ago, not understand the difference between sustainability and resilience. I think it's also the concept of social resilience, and what that means.

A story illustrating Jeanine's "theory-in-practice" (a phrase used by Argyris & Schön, 1980) may clarify here the importance of social resilience.

> The project I did in Jersey City, some of the people had lived there since it was built in the 50s—and they were organized. They knocked on people's doors to help them but since they had no electricity, they brought out barbecue grills and cooked outside for everybody. They were amazing. The social resilience of that group was very strong. (Jeanine, landscape architect)

As I further spoke with Jeanine, we concurred that the community was used to fighting with the Jersey City Housing Authority for things they needed. This history contributed to their social resiliency and, as Jeanine aptly stated, "You cannot build social resiliency the day before the hurricane is coming. It's got to be there. It's got to be part of the fabric of the community."

The question then arose as to how the concept of social resiliency ties into physical resiliency and sustainability.

> Sustainability, if it gets stale, or if you don't go deep enough, nobody will die or lose their lives, but in resiliency, if you don't keep challenging it, it goes to a different level. Resiliency is a health and safety issue. People do lose their lives if you're not designing buildings to be resilient. (Jeanine, landscape architect)

As Jeanine is a landscape architect, I was also particularly interested in how she looked at landscapes rather than buildings in the context of resiliency. She explained,

> There is science in landscapes. Part of the flexibility of a wetland is where the water's edge is moving, or the wetland is moving in reaction to a storm like Sandy. But buildings remain as they are. You can't say the building is going to move. The landscape is different. The landscape is resilient because it's changing, but buildings can't change. (Jeanine, landscape architect)

How does one get people connected back to the true meaning of what resiliency and sustainability are—and what they are not? On this, Eli shared his direct experience.

> A lot of great people who have jumped into resilience become great proponents of advancing adaptation and resilience. I also run into a lot of folks who just want to profiteer off of the next big thing. If you're getting into this because it's a new great field and you want to make some money, you have to know what you're doing. Resilience is a different kind of thing, than what we've seen before. (Eli, architect)

I followed up asking him to be more specific in terms of how this has shown up in the design/planning profession.

> Folks that are like, "Hey, I'm a sustainability officer or I'm a resilience officer." Well great, how are they different? They often don't have a complete answer. If you're going to say you know something about resilience, and you don't, understand you're completely liable, on the professional side. You're going to be in trouble misrepresenting, not protecting people who need your help. So, please get the training. (Eli, architect)

While I would not personally position myself as an expert in sustainability or resiliency from a technical perspective, I have taken the HURRIPLAN training (American Institute of Architects, n.d) which is certified by FEMA. This training "integrates resilient community planning and building design strategies with civic and commercial projects located in hurricane prone areas" (American Institute of Architects, n.d, para. 2). From that perspective, I would argue that what is key in the difference between resiliency and sustainability relates to life safety. When resilient measures fail, people can die. The same cannot be said of sustainability shortfalls. Eli helped to clarify this distinction further:

> I can give you thousands of circumstances where a resilient measure is not sustainable, by any stretch of the imagination. But life safety is the big one. If the sustainable measure fails, no one is going to die, in the short term. The long term, you're harming the planet. There is a different trajectory that even those two simple statements are not clear in the mind of the majority of architects and engineers out there as of yet. (Eli, architect)

> Grace also explained her understandings of resiliency and sustainability.

> There are lots of people who don't understand the difference between that [resiliency] and sustainability. I feel like a lot of my role has been to educate clients and design teams about different aspects of it. (Grace, engineer)

From both an architectural and engineering perspective, breaking down the barriers within the profession is one of the biggest challenges because even if people are trained in a single or multiple disciplinary approach, practicing (rather than just theorizing) a truly integrative approach is more challenging.

> When you look at resiliency you have to look at everything from the social to economic to the physical to the environmental aspects of a community or even a single facility. Everything is integrated. One of the commonalities is the integrated transdisciplinary thinking that is required. (Grace, engineer)

This brings the discussion back to the integrated nature between the built and natural world (Pillar 3, Theme 3.2), which while seeming so obvious, and often talked about in green speak (i.e., discussions among those committed to environmental values), the reality is often very different. Grace continued, with some visible chagrin, on getting typecast in broader dialogue with other professionals and leaders:

> I often will hear that you care about that because you are a fucking "greenie" or something. But all of us need fresh air and clean water to drink, correct? The integrated big systems thinking is required to change the way we build more resilient cities/infrastructure; a single system in a siloed manner is never going to get us there.

> To repeat, during this study, the connection between resiliency and sustainability—and how they are related or different—was discussed with all the participants. A number of participants were questioning what the next step was after resiliency. Grace's response, differentiating between the terms resilience and resiliency, was a singular one among study participants—and, in my view, an important step in developing this understanding:

> I definitely prefer the term resilience over the term resiliency because resiliency sounds like you get to your destination and you are there whereas resilience is something we have to constantly work on. It is an approach rather than something you achieve or a destination you get to.

> Grace's perspective also highlighted reactive responses to proactive risk approaches to design. The challenge from my perspective is that having a resilient plan and resilient practitioner involved can give people a false sense of complacency. As was noted earlier in this study, there have been a lot of plans developed pre- and post-Sandy. It does give one a sense of security that people are thinking about these things and have ideas about how to protect communities from climate-change induced events. But within the larger and often political

context of making things happen, how much of this is truly realistic and attainable? Grace's

response:

> From a resilience perspective, we need to get past just responding to the last event and needing an event to actually spur on the action we really should have done before an event. An entire mindset change has to occur from the reactive disaster response and recovery built back better to a proactive risk and resilient approach to design.

Replying to my question about how many resiliency projects have actually been

accomplished since Sandy,[16]—and how effectively they have worked—Beryl (landscape

architect) pointed to several examples:

> We probably had six of those significant projects since Sandy. The Rockaways, Pier 42, a resiliency project in Coney Island, Hunts Point, and then of course, what was once called East Side Coastal Resiliency.

For a number of the participants in this study, the concept of resiliency went far beyond

definition and the distinction between resiliency and sustainability. Several, in fact, are pushing

*against* the concept of resiliency. They have seen it as quickly becoming a catch phrase to further

a more colonialist and economically privileged agenda. Kaasar, for example, explained,

> The concept in and of itself is a very powerful one. The ability to bounce back—you can equate it to a superpower. Being threatened or struck and to come back and keep going is a wonderful thing to be able to do. This is where again we need to make a distinction between the technical and the political. By the political I don't mean partisan. I mean when technical ideas become deployed on the ground and engaged with power. (Kaasar, planner)

One of the issues that came up several times with the participants was that while they can

all point to times in their own lives they experienced resilience, in principle, it is very different

when it is operationalized on the ground and in community. Again, it was Kaasar who stated,

> I think that our resilience has been operationalized. On the ground it has created a lot of resentment in a lot of places. Part of it has to do with how different interested parties have

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[16] It should be noted, that The Living Breakwaters project (Governor's Office of Storm Recovery, n.d.-a) on Staten Island, led by Kate Orff, landscape architect, and her firm Scape/Landscape Architecture, is in construction. It is a project that I was initially engaged with during the early phases of the Rebuild by Design competition.

decided to implement the ideas on the ground and part of it has to do with that fact that over time it has become an alternative to pushback or resistance.

While both the SIRR report, *Stronger, More Resilient*, ( PlaNYC, 2013), and later, NY Rising (New York Rising Community Reconstruction Planning Committee, 2014) implied the goal of bouncing back to something you wanted to reclaim, there is another crucial question: What about communities that do not want to bounce back to an unfavorable status quo but to bounce forward into a new more equitable future? I asked Kaasar about his thoughts on this.

> Analytically people have made a distinction between the resiliency discourse and the resistance discourse. That distinction has served governments and institutions well. When they have a disaster and people's needs are not being met, the answer becomes [to] just be resilient bounce back stronger than ever. Be hit but don't hit back—just get back up. (Kaasar, Planner)

Kaasar's perspective reminded me of the former-Governor Christie's campaign, *Stronger Than the Storm*, a PR campaign to promote tourism in New Jersey. It idealized the concept of resiliency like a Hollywood movie, making invisible the realities of the pain and anguish still being faced by New Jerseyites who still suffer from what happened during and after Sandy (Hutchins, 2014; Izzo, 2013).

> I try to understand how resilience is being deployed by observing how it is being rolled out on the ground. This catch-all term allows us to talk about moving forward in a sanitized way. It allows us to create a comeback story that denies in many ways our inability to count the dead and honor their lives. (Kaasar, planner)

When resilience is employed, as Kaasar describes above, it does a disservice not just to the reconstruction and recovery efforts but to the notion of social justice. A recurring leitmotif in the stories of survivors of climate-impactful events, prominent notably in Sandy Storyline, is that for people in vulnerable and marginalized communities, the return to the status quo is not what is wanted or needed. Instead, the push is to achieve a more equitable community. Kaasar expressed his mixed feelings about focusing planning for future climate-caused disasters on resilience.

> I am not opposed to the term resilience in its entirety. I am opposed to the usage in a way that allows it to mask or sweep under the rug all of the other grave things that happen on the ground. I am not opposed to resilience as an idea as long as the ability to come back provides an opportunity for us to engage in acts of resistance. The ability to bounce back and resist, I would deploy resilience for that. (Kaasar, planner)

I asked Kaasar for greater clarity into how he defined and connected the ideas of bounce back and resist concurrently.

> Resilience is not an end undo itself. It's the ability to come back and do something. That something is what we as planners should be working on. Yes, we should all be able to come back, but come back as just what? (Kaasar, planner)

I am reminded that in the aftermath of Sandy, I too have struggled with the role for philanthropic organizations who seemingly had the best of intentions and performed well in moving some many of the initiatives forward, but over time, became too comfortable with their own perspectives on guiding concepts like resiliency. Kaasar shared those concerns.

> Resilience narrative and programs being deployed by many major foundations across the world do not provide what we are talking about. When asked to come back, come back to what? If it's to reproduce the status quo, then I am not for that. If it is the ability to rethink, re-propose, reconfigure, transform, and upend structural inequities, then that's when resilience really works for me. (Kaasar, planner)

> Susan (urban strategist) had done a lot of work in New Orleans immediately after

Katrina. One issue she focused on quite a bit in our interview was the impact of outside professional experts (design/planning professionals) "parachuting" in and then forcing their ideas upon a culture about which they that they had no real insight. In that context she spoke about resiliency not as a concept to snap back to what had been but rather as something that would provide the capacity to adapt.

> The community wanted to fashion rebuilding in ways that reflected their own culture, their own challenges, and their own priorities…resilience being more about developing the capacity to be continuously adaptive to all sort of changes that were coming. Climate challenges social justice, cultural, economic challenges. It wasn't an end state but a filter of what to rebuild. (Susan, urban strategist)

In New Orleans, some of the city's affordable housing stock had been demolished and then replaced with market-rate housing. After Katrina, people who had been primarily from long term marginalized and vulnerable communities were relocated to other states, and many never returned because those affordable homes were never rebuilt. I asked Susan whether there had been a backlash about the concept of resiliency because of that. She responded that,

> Tracie Washington, a lawyer from Louisiana, and President and CEO of the Louisiana Justice Institute, rejects the term "resilience" because of how it has been used as a term to justify hardship on vulnerable populations. From her perspective, resilience is a term that has become permission to inflict more challenges on low income populations. (Susan, urban strategist)

Susan pointed out several publications that have underscored and reflected this community concern over resiliency as a name for what is sought in post-disaster planning (Kang, 2018; Woods, 2017). She and I discussed at length how resiliency is no substitute for justice and how it should never be perceived as such.

> So for me, it still is a term that I still want to embrace because it insists, that in order to be resilient you need to have the resources, you need to have the capacity, the agency, the imagination and if you are lacking in any of this, your resilience is compromised. (Susan, urban strategist)

I then asked Susan how she viewed the term "sustainability." She answered,

> I thought "sustainability" had become like "love," a term used for everything, but I also felt that sustainability implied a fixed state: either you were sustainable, or you were not. What I liked about resilience is that it is a capacity . . . [the] quality you continue to foster and build foster and build. (Susan, urban strategist)

About the time of this interview it was announced that the Rockefeller Foundation's 100 Resilient Cities initiative was changing to a different mission under its new leadership. I asked how she felt this would impact the resiliency movement since 100 Resilient Cities and the foundation had been at the forefront of taking this concept to cities throughout the world. They seemed to have become a connective tissue of sorts. Susan responded,

So, I continue to believe that . . . [resilience] is a valuable word. I will be going to Rotterdam next week for 100 Resilient Cities for its swan song, and I am really interested to see how 101 chief resilience officers working around the world have . . . assembled a movement [and] that I hope they have. And I don't know if the entity became so much on its structure that it lost some of its movement capacity. (Susan, urban strategist)

I suggested that one of the key elements that appears throughout the resiliency discussion

is the term "interdisciplinary" and it includes not just collaboration between design/planning

professionals but also members of the community and other adjunct professionals such as

builders (constructors), sociologists, psychologists, peacebuilders, social justice activists,

communication specialists, storytellers, and the like. Susan replied,

I ultimately think the answer is [being] more interdisciplinary in pushing authority to the most local level so that people have more of a sense of their autonomy and their own agency but at the same time there is responsibility so that you can foster a kind of grounds-up resilience that I am making an informed decision on behalf of my neighbors on how I am going to function here. It is hard to do that.

Edward also devoted a sizeable part of our interview to resilience, suggesting,

There feels like there needs to be a new dialogue—like we are in a loop. Part of the challenge with resilience is that it is all-encompassing and therefore it is hard to pin down. We have had people try to create a rating system for resiliency like the Leadership in Energy and Environmental Design (LEED, a worldwide green building certification program). It becomes so watered down. (Edward, architect)

Part of the challenge I discussed with Edward was how to develop powerful yet simpler

narratives that people can understand immediately and get excited about.

I think we have a lot of work to do. We are not separate from the earth. We are not separate from each other. Everything is interconnected. This is where modernism has a lot to answer for, that we are somewhat removed from the earth and that we own it, we dominate it. It is a power thing. It is the same with marginalized communities, exactly the same. (Edward, architect)

While Edward was addressing these issues differently than Kaasar, there is overlap in the

context of social/philosophical triggers that could help shift this conversation.

As soon as you think of them and us or the earth as part of who we are then the attitude changes. I think this is what happens to design professionals that fall into resilience work and then begin to see themselves part of something greater. Far too much of architecture

is still about the image of the building, the look of it, rather than the performance of it. (Edward, architect)

This brought me to ask Edward about the interdisciplinary approach in my study as it is inclusive of designers/planners which, in this study, includes architects, planners, landscape architects, and engineers.

> This might be something you look into the difference between landscape architects and how they think about permanence/impermanence versus the way architects think about it. A landscape architect when they start the design process has to think about how it will grow and change. Architects think in terms of finite objects and everyone strives to be remembered by a portfolio that people will worship, right? (Edward, architect)

This variability among practitioners when there is a need for an interdisciplinary approach was one of the perspectives Liz, a geotechnical engineer, shared.

> I think this is where we have a problem . . . I call it the new Babel Tower—everyone is talking about this new thing and this thing is not defined. We all want to be resilient; we all want to bounce back but bouncing back to how things were, I don't want to go there, I don't want to be in the same situation again. (Liz, engineer)

I then asked her to expand on her perspective of "bouncing back" not being how one can develop innovative ideas. Liz underscored that "bouncing forward" to a better future is what she considered a resilient philosophy. Without that she felt we had a missing link between the technical (which she defines as the technocrats, planners, and politicians) and the human factor (within which she includes more vulnerable segments of society).

> I call it the missing link because they speak in their own terms, and we cannot agree with each other. The geotechnical engineers cannot agree with the structural engineers who cannot agree with the mechanical. So, how can we even translate this to people who do not have the background that we do? Engineers like problems that can be translated into a formula. This is not that. This requires the human factor. (Liz, engineer)

I raised the same topic with Paul, an engineer who had been a military colonel and former commander of the New York District, U.S. Army Corps of Engineers, prior to going into private practice. I asked Paul, as I had of other participants, about the differences between sustainability and resiliency from his perspective. He replied,

You can't throw out sustainability in order to get resilience. Resilience has to be blended into the design process, along with sustainability, and that to me is preserving resources, enhancing the environment, or reducing the impact of the environment as much as humanly possible. (Paul, engineer)

My follow-up question was on how to maintain the integrity of a community in the

context of resiliency.

You want to maintain the integrity of all of that. You don't want to just completely change that for resilience sake. And I think another thing, from Sandy in particular, was the offer to include, from the very beginning of the planning projects, community input. From my perspective, we have Shaun Donovan[17] to thank for a lot of that. (Paul, engineer)

Architect Samuel responded to my questions about the role and meanings of resiliency as

follows:

We've been heavily involved in resiliency effort within the practice for the last four or five years, if not longer. It includes things like partnering with the Rockefeller Foundation, the 100 Resilient Cities program. There was a great article in *The New Yorker* in 2008 called "Big Foot" [see Specter, 2008] which talks about sustainability and the difference between reality and perception.

What is particularly interesting in the context of resiliency and the article Samuel

mentioned, is the idea of focusing on changing people's perceptions and how that impacts

behavior. From his perspective, the concept of resiliency and sustainability are part of an aligned

efforts of broad sweeping reforms that can actualize those changes.

In regard to the relationship of resiliency and sustainability, Thomas then described

resiliency as relational and non-static in nature as creating a "oneness and inseparability of

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[17] Shaun Donovan served as United States Secretary of Housing and Urban Development from 2009 to 2014 and Director of the Office of Management and Budget from 2014 to 2017. He was instrumental in developing the Rebuild by Design competition and integral to bringing forward the importance of design and community engagement

people and nature." In further discussing the difference between sustainability and resiliency he

went on to say,

> It's not that [sustainability] is over. It's just that it was eclipsed by resiliency. But resiliency is not the same as sustainability, they come from very different philosophical underpinnings. Sustainability sees people and nature as separate things and then if people can come in balance with nature then nature will take care of us and it's all harmonious and holistic. But it's also three dimensional and linear; it's fairly static. (Thomas, landscape architect/urban designer)

> From this vantage point, resiliency and sustainability take on a different perspective

—dynamic versus static. So, in taking this conversation further with Thomas, if resiliency is

equated with dynamism and sustainability is static what would be the next thought model?

Thomas had a clear and though provoking response:

> Yes, that's the big idea…when you go back to dynamic thinking there is a lot of other ideas that will come from that thought model and one of them is transformation. So, it's really our own understanding of nature and how it's evolved, but it's where the stuff is coming from. (Thomas, landscape architect/urban designer)

> I asked: What's after resiliency? It has always seemed like what followed the word was a

semicolon, not a period. Eli (architect) felt that the next step should be transformation. Others in

the focus group discussion were not as sure what that actually meant and what it would look like.

Thomas however had some very clear thoughts about the concept of transformation.

> As long as you understand the thought model of dynamism, static versus dynamic model of nature, you will then find, what comes next. But it's important to understand the philosophical [question of] the limits of resiliency. Where do they come from and how do you go back to that thought model and then add in new factors of where we are now as a society and where will that take you. (Thomas, landscape architect/urban designer)

> Just as Thomas emphasized the concept of resiliency as a partnership with nature, Joseph

(social activist) focused on resiliency in terms of cohesion and recovery:

> I think there is a fundamental misunderstanding about how social change happens. I mean resiliency is the buzzword now, but is it an accurate word? Social resiliency . . . people build up relationships with their friends, their neighborhoods, that's why from the design perspective we need the Jane Jacobs style of design . . . so people interact with each other and build up social cohesion. Joseph (social activist)

Joseph and I further discussed how after disasters one sees the Red Cross, a well-financed, top-down organization, and FEMA having problems in terms of lack of capacity and of financing. This makes having designers/planners to support social cohesion and social resiliency within communities all the more necessary.

> Resiliency is about having a social fabric of cohesion and recovery; so, a resilient system is not rigid; a resilient system is fluid, a resilient system is agile, it is based on components and has the ability of its components. It has a natural way, and what I mean by natural is, a self-determined way of interacting rather than those not involved in the system telling them how they should interact. Joseph (social activist)

If one takes Thomas's definition of resilience as a dynamic model of nature and Joseph's definition as fluid natural system of social cohesion, a bridge between the natural and built environment is, in effect, created.

*Summary—Pillar 3 (Societal) Theme 3.3: Resiliency and sustainability*. The concept of resiliency and of creating structures and communities that will be able to "bounce back" from significant, often harsh and unexpected events, was a debated question in this study. For a number of the participants in this study, the concept of resiliency went far beyond its common definition and the distinction between resiliency and sustainability. Several, in fact, are pushing *against* the concept of resiliency. They have seen it as quickly becoming a catch phrase to further a more colonialist and economically privileged agenda. It turned out that they all could point to times in their own lives that they experienced resilience. In principle it is very different when it is operationalized on the ground and in community. Most particularly for people in vulnerable and marginalized communities, the return to the status quo is not what is wanted or needed; instead, the push is to achieve a different, more equitable community. Resilience is not an end in itself and may even encourage regressive policies that try to bring cities back to a reality that favors the well-off and perpetuates inequity.

**Pillar 3 (Societal) Theme 3.4: Managed retreat.** Of the several broad strategies humans can use to adapt to climate change, probably none are as inherently and automatically unpopular as the idea of managed retreat. People almost inevitably expect that their governments will "fight the good fight," shoring up the defenses no matter the threat. In contrast, the underlying precept for thousands of years among nomadic hunter–gatherers was voluntarily relocating, often in a cyclic though sometimes in a once and for all move (Fang & Liu, 1992). But for today's human communities, especially mega-cities like the New York region, a policy of "packing things up" and moving to higher, safer ground is close to unthinkable—and, potentially, political suicide for anyone advocating it. Nonetheless, managed retreat as a concept has quite recently (re)emerged as a serious alternative (e.g., Freudenberg, Calvin, Tolkoff, & Brawley, 2016; Koslov, 2016; Siders, Hino, & Mach, 2019), if for no other reason than the enormous costs of disasters and defending against them.

According to a review by NASA (2020), working with NOAA's National Centers for Environmental Information, since 1980 the United States has had 254 weather and climate impactful events in which damages and costs in each case exceeded $1 billion. Adjusting the aggregate figure for inflation, this means a price of $1.7 trillion, and that is quite aside from the massive cumulative loss of life, human and not.

The most common form of policy intervention for the purpose of managed retreat is for public agencies to purchase privately held property and (sometimes) provide relocation cost assistance as well as other non-monetary forms of adjustment (Freudenberg et al., 2016). These are called buyout programs and utilized as a form of post-Sandy and post-Hurricane Irene response in New York, New Jersey, and Connecticut—with mixed results. According to Freudenberg et al. (2016),

Buyout programs were employed in New York, New Jersey, and Connecticut following Irene and Sandy, but they were considered politically unfeasible and thus were available to only a handful of communities. Of the billions of federal aid spent on resilience and recovery in the New York metropolitan region, at least $750 million has been spent on buyouts, which alleviated the flood risk for more than 1,500 homes. However, the vast majority of recovery efforts focused on other measures of adaptation. (p. 4)

At what point does rebuilding in an area impacted by a climate impactful event make sense and at what juncture does one no longer adapt and retreat from the site? These and other interrelated stories and observations about managed retreat make up my fourth theme.

Someone living in NYCHA housing in Coney Island or Rockaway who might not have the ability to move themselves to another locations would be in a very different position than someone who has a second home in Southampton, New York. Managed retreat and buyouts could be the subject of its own study. So, while this will not be handled in the course of this study with the level of detail it deserves, to not focus on it would be leaving out a challenge that will be facing many communities, local, state, and federal government in the years to come.

Meeting the challenges of managed retreat underscores what John Paul Lederach said in his acceptance speech on May 8, 2019, at the Niwano Peace Prize Ceremony. He spoke of "'in-between wisdom' . . . Commitment to intergenerational accompaniment opens us up to unanticipated insight and breakthrough that rise when extraordinarily diverse people commit to deep listening, mutual encouragement, and courageous joint action" (Lederach, 2019, p. 5).

Melissa (architect) was well aware that in many cases in cities like New York and New Orleans highly valued built environments go along with beloved communities from which few want to consider retreating. She was rather surprised when she saw a similar kind of cultural legacy that she experienced in both New Orleans and during Sandy, which she explained as "communities that rely on their social networks for their wellbeing in the absence of the shrinking welfare state." She continued,

In the absence of the shrinking welfare state, family networks are really, really important. The problem with the notion of displacing people, not building in the flood zone—which is a really good idea, do not build, or rebuild in a flood zone, in these communities—it's that if you are not careful you really disrupt the social networks, which are very valuable. (Melissa, architect)

Melissa went on to give a very specific example of someone in Sheepshead Bay, Brooklyn, NY, which was hit hard during Sandy:

The man was not in good shape. He was unemployed. He was a former veteran with mental issues. He was an alcoholic. If he had not had the support of those extended family in this place with this property, he would not have survived. They had family networks and they didn't want to leave [and] they couldn't afford to move. (Melissa, architect)

While the issue of managed retreat may have the most challenging effects on individuals and communities without the financial solvency to relocate, there is a level of fear and denial that goes beyond economics. There are communities of wealthy people who by their privilege, feel a level of immunity. Hannah had this story of an elderly woman of means:

She didn't want to evacuate for Irma, and her husband is in a wheelchair. I told her about the data predictions and cautioned her about her safety. She wrote: "You're scaring me." I said, "Well, you should be scared." . . . she wrote back . . . "How much time do I have?" I said, "Five to 10 years." A lot of people think they don't have to worry about it because they have a lot of money. (Hannah, planner)

One of the questions, I asked the design/planning professionals is if they broached the subject of managed retreat post-Sandy with residents during recovery and how they were responded to.

I've talked to the Mayor's office and they are like, "We can't even begin to talk about that because of real estate value and land." I'm like, "Well then, we're acting in just denial. You're putting everybody in greater jeopardy than actually caring for your citizens." To me, the Mayor's office just wants to look at real estate as the solution eventually, not as an issue. They want to build their way into flood protection. (Brianna, architect)

We further discussed the implications for communities that are more economically vulnerable and how one even begins to approach the difficult and sensitive questions of relocation. As Melissa suggested, sensitivity is of the utmost importance. She said,

> Many people are in bare survival mode; they struggle to keep a job, earn a sustainable wage, and feed their children. In no way should we force this to be a top priority for people. And yet, it's where political will and the government come in, to make sure these people are safe. (Melissa, architect)

One of the other architects in this study, Vic, had to make a very personal decision for he and his family as to whether to rebuild or not after Sandy. Given the location of his home, in Sea Gate at the very tip of Coney Island (Figure 4.3), if there was ever a strong case to be made about retreating and not rebuilding, this would have been one of them. I also asked how, from the perspective of a design professional, he would advise others on the subject of managed retreat.

> I think in my particular case it was an individual decision. It was for myself and my family about rebuilding and not retreating. It was a decision we all made together. If the rest of my community, or any community, were involved I think the decision process would clearly be different. (Vic, architect)

As Vic and I extended the conversation to The Rockaways, Red Hook, the Lower East Side, and Lower Manhattan, it was daunting as to just how wide an area we could be talking about.

> But if you take a look at how many linear miles or square miles of an area, in New York City alone, that potentially are going to be subjected to being under water in the next 20 to 50 years, you're talking about a lot of people, a lot of area. And I honestly don't know, logistically, or economically, how to make something like that work. (Vic, architect)

Beryl (landscape architect) related the need for managed retreat to the natural underlying ecology that several prone communities are located on, The Rockaways and Coney Island:

> They are both barrier islands. They are in constant motion . . . from wave action and tides and sand deposit. They are geologically very transient bodies of land . . . [In] 500, 1000 years, Rockaway will be really skinny in one part and really fat in another part, or it may get breached and become two or three islands. (Beryl, landscape architect)

NYCHA has 326 housing developments across the five boroughs. Many of them are within the highly vulnerable communities that Beryl mentions. As stated in the Sandy Regional Recovery Agenda, "Sandy impacted nearly 20% of all NYCHA properties (i.e., 402 buildings with over 35,000 units)" (Sandy Regional Assembly, 2013, p. 1). These statistics give an even greater understanding into the kind of massive effort Beryl is talking about. We discussed at length that managed retreat was an urban planning issue more than an urban design issue and how, after Sandy, many of the residents Oakwood Beach and Ocean Breeze (both on Staten Island) chose to take a buyout plan.

Another study participant, Hannah (planner), has been highly focused on managed retreat. She described a project by Concordia, the architecture firm engaged with developing the Isle de Jean Charles Resettlement Plan (2019). This plan is mentioned in more detail in the focus group at the close of this chapter. During the interview we discussed how the terms "transformational adaptation" or "resilient relocation" have been used instead of managed retreat. These are attempts to find wording that is less loaded than "retreat" with its strong connotation of giving up and conceding defeat.

Ross, who is both an architect and an educator, talked about a studio he had taught at City College of New York that focused on a project about managed retreat:

> I looked very broadly for a community that would be willing to work with my studio, openly, without paranoia, looking at the pragmatic aspects that we were going to confront with managed retreat. I did find one community off the Hudson River—not the first place I would have looked at, but a community that was slammed by the surge from Hurricane Sandy—the town that Klaus Jacob[18] lives in, Piermont, NY.

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[18] Klaus Jacob is a research scientist at Columbia University's Lamont-Doherty Earth Observatory. He has been advocating for the development of fair and equitable plans to relocate flood-threatened communities, ones that have a fair probability of being under water before the close of the 21st century.

One of the primary issues in working with any community on this subject, is trust. Ross immediately earned that because Klaus Jacob had been a resident there for 15 years, had worked with the community who, as a result, already had a climate sea-level rise committee. Ross went on to share more of the details of the actual planning exercise. I was curious as to how far Ross's team went in devising actual solutions for Piermont. He responded,

> We're not giving them a solution. Amongst eight, you can be sure that you have some very, very modest ideas about how they might secure their shoreline. What if their park land up the hill becomes their urbanized land? Piermont asked us if we would ready our materials for a later spring conference (2019), that they can use what we did for them as examples of alternative futures. That's about as far as I've been able to go. (Ross, architect)

Part of what Ross and I further discussed was the time frame people are willing to consider. While scientific authorities like Klaus Jacob may talk about the very long-term and the impact on our grandchildren's children, most people are not ready for nor willing to engage the long term. Ross argued,

> We're dealing with the immediate, since we know people have rebuilt in West Hampton, South Hampton, and Jersey Shore. People rebuild in extremely vulnerable areas. People would rather die than move in some cases. Moving a discrete number of families by some funded mechanism, you can kind of do, but nobody has suggested that we move a major American city. In that case, when you talk about retreat, retreat to what and where?

For many, including me, one's brain goes blank forecasting 60 years into the future. How does one get past this? It begins with not thinking about this framed only by one's own sense of longevity and mortality! Rather, what is needed is to adopt a philosophy based on legacy, tied to altruistic pragmatism—an intergenerational form of leadership or what Milfont and Sibley (2011) called "environmental generativity" (p. 21). This important insight that arose during the research will be discussed further in Chapter V.

> So for example, there are places where communities are at a huge and significant risk; there is no doubt about that. But I think before "experts" or practitioners look at the maps and say to people that they have got to go, I think the communities themselves need to

realize when they have to go or when they don't. The idea that communities really don't know is a little bit condescending. (Samuel, architect)

Samuel also noted the difficulties created by the idea of, and, even, just the word *retreat*.

So now they're calling it "adaptation" as opposed to "managed retreat because" it was a hard and scary phrase. How do you maintain the social infrastructure when you're moving people? Where do you move people to? [Think of] the Lower Ninth Ward after Katrina: all the affordable housing cleared for market-rate housing. People are suspicious when you mention managed retreat. That is why. It was a way to clear the poor.

Robert, also an architect, addressed the law and politics of managed retreat, pointing to

how, at some point, it may no longer be a matter of choice:

It's going to present a new requirement for architects. Unless it's a law that somebody's going to have to retreat, they don't necessarily have to retreat. All they have to do is lift their house up or make that kind of correction. You can't force them to retreat.

A forced retreat would harken back to other tragic experiences in America: forced

relocations, such forcing Native Americans off of their land; urban renewal that bulldozed

so-called slums leaving working class and poor people without affordable housing (Gans, 1965).

Then as Robert went on to say, to not plan ahead in a realistic manner could bring a different

kind of destruction.

If we start waiting until it is too late, you are going to have a situation where it's going to be forced retreat, and that's not good, or you are going to have destruction. It's a tough one to talk to housing clients specifically about and how to achieve what I would call, a controlled retreat, a phased retreat, as opposed to a panicked retreat. (Robert, architect)

And Brianna (architect) spoke of the analytical challenges her profession faced in

developing a "model" for decisions around managed retreat:

The thing is, Red Hook itself, is like in the middle of the city. It's not like we're some outer banks kind of location. We need to start figuring this stuff out now . . . and partly because retreat itself can take 20 or 30 years.

Brianna is both an architect and an educator. She spoke about programs such as RAMP

and studio courses at the Pratt Institute that have become incubators for ideas and

experimentation. They also were places where communities could work with design/planning

professionals to vet ideas and co-create future alternatives in a non-politicized environment. I

asked Brianna how a design/planning professional can deal with the issue of managed retreat and

not rebuilding. She answered,

> It's our responsibility to always [have] an upfront conversation and then figure out how
> to move forward through that. Another model that they [residents in high risk areas]
> could do, they could sell their property and they could build a floating house . . . It's
> important, for the city to start having those conversations. Nobody wants to talk about it.
> (Brianna, architect)

> When I spoke to Thomas, a landscape architect who lives in Red Hook (and also was

very engaged with Puerto Rico after Hurricane Maria), we talked a lot about The Rockaways,

where he has worked and sailed from.

> Should we retreat? We're living in these vulnerable areas, or do our lives depend on these
> vulnerable areas? For people that are fishermen, surfers, and sailors, they want to be in
> the ocean zone. They need it for their happiness, they have to see the horizon line of the
> ocean. So, for folks like that, it's worth the risk of it. (Thomas, landscape architect/urban
> designer)

> For architect Roberta, such questioning needs to be moderated with at least some

optimism if professionals are to have any chance of gradually opening up the option of

relocation.

> You have to stay positive about what can be done, and we know a lot of what can be
> done. We may not have the money to do it all, but we also have some tough decisions
> about where it doesn't make sense to invest. I don't think that the question of managed
> retreat has been warmly landed yet because it's such a political nightmare. (Roberta,
> architect)

> Finally, on the issue of managed retreat, Melissa (architect) ended on a less optimistic

note recognizing not only the natural reluctance of individuals but the massive challenge of

relocating the large numbers of people living in massive public housing developments.

> The idea that at some point your house will be dry but you'll get there by boat because
> that's actually where the coastline would be, is grounds for considering managed retreat.

People don't get it… that's a lot of the problem. The other . . . is the places where you have large concentrations of poor people, in NYCHA housing. The idea of moving them out of harms' way, is too expensive, where are you going to put them? (Melissa, architect)

*Summary—Pillar 3*, *Societal*, *Theme 3.4: Managed retreat.* At what point does rebuilding in an area impacted by a climate impactful event make sense and at what juncture does one no longer adapt and retreat from the site? The answer to these questions are further complicated for communities that are more economically vulnerable. How does one even begin to approach the difficult and sensitive questions of relocation which would be very different for someone living in Southampton, Long Island, compared to residents of NYCHA public housing in The Rockaways. We discussed how the terms "transformational adaptation" or "resilient relocation" has been used instead of managed retreat. These are attempts to find wording that is less loaded than "retreat" with its strong connotation of giving up and conceding defeat. Managed retreat is going to present new challenges for design/planning professionals. A forced retreat would harken back to forced relocations—moving Native Americans off of their land—or urban renewal—leaving working class and poor people without affordable housing. Yet to not plan ahead in a realistic manner could bring a different kind of destruction. What is needed is to adopt a philosophy based on legacy, tied to altruistic pragmatism—an intergenerational form of leadership.

**Pillar 3 (Societal) Theme 3.5: International connections and lessons.** It is fitting, given the global scale of climate change, that lessons on how to deal with disasters get shared between experts and professionals from many nations. After Sandy, much was learned and developed as HUD worked with Dutch water expert Henk Ovink, who played a leading role in formulating and implementing the Rebuild by Design initiative. In the interviews the significance of such cross-fertilization internationally came up a number of times. For example,

Jeanine (landscape architect) spoke about learning from another of the study participants such as

Eli (architect) because of his international experience.

> It was interesting to me when Eli was talking about this trip to Japan to the area of the tsunami and how there, they relocated people together. So, whoever your next-door neighbor was, you took your next-door neighbor wherever you were going. So, they kept the community together and also had some people say to them, "Yeah, well I might not want to live with my old neighbors." (Jeanine, landscape architect)

Grace brought up the impacts of and professional work that took place in the aftermath of

earthquakes in New Zealand:

> [Regarding] New Zealand and the earthquake of 2010, we did have a larger, more impactful event in February 2011, and we hadn't yet fully finished examining all the properties before that. That was a big learning experience. To apportion the damage between events when you haven't actually looked at the property in-between time is really very challenging. (Grace, engineer)

When the time between catastrophic events is short, assessing the damage, let alone

readying the infrastructure and communities for the next catastrophe can be very daunting. This

is an important lesson to be learned as the frequency as well as the intensity of major climate

change-induced events increases in the United States and the Northeast. Having two "Sandys" in

close succession could overtax not only short term but longer-term response planning. Liz also

drew on lessons from New Zealand's handling of earthquakes:

> [During the] Christchurch earthquakes 2010 and 2011, the ground became liquified . . . and the real estate changed, and you were in a flood zone and before you were not. People then had to have flood insurance and earthquake insurance on the real estate. (Liz, engineer)

The issue of insurance is a big one in the aftermath of disasters. Though this was not a

point of focus for this study, it is important to put what Liz was describing into the context of

Sandy. After Sandy, many insurance policy holders learned that their insurance may not cover

damage done before the storm. Most of the damage was not caused by hurricane winds but by

severe flooding from storm surge. And most traditional homeowner policies do not cover floods.

Flood insurance is something bought separately through the government (FEMA). Referring to

New Zealand's disasters, Liz went on to explain,

> To get back the damages the earthquake insurance said you are not in a flood zone so you should go to the flood insurance. The flood insurance [companies] told them, "Well, the flood was created by the shaking of the earth therefore you have to go back to the earthquake insurance." The building code looks at shaking but not at the earth liquifying. (Liz, engineer)

> This international example states it so clearly through the phrase, "the real estate

changed." This not only pertains to the insurance an individual may hold. Design and

construction continue locally in some areas after Sandy, including Red Hook, the Gowanus

Canal, and The Rockaways, all hit heavily during the storm surges and resulting floods. While

design standards and codes may be changing, so is the geology of the earth that these

developments are being built upon.

> Liz also touched on her work after a major quake in South America:

> I [led] the team after the 2016 earthquake 7.9 devastating the whole shoreline of Ecuador. I collect newspapers after earthquakes. People [demand] water, safety, milk for their children, going back to their houses, not live in tents. I thought I would see that; what I saw was images of devastation and the word resilience in Spanish. I was like in shock. This word made it all the way there because this was the demand of the people.

> What stood out in Liz's international experience is how much the design nomenclature,

such as resiliency, has become part of the public narrative. This harkens back to the disaster of

9/11, when phrases like "progressive collapse," "design charrettes," and "Jersey barriers,"

became part of the public narrative and nomenclature in the New York region.

> For Claire, the devastating earthquake in Haiti was replete with very painful lessons, not

least because that is where she was originally from.

> I lost a lot of family in the 2010 earthquake in Haiti. Haiti ended up with 80,000 people with some level of amputation because of hard cinderblocks from buildings falling on them. My response was not just the resiliency of construction techniques, but architecture rebuilt different than before. Architecture with accessibility. (Claire, architect)

Claire saw firsthand how inappropriate planning or design responses can be when they are fashioned by outsiders with minimal or no guidance from the affected communities. Similar to what happened in New Orleans during Katrina, there was a lot of push back with people coming in from outside to rebuild who had no understanding of the local culture.

> Some of the competition results in Haiti looked like log cabins, Spanish Style houses, none of this was a cultural alignment with Haiti. And all of the financial resources that could have gone back into the Haitian economy was going to people from the outside coming in. (Claire, architect)

As a Haitian American, Claire wanted to go back and offer her assessment after the hurricane. She volunteered to go down and assess and evaluate buildings for structural integrity, but because she was only two years out of school, even though she was working as a practicing architect, the Haitian government told her she was too inexperienced to make those assessments and evaluations. Claire did get her hands on a manual for construction from Habitat for Humanity that was written in both English and Creole and went to work with the contractors.

> I worked with the construction workers sharing other techniques that could make buildings safer, like tying the rebar accurately, etc. I shared what I called the tricks of trade, gave them the printouts from Habitat, and talked to them about the power they had to make the environment safer. That they had the power to come in and make it safe. (Claire, architect)

Claire explained that in Haiti if you say you are an architect, they refer to you as an engineer.

> Those who call themselves engineers are really contractors. So, there was no one there checking foundation depth, water tables, soil stability, etc. There were rebars sticking up from the roofs that detach the metal from the concrete. So, when the earthquake happened it was catastrophic. Roofs were made heavy to resist the next hurricane which further exacerbated the collapse of anything more than a single story tall. There is technically a building code, but it is not reinforced, and no one is liable. (Claire, architect)

Samuel (architect) drew attention to the special challenges of Kuwait which is both highly vulnerable to climate change and a major source of fossil fuels whose usage is a major driver of global warming:

> In Kuwait, obviously there's huge issues that have to do with climate change; it's arguably the hottest inhabited place on the planet and it's primarily organized around fossil fuels. China is built out so completely and so inappropriately, that it's going to be dealing with issues for at least 100 years. What's really disturbing is that now the Chinese are moving into Africa.

Of particular note from Samuel's perspective is how developed countries like the Republic of Kuwait—which according to the World Bank Group (n.d.) has 98% of its population living in cities—face a scarcity of water and, yet, an economy built upon a major contributing factor to climate change. Of note, in light of Samuel's concern, it is to be noted that after the United States under President Trump pulled out of the Paris Climate Agreement, China began to champion what it called "Ecological civilization . . . achieving harmony between people and nature" (Pennington & Kastner, 2018, para. 3).

Roberta turned to Thailand in search of changing paradigms of professional work in regard to engaging communities that are both vulnerable to disaster and marginalized socioeconomically. She observed,

> There is a group of architects in Thailand doing something called CODI. Community Organization Development Institute . . . co-creative efforts with community members, for community members, if you need to do work in a community that has nominally significant needs you have to figure out a way to work with and support the community. I heard this similarly, from [African] representatives who said, "Nothing for us without us." (Roberta, architect)

Roberta worked with the CODI team in Bangkok and spoke at length about the Baan Mankong Collective Housing and how people moved from rickety shanties to owning solid upgraded homes. While the primary motivation for this program was not imminent effects of climate change, the program is one we can learn from in the developed world. Upgrading and

storm proofing the dwellings of those who live in disaster-prone areas of New York, and doing so in a way that enhances community capacity, certainly describes challenges that I heard of repeatedly from professionals who worked in rebuilding post-Sandy. Roberta further discussed how this tied into creating income generation and the local issues in the context of the greater regional challenges. This goes to a point raised throughout my research in direct response to Sandy: The need for "a new story of unified effort to heal [rebuild] communities harmed by racial [economic] injustice so that they can participate in repairing our damaged ecosystems and social networks" (Anthony, 2017, p. 8).

Finally, in terms of the theme of international lessons and comparisons, Penelope (architect) brought up the Caribbean island jurisdictions, some of which have started reducing climate change impact through use of renewable energy sources:

> The Governor [of Puerto Rico] signed a bill, on 100% renewable energy, by 2050. Dominica signed on to be a 100% resilient nation, in the rebuilding. There is a lot of opportunity that is happening there in regard to case studies and new projects. They have different governmental structures than what we do, which creates different hurdles.

There were many architects interviewed in this study with close affiliations to Puerto Rico and to other Caribbean islands. Of particular interest in terms of lessons learned internationally was how areas with different governmental structures than in the United States, and having a wholly distinct set of economic, social, and political hurdles, are making great strides in committing to policies that many cities in the United States have yet to adopt.

*Summary—Pillar 3 (Societal) Theme 3.5: International connections*. After Sandy, much was learned and developed as HUD worked with Dutch water expert Henk Ovink who played a leading role in formulating and implementing the Rebuild by Design initiative. The significance of such cross-fertilization internationally came up a number of times in the study. As noted, one participant referred to how, in New Zealand after two earthquakes struck in quick

succession, "the real estate changed." While design standards and codes may be changing, so is the geology of the earth that these developments are being built upon. It was also shown by way of international examples how inappropriate design/planning responses can be when they are fashioned by outsiders with minimal or no guidance from the affected communities. Similar to what happened in New Orleans during Katrina, there was a lot of resentment about non-local people, including professionals, who had no understanding of the local culture yet came in from outside to rebuild after the earthquake in Haiti in 2010. Of particular interest in terms of lessons learned internationally was how areas with different governmental structures than in the United States, while having a whole different set of hurdles, are making great strides in enacting policies that many cities in the United States have yet to commit to.

**Pillar 3 (Societal), Theme 3.6: Leadership**. Despite widespread constructive critiques of conventional ideas about what it is to lead (e.g., Heifetz, 1994; Vaill, 1996), even the most progressive professionals still often instinctively feel pressured to have "all the answers" for dealing with climate change disasters. Yet realizing, through experience with climate-change induced disasters, they also aspire to alternative models of leadership. This dilemma was a recurrent theme in the interviews for this dissertation

When asked about the qualities of leadership needed for dealing effectively with the climate change crises, most participants suggested that it is no longer possible or desirable to lead from the top down. Others simply acknowledged that leadership is desperately needed in the aftermath of events like Sandy but did not know where it would come from or what it would even look like. Talib (architect) cautioned,

> Don't construct a whole reality for them [communities] through *your* own eyes. And this is why it's so important for designers to understand [impacts] of what we do. We interpret peoples wants and desires into physical space. We need to begin to change the paradigm to, "I'm not going to stand up *for* you, I'm going to stand *with* you."

Susan spoke of the dangers for professionals in overestimating the decisiveness of their

expert knowledge in contexts where, in fact, no one person really has "*the* truth":

> Let me give you something completely on the other side of leadership which is the guru
> effect. People come into these situations and because communities are desperate and
> confused, we are all susceptible to somebody coming in with all the answers. As I think
> about it, they are almost always men. They come in with big grand sweeping initiatives
> that they are going to solve it all. (Susan, urban strategist)

The term, "guru effect" was coined by Sperber (2010) in reference to how a

jargon-rich authority's perspective is often over-valued, what Schön (1983) earlier called the

strategy of mastery through mystery (p. 126). Susan's point was that in the midst of a confusing,

uncertain, and even dangerous situation as was the aftermath of Sandy, professionals may fall

back on technical prowess when the challenge is beyond the grasp of current expert knowledge.

Susan (urban strategist) summed up the guru effect with this impact: "In New Orleans

they used to say that New Orleans had two storms. One was Katrina, the actual storm, and the

second one [was] the attack of the experts and a kind of dogma that is disrespectful and

destructive." It appears that one of the greatest barriers to environmental and social justice in the

aftermath of climate change-related catastrophes is the expert or group of experts that come in to

"save the day." Most of the time they are coming from the place of privilege rather than

inclusivity. They use their privilege not to engage but rather to control and have power over. It

goes back to something architect Talib (architect) mentioned earlier. It's the difference between

standing with rather than for. It's a form of bias that comes from feeling like the anointed one

while the local and neighborhood community have less credibility. It also runs against the kind

of global perspective Roberta discussed from the ever more valued perspective of communities

in relation to design/planning professionals in Africa: "Nothing for us without us." Liz (engineer)

expanded on this:

From a preparedness, planning aspect and leadership perspective, professionals need to explain details of what they do from the top down and the bottom up. It should start from a very early age from a school level and if the parents are more aware then they can have a productive conversation with the technical and the political.

Along the same lines, Brianna (architect) concluded, "You can't force people to understand it. And we have to be sensitive in that there are lots of people who have just hardships around keeping a job, or making enough money, or feeding their kids."

When discussing the issues of climate change, particularly in marginalized or economically challenged communities, the reality of priorities comes into play, as Brianna noted. This perspective further substantiates what Liz stated on the importance of educating children so they in turn can educate their parents in a way that is conversational, accessible, and not a burden. Considering the gradual and educative leadership role that design/planning professionals need to take, Paul used a metaphor of descending a staircase:

When you walk down one step as a time. you might not get down 15 stairs, but you might get down five or six or seven. As a leader it's important to let people know that you're still on the staircase. You've got eight stairs to go, but at least you don't have 15. And then people can make decisions about how much farther they want to go. In a post-disaster scenario that translates to where they want to live and the amount of risk that they want to take. (Paul, engineer)

What has been thematic in this research is the overlap between the professional and personal. Many professionals whom I interviewed used their professional knowledge but personally within their own communities. This is a form of servant leadership (Greenleaf, 1977), wherein the desire to make a positive difference in others' lives is modulated by using one's knowledge in a way that makes room for everyday wisdom to develop in the client group. Samuel reflected,

I'm very much an optimist; I think you have to be an optimist if you're in our profession, but I'm not super optimistic about what's going to happen in the next 20 years. I find it hard to believe that we're going to make any kind of tough choices in the next 15 to 20 years unless something ultra-catastrophic happens. (Samuel, architect)

Inclusive leadership is intrinsic in Samuel's response: The best way to deal with tough times and choices ahead is to engage all in a shared vision.

> Look at what happened with New York. It completely flooded the southern part of the island. What's been done since then? I would just say that *our goal is to give people information so that they can make informed decisions and somehow do that in a way that's compelling* [emphasis added]. (Samuel, architect)

There is a sense of shared purpose. Leaders create an environment that is participatory and transparent. This type of approach in leadership could not only counter the guru effect but also, as Eli had noted, help with the dilemma professionals have assisting people to make informed decisions in the middle of a crisis.

A somewhat opposite take on the kind of leadership needed for tackling the unprecedented design/planning problems after Sandy was advanced by Muriel who said,

> We need another Moses,[19] a czar, someone tough enough to say, "No, we are not building here." The water will rise—and the land will not be there. The big question is how this will happen? Who has the authority to do this—crack the whip and do this and where does the money come from? How are we going to deal with this? (Muriel, communications specialist)

Muriel seemed to be implying this is a leader who is more charismatic in approach, quite different from other participant perspectives that described an adaptive and inclusive leadership process for the long-term. However, when one looks at the most famous 20th century leaders who brought their nations or communities through crises—Roosevelt, Churchill, King, and Gandhi, for example—charisma paid a huge part in galvanizing people and keeping them focused on intention during stressful times (House, 1976; Northouse, 2007). While this may be

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[19] Here, Muriel was referring to Robert Moses, the legendary public official in New York City who in the mid-20th century was a dominant force in shaping the public infrastructure. His life and work is described in Caro (1974).

justified in light of the even more global crisis of climate change, however, the world has many

charismatic leaders who do not necessarily fall on the side of making the climate great again.

I asked Muriel specifically why she feels the design/planning community has not had

better leadership. She responded,

> Why isn't it moving faster? There are too many people employed in this within their various silos and their own small power base and are more committed to their silos then to the challenges of the issues . . . We have fires, flooding across the country. Do we just have a nation of zombies who just can't move? (Muriel, communications specialist)

I was curious if design/planning professionals viewed the most effective form of

leadership during and after Sandy as leading from the bottom up, top down, or "from the

middle." Thomas (landscape architect/urban designer) described the most effective form of

leadership being where the horizontal and the vertical come together. He calls it the "middle

out," where the leader is ever toggling between the horizontal resources of community and the

vertical resources of governments.

Thomas linked the potentially delicate balancing act of leading from the middle to the

need for professional self-awareness. He said this approach depended on,

> not being afraid to engage leadership at all levels, and play inside ball, but also play outside ball and organize with all the non-profits on the ground for those who do not have access to those resources and just being a connector of resources and a conveyer of power, in a way, and not a concentrator of power. (Thomas, landscape architect/urban designer)

Thomas's description of power and its use is a good example of the positivity of leading from the

middle: the leader as connector of resources, a *conveyer*, not *concentrator* of power. Joseph

supported the need for leadership that transcends command versus consensus models. He said,

> There is this hierarchical thinking . . . top down notions that the expert will be able to solve all the problems. We need solutions that not only address complex problems but complex systems. The hierarchical thinking approaches are not as complex as the scale of our problems. And while I think it is leading from the middle, I think the bottoms and the tops have to come together. (Joseph, social activist)

Roberta's remarks in response to my asking about leadership went straight to achieving a more collaborative leadership approach:

> I think that we have to put collaboration at the forefront. Sometimes you need to play rhythm guitar, you don't always need to be the lead guitar. How do you create this desire for collaboration as a new trend? [How do we] change our motivation and incentives for celebrating success? Are we able to say we're not going to give anymore design awards for individual contributors? Everything has to be a collaboration. Are we bold enough for that? (Roberta, architect)

The impacts of Sandy and other climate-impactful events are having consequences on the societal role designers/planners play. Will this lead to some fundamental changes that may in fact include, as Roberta notes, "knowing when to play rhythm guitar and when to play the lead."

One of the puzzles that many of the design/planning professionals spoke of in one way or another was basically, why isn't it moving faster; who is in charge here? The participants acknowledged that designers/planners will need to find their place as leaders of a movement that is both reflective and proactive. A leadership model that addresses our environmental challenges may be hard to achieve but, from what the participants observed, greatly needed. These ideas will be further discussed in Chapter V.

**Focus Group Reflections**

Ironically, on the day of our focus group call, Hurricane Barry struck the Gulf Coast causing flooding from Louisiana into Arkansas. I convened the focus group as a means to triangulate and/or challenge my research data. Zac (architect/planner) was in attendance with Adam (architect) and Therese (landscape architect/architect). All three of the participants were recruited through the efforts of Ross, another architect in the study. Adam committed his career to housing, most specifically affordable housing and community-based design in underserved communities. Therese is a multi-disciplinary professional whose work integrates ecologically and socially progressive design and is a leader in resilient urban design. Zac is the founder of a

planning and architectural firm in which collaboration and community engagement is central to

his work. He is also the only person in the study who was engaged in relocating a community

from a climate-vulnerable location to higher ground (i.e., managed retreat). I provided all the

participants with a series of five questions. One participant, Adam, answered all of the questions

and sent the answers back to me in writing. In providing the questions in advance, I discovered

that the three pillars used in the interview analyses did not align with the more integrated themes

that emerged from the focus group.

Zac, like the interview participants, landscape architect Beryl, architect Eli, planner

Kaasar, urban strategist Mary, and engineer Paul (along with many others in the study)

emphasized the importance of community engagement. Zac referenced a particular project in

Louisiana with extensive community involvement.

> People don't know what they don't know. We went through an extensive project in South Louisiana called LA Safe that involves 3,000 people. We had 70 community meetings and we were able to present to people what the options were, what their future conditions might look like. It was an enormously complicated, costly exercise but a lot of people's awareness was raised. (Zac, architect/planner)

There was then further discussion about being able to be sensitive in how those options

are presented.

> Even as simple as what the options are—either you stay here, and this is what your future is going to look like, or you can move, and your future can be different—you won't have the same culture because everyone might not end up in the same place, but these are the choices based on the facts about sea level rise and that your community is going to be under water 30 years from now. (Zac, architect/planner)

Therese commented on this from the perspective of how difficult it is to hear the options

when you are feeling so vulnerable. That vulnerability, as further noted in the study extends to

both the community and the designers/planners that are the ones delivering the information.

I think a lot of people may just feel helpless because they can't engage with the issue and giving people an idea of how they can actually do something or help or make their participation meaningful; it is really important. (Therese, landscape architect/architect)

Therese further expanded upon one of the themes that emerged during interviews on how designers/planners are making decisions and developing new standards for the purpose of adaptation but that incentives may not always make the most sense from a personal or financial perspective.

We are working in Miami Beach developing new standards for how private homeowners can raise their buildings, adapt their landscape for climate change, and sea level rise of five feet. The presumption is the city is raising the street by five feet because the emergency vehicles will have to get to the homes so you as a private homeowner have to adapt. How do you make this make economic sense? (Therese, landscape architect/architect)

Therese described that what she has been trying to work through is not only the financial mechanisms driving decisions on redevelopment of infrastructure in coastal areas but also the belief that people must have *power over* nature rather than *living with* her.

Holly Whyte—*The Last Landscape*—it was as if it was written yesterday.[20] I kind of couldn't believe . . . I guess I am surprised we haven't been able to make more change. It has to be more than education. Because I feel like people know they just haven't given up on the post-War idea that we as humans can control nature and that I don't know why we haven't figured that out. (Therese, landscape architect/architect)

The discussion of managed retreat added another dimension of gravitas to the conversation because Zac had actually planned and participated in such a move. He also had more hands-on experience with people in Louisiana in this context than many who worked solo in the aftermath of Hurricane Sandy. His insights were invaluable.

People don't want to move. That's human nature and no matter how logical we can think of it being logical. People don't do logical things all the time Like in Plaquemines Parish in Louisiana when you have to pay $30,000 a year for insurance then it finally hits you that it is time to move. And they won't go no matter what. Those are the things as a professional that I feel I need to be able to listen to. (Zac, architect/planner)

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[20] *The Last Landscape* was written in 1968 by William H. "Holly" Whyte about the urgent need for land conservation including the concept of protecting open (undeveloped) spaces.

Therese commented plainly on managed retreat, saying, "A lot of people don't want to leave these places because they are home. And that's what's makes us human. The humanity of it is not something to be taken lightly." Looking at larger global issues like climate change and migration we also have to foresee the next 2.5 billion people that are going to move into cities worldwide. This scenario has made professionals like Therese more conscious of the crucial nature of the role of design.

> It has made me more aware of the role of design because that is often neglected and environmental planning policy not only in anticipation of events like Katrina or Sandy but I also am concerned about the planned integration of renewable energy systems such as wind turbines, solar farms, and transmission lines with minimal disruption to the existing urban and rural fabric. (Therese, landscape architect/architect)

Adam looked at this from the perspective of policy: "I think the country needs a larger environmental planning policy that looks at all these issues and tries to think proactively and get mayors and governors to sit and think about this" (Adam, architect).

The focus groups attention then moved to another polarizing theme within the study—resiliency. Of the three participants in the focus group, Adam was the one who had worked the most within marginalized neighborhoods. He has been working with NYCHA housing in Coney Island post-Sandy and that is to continue into 2020. When I raised the question about resiliency in the context of marginalization, Adam responded, "I can say in New York resiliency has worked in concert with marginalized communities, in Coney Island where I have worked since Sandy. I don't see where it hasn't. Don't know what context you found in other people."

While Therese did not engage in this part of the discussion, she punted the question to Zac who acknowledged that it is a very sensitive topic. In the course of the study, this was not unusual. There were different degrees of comfort level responding to the question. Some had

little prior awareness of the challenges of resiliency in marginalized communities while for

others the issue was so in the forefront of experience that it brought them to a place of outrage

and sometimes rage.

> This is a really touchy subject. Some of you might know about the Green Dot plan for New Orleans. It was dead on arrival. People were put in harm's way because they were placed in low-lying areas and they were told that is where they could live. They were Black. And it was red lining. And red lining produced low-lying African Americans areas who communities that were conflicted between resiliency and social justice. (Zac, architect/planner)

Zac went onto explain that ironically people in those areas, even knowing all this didn't want to

leave. There were five generations of families there and those homes were their major financial

asset.

> It was the only wealth that they were allowed to build so who was going to take that away from them. It was a very complex [issue] and also confusing. I feel like that are a lot of places where you can make this kind of comparison. Resiliency is great for people who can afford to move to higher ground. But it doesn't work so well for people who can't. . . . It doesn't mean it's wrong. Maybe the word resiliency has taken on almost an elitist perspective. I can't tell you how many people have said they don't want to use the word resiliency anymore. (Zac, architect/planner)

Adam wondered what other words were beginning to be used. They were the same ones

brought up earlier in the research: transformation and adaptation. The conversation then returned

to NYCHA/affordable housing and the false sense of safety.

> You all bring up the issue of public housing, but in places like Red Hook, transformation is happening that is changing the nature of that whole community. It is not adapting or fixing the public housing in ways that are meaningful, but it is suggesting a berm around an area in a low-lying zone, so you are keeping people in harm's way and giving them a false sense of security. (Therese, landscape architect/architect)

Another point raised by Therese is that the landscape is being created by speculative real

estate people: how will they be able to assure people that it is safe. This was a point brought up

earlier by other participants in the study, most specifically Beryl, Brianna, and Jeanine.

It is problematic and not okay. I don't think it makes sense to pour public resources into landscapes that are potentially vulnerable when we could be pouring resources into other neighborhoods that could be rebuilt better that are already on high ground. (Therese, landscape architect/architect)

Adam, Zac, and Therese all concurred that no matter the event, what we were all talking about was people's feeling about nature, human nature.

We can talk about the environment, we can talk about floods, we can talk about tornadoes we can talk about fires, we can talk about everything but the real challenge is how we understand how human nature works—how psychologists spend their lives trying to figure this stuff out. (Zac, architect/planner)

Zac's hindsight in the aftermath of Katrina gives a different perspective into what was previously discussed in the research.

I would say we are beginning the recovery process [2019]. It has taken this long to think and feel that there are moves we can personally make. All the planning and policies that people can propose—until we get to the point where people can feel it and touch it, and have agency about it—then I don't think we are making much progress. (Zac, architect/planner)

Especially when they are telling you that you have to leave your family and friends. It is not going to happen. So, you have to have a lot of agency to make that decision to leave your family and friends. (Adam, architect)

"And it all costs money. It all costs money" (Therese, landscape architect/architect). At this point, the conversation evolved into one about *wisdom*. Zac, along with another participant in this study, Eli, had spent time with the chief of the Kalinago Indians in Dominica. The chief explained that his people had lived on their land for 3,000 years and the reason they didn't lose a single life during Hurricane Maria was they never built a house near the water. From memory, Zac paraphrased the Chief's words on this as follows:

[He had said]: The reason why on our 37,000 acres of tribal land we didn't lose a single life is we don't build our houses near the streams even if it is prettier. We learn from ancestors. So, there is something about that or, as someone mentioned, we are so built around technology and that is the new normal to be thinking of not to live with nature but to live against nature. I think that is real wisdom. Learning to live, plan, and live in harmony with nature.

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"Addressing these issues more with wisdom than through knowledge," Zac remarked. All of the focus group participants agreed that designers/planners had to continue to break down silos.

> We have to engage as many people as we can and break down the silos and bring as many people in and work towards formulate ideas in a way that people across the country can begin to buy into what needs to be done and do it. It's not someone else telling them what has to be done will be a future. (Adam, architect)

What is implied here is the need for a resurgent wave of action initiated by designers/planners that spreads within the communities of people across the country (including their own). The following snippet quotes from the focus group discussion illustrate this point.

- "It has to be a movement. We have to think about planning a movement. All we are doing is putting band aids and twittering around the edges" (Zac, architect/planner).

- "There have been a lot of successful movements in this country. Maybe it's time for a new one" (Adam, architect).

- "That's where we need to learn those lessons. We can't tweak our way to get there" (Zac).

- "And we can't do it through building codes alone" (Adam).

- "That's right. It has to be all of the above" (Therese, landscape architect/architect).

- "How do you build a movement?" (Zac)

The whole concept of breaking down silos that could lead to a movement initiated by designers/planners was something new that had not appeared earlier in the research. What Zac, Adam, and Therese are suggesting through these words is that tackling the most challenging issues of climate-impactful events requires a wisdom-based movement. I interpret that as a

non-siloed approach within which designers/planners work towards a practice which is inclusive

for both people and nature.

**Chapter Summary**

My effort in presenting these extensive and multilayered discussions has been to ensure

that the rich and thoughtful ideas that the diverse participants voiced, are documented. To do so

has relied on the metaphor of the three pillars subdivided into a total of 16 themes. Chapter V

integrates these themes, considers these findings in light of the extant literature, and proposes

how design/planning professionals affect and have been affected by the climacteric[21] now

unfolding, and which is now going to be with us, probably forever.

Designers/planners acknowledge that leadership is desperately needed in the aftermath of

events like Sandy but most did not know where it would come from or, really, what it would

even look like. For leadership in dealing with the climate crisis participants overwhelmingly

believe it is no longer possible or desirable to lead from the top down. What has been thematic in

this research is the overlap between the professional and personal. There is a sense of shared

purpose—and purposes that need to be more widely shared. Leaders, my participants all stated in

one way, must create an environment that is participatory and transparent.

It will take a reshaping of our global system to reclaim the core values of human dignity

and ecological sustainability (Capra & Luisi, 2014). As Talib (architect) argued, "If one creates

their own reality and empowers others to do the same, you are creating a unifying element

between the individual and the larger community." This connects to designer/planners in

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[21] Lord Eric Ashby (1978) spoke of the complex transitional time humans are going through as a "climacteric" (p. 3) more than 40 years ago, rejecting referring to environmental problems as a "crisis." He suggested that a crisis is something we get through, albeit often slowly and painfully. A climacteric is something, Ashby argued, that humanity will have to live with "for the rest of man's (sic) history on earth" (p. 3)

requiring the profession to continually challenge the status quo through design, ecological

balance, and social equity. The practice of designers/planners is not based upon a natural law but

rather a human one. Therefore, it can be challenged and reshaped.

**Chapter V: Conclusion**

The focus of this study arose from my research question: "In what ways did experiences after Hurricane Sandy impact the design/planning professionals' approach to future climate-related events personally, professionally, and societally?" This is about how working within highly charged post-disaster or pre-disaster climate-vulnerable communities, specifically Hurricane Sandy, broadly impacts design/planning professionals (architects, planners, landscape architects, and engineers). Within the methodology of an embedded case study with narrative inquiry, professionals' individual stories were the lynchpin of the research and served as the best way to hold and convey the depth of experience and information. It is through these stories that solutions to address the effects of future hurricanes (superstorms) can be found. This chapter will discuss the key findings, limitations, and implications for leadership and change that emerged from this research. Finally, I will conclude with how this research has impacted me personally.

**Key Findings**

The findings of the study were derived from two stages. In the first stage, interviews were conducted with architects, planners, landscape architects, and engineers, along with several tangential but interconnected post-Sandy professionals. This was followed by a second data-gathering stage, a focus group (consisting of one architect, one architect/planner, and one landscape architect/architect) which triangulated the data from the study's interview stage.

All data was gathered using biographical narrative interviewing during which I relied on minimal questioning or prompts, giving participants wide latitude in structuring their "stories of Sandy" in their own way. The focus of this research was on the post-Sandy experience and its ramifications on the design/planning professional. However, many participants also discussed

other climate-impactful events they experienced before or after Sandy as a means of expanding upon their responses.

The data were then classified into three pillars: Personal (self/individual, psycho-social challenges, empathy/stress), Professional (impact to professional practice, reflection on strategies post-Sandy, impact on future events), and Societal (local and global impacts, leadership). It is important to note that the research results analysis in Chapter IV included post-Sandy and other disasters that design/planning professionals worked on before or after Sandy. This chapter emphasizes the impacts of Hurricane Sandy and its aftermath.

**General reflections on Pillar 1 (Personal).** This pillar comprises issues that pertain either to the research participants themselves or to issues that other professionals have faced on the individual level. This includes topics from psycho-social challenges to emotional and spiritual well-being. Matters pertaining to depression and stress and the need for empathy and compassion are also of relevance. Given the rich volume of data discussed in Chapter IV, only the most prominent themes will be highlighted: permanence/impermanence, grief/empathy/PTSD, and dignity.

Throughout the interviews, there was a prevailing opinion among design/planning professionals that their actions carried intergenerational consequences: Design needs to be considered not merely as a structure that will withstand the test of time, but also serve as a structure built within the context of the time. Because of that pervasive insight, there was an existential question emerging that many had not entertained before—impermanence.

*Permanence/impermanence*. After Hurricane Sandy, a number of the designers/planners experienced what can only be described as the reality of an unreality; what was once considered permanent was no longer. How do you reconcile impermanence in the context of a profession,

specifically architecture, based upon the permanence of structure? This is what Kan and Parry

(2004) referred to as "paradoxical discourse" (p. 482). This occurred, they said,

> most often when respondents discussed change efforts that had caused conflict and misunderstanding for them and others. More specifically, the conditions under which paradoxical discourse most often took place were when respondents described change incidents or relationships that involved others with divergent realities. (Kan & Parry, 2004, p. 483)

The motif of impermanence arose not only from a personal or emotional perspective but

as a refocusing of a professional quest for a physical solutions-based perspective. Yet what

makes this particularly paradoxical is that designers/planners are expected to guide solutions that

are going to protect the community in the future, which, conventionally, implies permanence.

When they are designing for storm protection no client wants to hear that structures will not and,

indeed, cannot be built to last. A surprising lesson for me was the different perspective

impermanence played after Sandy for professionals within the different practitioner fields.

One architect reflected that as an immigrant and first generation American, permanence

and legacy were part of the motivator for becoming an architect. However, since Sandy his

perspective has changed with the realization that what he had always thought of as perpetual was

actually so vulnerable. Another participant, Ross (architect), commented further on this:

> It was the experience with Sandy of the impermanence of everything that underscored the paradox that as an architect, you believe that what you build, will last forever. And it makes me think also about what just happened yesterday with Notre Dame de Paris.[22] It has an intergenerational history; it's been around longer than you have been alive, and everything looks so solid—and then you realize it's not."

For the landscape architects who participated in this study, the focus is on ecology, not

the built structure. When a landscape architect begins the design process, the focus is on how it

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[22] Our interview took place just after the revered Notre Dame Cathedral in Paris was severely damaged by fire in April, 2019.

will grow and change. They are not dealing with finite objects. One of the landscape architects described impermanence in the context of the shoreline itself:

> When you are dealing with something like Sandy, impermanence becomes your reality. I feel like the past several hundred years have been about humans moving out into the sea. Now the next hundred, several hundred years is going to be about the sea moving back into the land, reclaiming what had once been nature's own boundaries of permanence. (Beryl, landscape architect)

Equally, design/planning professionals were deeply impacted, helping people who sustained severe loss during Sandy and had to help them navigate loss and impermanence.

> [They say] "I want it back. I want it back." It's not a response of wanting their house back, it's a response of, I want *it* back, I want my life back. They are looking at a global context that you can't imagine unless you went through it. That's a great profound question and a huge hurdle for the design profession to take in. (Eli, architect)

Perhaps in order to get there, professionals will need to step outside of their usual patterns of behavior and "… explore the uncharted waters of the art and soul of social change" (Lederach, 2005, p. 63). What he said in reference to peacebuilders could just as easily apply to designers/planners and their post-Sandy reality, for climate change can become an impetus for social change.

*Grief*, *empathy, and PTSD.* At first glance, empathy and stress seem to have a limited correlation. In the context of the disaster, one expects victims to be stressed and those who respond, whether in short or long term, to have empathy as they help. Marking one year after Sandy, Redlener and Abramson (n.d.) reported on a mental health conference organized by the Robert Wood Johnson Foundation which concluded that there were "clear and compelling links between exposure to natural disasters and increased levels of anxiety, depression, post-traumatic stress disorder, and strained marriages and family relations" (para. 16). However, what if professionals from whom empathy is required are devastated by this same suffering? How are we

to take care of those who are supposed to be, through their short- and long-term application of technical planning and related skills taking care of society?

Design/planning professionals are also impacted personally in varying degrees of magnitude of empathy and resulting stress. While everyone in this study responded with empathy to the distress of others, it was difficult for most to acknowledge that response or` to recognize when they needed empathy from others.

Additionally, in 2014, two years after Sandy, the Associated Press–NORC Center for Public Affairs Research (2014) surveyed 1,009 residents of 12 neighborhoods that were highly impacted by the hurricane. Keeping in mind that "fear is the key emotion . . . motivating survival via defensive behaviours" (Cantor, 2009, p. 1038), Leah (architect/planner) said that she doesn't talk to anyone about her disaster experience. After seeing the world turned upside down during Katrina, she developed a lot of "hurricane fear." Once she knew Sandy was approaching, she left and returned after the storm to help with the recovery. Commenting on what it has been like living through this trauma in two completely different cities, and yet how much of it was actually the same, she said,

> It is the sense of a place being turned inside out and how upsetting that is to see. That's even more [traumatizing] than seeing a house demolished or in the middle of the street and to see a family's contents on the curb. (Leah, architect/planner)

While much has been written on how individuals within a community are impacted in the context of recovery efforts, it is unusual for a study to focus on the impact of grief, empathy, and PTSD on design/planning professionals. Focusing on shared trauma of mental health professionals and their patients in the context of post-Hurricane Katrina, Boulanger (2013) commented, "Neither clinicians nor their patients in New Orleans had anticipated the long psychological reach of adult onset trauma; [there are] catastrophic and sometimes chronic

disruption of fundamental aspects of self-experience that survivors of life-threatening disasters may face" (p. 32).

When asked if they felt Sandy had impacted them in a way suggestive of PTSD, research participants seemed to show a general feeling of discomfort, either because the idea had never occurred to them, did not apply to all of them, or the very association made them uneasy. There were, however, three interviewees who had a personal association with the term. They felt their knowledge was both a blessing and a curse. They knew "too much" about how climate affects city infrastructure and coastlines. Robert (architect) commented that while talking to homeowners in The Rockaways, he was trying to process this tragedy while simultaneously providing guidance, and felt like he was experiencing PTSD.

Even if members of the study did not directly identify with experiencing PTSD, they did acknowledge the considerable difficulty design professionals face in their emotional response in the midst of major and traumatic disasters.

*Dignity.* While I have chosen to categorize the concept of dignity as part of the personal pillar, it was referenced in all three pillars from a variety of perspectives. Anthony (2017), an African American architect, regional planner, and social justice activist, wrote: "We must forge a new path illuminated by justice, respect for the dignity of each and every human being, and determination to maintain and restore the web of life as the foundation for health and sustainability" (p.168).

With the fostering of greater understanding into human nature, comes the question of dignity, its loss or maintenance. From my perspective, dignity within this context extends not just to human dignity but the dignity of nature herself. Hicks (2011), an associate at the

Weatherhead Center for International Affairs, is in the field of international conflict resolution, stated, "Dignity is at the heart of our soul. It's part of the shared human condition" (p. 1).

One of the planners who participated in this study talked about the importance of helping people maintain their dignity with small, simple acts: a warm blanket, bottled water, or a place to charge a phone. A social activist/storyteller spoke about the importance of witnessing someone else's story in the context of dignity. "It is about honoring the dignity of the person [in the community] telling the story. You know there is some value to being both a storyteller and being a witness to someone else's story" (Esther, activist/storyteller). Talib (architect) pointed out that there is also a kind of dignity in understanding how people live after a disaster that needs to be part of the narrative. He said, "Dignity doesn't only have to do with shelter, and food, and hygiene; people still need to form community."

Ultimately, it will take a reshaping of the global system of wealth and poverty to reclaim what are the core values of human dignity and ecological sustainability (Capra & Luisi, 2014). This may depend on rediscovering and applying longstanding visions from an Indigenous perspective that sees and lives unity between people and the environment (Deloria, 1997; L. Smith, 2013). To creates one's own reality and empower others to do the same, serves as a unifying element between the individual and the larger community. That is probably the richest and most lasting form of dignity applicable to the setting of post-disaster professional work with vulnerable and marginalized populations

**General reflections on Pillar 2 (Professional).** This pillar is about the impacts on the work of planners and designers involved in in the aftermath of Sandy. The underlying issue was how, if at all, the nature of what they do, especially their underlying "theory in practice" (Argyris

& Schön, 1980), was affected by the often unprecedented challenges in their professional work required in the days, months, and even years after the storm.

Sandy had left the professionals in this study within terms of defining and refining their practices. Varied as the responses appeared to be on the surface, what was most striking was the heightened importance of reflective and reflexive practice. Donald Schön (1983) wrote about the underlying process of reflection-in-action with professional practitioners (including two chapters on each of design and planning). He concluded that

> [Different] professions draw on very different bodies of professional knowledge. But . . . there are also similarities. In both . . . the practitioner approaches the practice problem as a unique case. He does not act as though he has no relevant prior experiences; on the contrary. But he attends to the peculiarities of the situation at hand. In neither example is the problem given …The situation is complex and uncertain . . . These points of similarity create the conditions for reflection-in-action. (Schön, 1983, pp. 128–129)

Schön's comment unquestionably described what a number of the participants were saying in various ways. They stepped into the post-Sandy context and tried to apply their "relevant prior experiences" but were often overwhelmed with the "peculiarities of the situation." Furthermore, rather than paralyzing them they reflected more deeply on the nature and implications of the technical practices that they would typically employ. This reflection led to new thoughts and, most important, to new questions that participants found distinct from their past experiences.

***Model for a more reflective design process*.** "Sandy made it clear that the way we were building things was wrong. It was no longer going to work," noted Eric Klinenberg (2018, p. 101), who served as research director of Rebuild by Design. "There was an urgent need to design things differently. We all wanted a different outcome and that meant we were all open to a different process" (Ovink & Boeijenga, 2018, p. 101). The objective was for Rebuild by Design to be a new model, more holistic in nature, in concert with each specific community and

with sources of funding and leadership that involve non-profit organizations with a history of community-based change locally and worldwide. This was an example, that was at the time, was breaking new ground by broadening awareness and maximizing interdisciplinary involvement.

It also was about slowing down the design process so that there was time for reflection with the professionals engaged with the community rather than rushing to solutions. Olshansky et al. (2012) establishes the compression of time as one of the distinguishing factors between post-disaster conditions and normal times. "Post-disaster recovery takes place in a different world where the community does not function as it does in normal places (Johnson & Olshansky, 2016, p. 8). Therefore, strategic decisions that set up a structure for reflection and dialogue becomes all the more critical.

One of the engineers, in pondering the importance of recovery and how to prevent the same level of damages in the future, said the question had become, "How do you get back to normal faster through the redundancy of systems in place? Preparedness was also a big part of reducing loss of life in Sandy" (Paul).

*Funding.* Another point of reflection was about money. Design/planning professionals who are accustomed to planning and implementing single projects generally can make a reasonably accurate estimate on how much it will cost. In contrast, recovery planning for an occurrence like Sandy is wrought with uncertainty given the staggering costs of restoration. The political posturing and promises compound the financial challenge and its uncertainty in the wake of disasters. Many of the recovery professionals interviewed commented that political changeability added to the difficulty of securing municipal or federal funding.

*Optimism.* Were these professionals going to be able to keep pace with the environmental changes and prepare adequately for the next Sandy-like events? The responses from the

professionals in the story were varied but always tending toward optimistic. As Eli noted, "It depends on what side of the bed you wake up on. You're hopeful one day and the next day you look at it and say, 'We're not going to make it, in terms of transformation and time.'"

Several participants felt that society as a whole, is not prepared to make tough choices in the next 15 to 20 years unless something ultra-catastrophic happens. These include retreating from the most vulnerable locations versus staying in place and facing unforeseeable but probably disaster. Rebuilding may not be the wisest choice when there is no alternative place to either move or stay. Yet, how does this get taken into account when people have a much-valued home and/or community that they have lived in for generations? Eli (architect) concluded,

> There is no silver bullet. We can go through all of those analogies that we are all really well at saying. We can pledge to become the greenest and most resilient county on the planet but then to get there it comes down to the common person [and] engaging them with the profession [is very difficult].

The professionals in this study were aware of the extraordinary vulnerability for future events that are certain to destroy property and take or ruin lives. "It's 525 miles of shoreline in the city, so just do the math" (Beryl, landscape architect).

**General reflections on Pillar 3 (Societal).** This pillar described the broader social issues that emerged from the interviews. The participants had very different perspectives and approaches to their work with neighborhoods, the city, and other regions. There were two significant findings within this pillar: lack of justice and equal treatment for marginalized communities and lack of diversity and inclusion within the design/planning profession.

*Post-Disaster—Lack of justice and equal treatment for marginalized communities.* Hurricane Sandy did not discriminate: The storm wiped out homes of owners and renters, wealthy, working class and the poor. However, aid to communities and the speed in which it arrived vividly showed bias. I witnessed this personally while on the ground working in Coney

Island. After hours of waiting for water and blankets, food relief organizations went first to

Seagate (a middle class community) but made no attempt to distribute aid to the NYCHA

(comprising the lower socio-economic class reliant on regular government social assistance )

community, which was located directly outside of the gates. Ultimately, several of the

participants from this study built support from within the NYCHA community. There were

residents who knew well what was needed and who began the distribution themselves. In sharing

this story Talib observed,

> Don't construct a whole reality for them through your own eyes. And this is why it's so important for designers to understand because of what we do. We interpret peoples' wants and desires into physical space. We need to begin to change the paradigm to "I'm not going to stand up for you, I'm going to stand *with* you." (Talib, architect)

His comment was an awakening for me as I became aware of my unconscious

bias—acting on "standing up *for* others" rather than "standing up *with* others."

Several participants particularly noted the influence of race on the ability to collaborate

and cooperate. Joseph (social activist) spoke of trying to get people to understand how to

problem solve better with people that don't look like them. He paraphrased a strongly worded

view from the community:

> "Just because you live five blocks away from where I live, doesn't mean you know what it's like living here." Those are the assumptions people make and most of the time those assumptions fall down the line of race and class. (Joseph, social activist)

One of the key findings of this study is that while the role that race, gender, and

socioeconomic composition of the design/planning profession was significant within the

Personal Pillar, it is of equal, if not more importance that it be included in the discussion of the

lack of diversity within the profession itself.

***The lack of diversity and inclusion within the design/planning profession***. In 1968,

Whitney M. Young, Jr., civil rights activist and, at that time, Executive Director of the National

Urban League, gave the keynote address at the AIA National Convention. He stated, "You are

not a profession that has distinguished itself by your social and civic contributions to the cause of

civil rights . . . You are most distinguished by your thunderous silence" (American Institute of

Architects, 2019, para. 4). At the time, Young was critical of the high-rise housing projects that

were being built in some of the poorest and toughest neighborhoods. He questioned why there

wasn't pushback from the profession. The AIA responded to his speech by launching a task force

focused on opening the profession to minority groups. An article in *Curbed* (2017) on race and

architecture made the following points:

> Though African Americans made up 13 percent of the total U.S. population at the last census, only 2 percent of licensed architects in the U.S. are African-American, according to the National Association of Minority Architects (NOMA). In 2007, African American women made up a scant two-tenths of a percent of licensed architects in the U.S., for a total of just 196 practitioners. (The University of Cincinnati's database of African American architects reports an increase in that number, to 385, of a total 107,581 licensed practitioners in the U.S.). (para. 5)

> Talib reinforced how architecture as a profession distances marginalized groups from the

very nature of design:

> The interface that most Black people in this country have with architecture is in spaces that are given. So, it's spaces that are designed and handed to them. Instead of spaces that they've had agency in creating. You can connect it to any kind of communities, from the Jewish ghettos in Europe to modern ghettos . . . spaces that are either left over—or we design what the reality is *for you* instead of allowing you an individual agency. (Talib, architect)

> This professional indifference was noted by Whitney Young, Jr. and by critics of the

design of public housing/urban renewal half a century ago (Gans, 1965; Goodman, 1971;

J. Jacobs, 1961; Krumholz, 1982). "So, we need to be able to take a hold of the complexity,

recognizing the leadership of the very people who are directly impacted; leadership of women,

Indigenous people, folks of color . . . we absolutely have to do that" (Joseph/social activist).

Joseph's point goes directly to power dynamics and the kind of leadership that will be needed in the times ahead and can provide the opportunity for a shift in the dynamics of design, power, and social justice.

In June 2020, as I am finalizing this dissertation, the New York chapter of the AIA, prompted by COVID-19, the death of George Floyd and resulting mass demonstrations locally, nationally, and globally, issued a statement titled "Dismantling Injustice and Systemic Racism" (AIA New York & Center for Architecture, 2020). Aiming to "amplify the voices of people of color in our profession" (AIA New York & Center for Architecture, 2020, para. 6), this striking and brief document links the tragic death of a Minneapolis man, George Floyd, through police brutality, the COVID-19 pandemic with its disproportionate negative impacts on people of color, as "glaring inequality [that] serves as a call to action" (AIA New York & Center for Architecture, 2020, para. 3). This advocacy converges with the findings and implications of this study and the urgency for a more racially, gender and economically diverse design/planning community of professionals.

*Resilience.* While the term resilience is becoming more and more entrenched in the recovery, planning, and design nomenclature, it has many definitions. It is derived from the Latin word, *resilio*, meaning "to jump back" (Klein et al., 2003, p. 35). Probably one of the earliest uses of *resilience* in environmental science was by Holling (1973) and his associates whose primary interest was not in disasters but how disturbed natural populations ecosystems return to prior functioning, if not identical equilibrium points, after major perturbations.

The 2013 final SIRR report (PlaNYC, 2013) referred to resiliency as "bouncing back." While expressed as something positive, in the context of marginalized communities, it would not be experienced as necessarily positive if bouncing back meant returning communities to the

status quo. Resilience has as much to do with shaping the challenges being faced as responding to them. Similar to the distinctions between permanence and impermanence, resiliency is viewed differently for landscape architects than it is for architects, planners, or engineers. Thomas landscape architect/urban designer) described resiliency in nature as something that is not static but relational. He called it a four- not three-dimensional mirroring of the cycle of nature. He suggested, "Instead of a separation of people and nature, it assumes oneness, the inseparability of people and nature."

Participants noted that resiliency has become a brand and may be losing its clarity of purpose by turning into a marketing gimmick for big business and big government. In this it is not unlike sustainability, which steadily transmuted (Foster, 2012) in the years after being first popularized in the Brundtland Commission report, *Our Common Future* (World Commission on Environment and Development, 1987). Samuel, one of the architects interviewed for this study, said this:

> I think one of the challenges we've seen globally is that everybody's trying to come up with a kind of branded and graphically fascinating attempt to address resiliency. We care less about that, about the brand of the thing, right, whatever that ultimate platform is. We care more about getting the information out.

Some study participants spoke critically about people claiming expertise in the fields of sustainability and resiliency but who lack the requisite knowledge and experience. Several of the participants were *against* the concept of resiliency. They have seen it not only quickly becoming a catch phrase but also as actually furthering a more colonialist and economically privileged agenda. The concern is that those who are privileged always want the status quo to bounce back no matter the nature of the disruption. This is articulated by Graham, Debucquoy, and Anguelovski (2016) in the aftermath of Sandy:

> As the concept of (urban) resilience continues to gain popularity and more municipalities are engaging in urban resilience interventions and adaptation planning, further research is

needed to assess how community-based organizations can be supported in resilience efforts and how unintended consequences of resilience interventions might exacerbate or create new socio-spatial inequities. (p. 121)

Also, Amundsen (2012) cautioned,

There is a risk that community resilience may be an illusion, leading to complacency about the need for adaptation to multiple factors of change. Hence, the ability of communities to actively engage in reflexive learning processes is of importance for both adaption and future resilience. (Abstract)

Many of the designers/planners in this interview debated what comes after resiliency. Many have begun using the word transformation instead of resiliency because the term resiliency can have differing contexts and meanings (Zac, architect/planner; Eli, architect; Beryl, landscape architect).

*Managed retreat*. Managed retreat was one of the most controversial issues raised by the participants in this study. It is a professional dilemma as it forces decisions between what is technically best and what communities want. Listen to the science, or listen to the people? Koslov (2016) focused her research on Staten Island, the site of the most deaths in New York City attributable to Sandy. Her findings ran contrary to the notion that those most affected will "bravely" reject managed retreat, similar to Mayor Michael Bloomberg who adamantly stated, "As New Yorkers, we cannot and will not abandon our waterfront. It's one of our greatest assets. We must protect it, not retreat from it" (as cited in Koslov, 2016, pp. 360–361). In the years since that report, it has been acknowledged that buyout and managed retreat needs to be considered as the science points to an increase in sea level rise and vulnerability to coastal communities. Very much on the minds of participants in this study was how to begin a conversation on managed retreat. "So, when you talk about retreat, are we providing solutions? Retreat to what?" (Ross, architect). They claimed that the quality of the relationship that

design/planning professionals established with affected local people would impact the manner in which conversations were conducted and different choices were considered.

Managed retreat may have the most challenging effects on individuals and communities without the financial solvency to relocate. However, fear and uncertainty of relocation knows no economic boundaries. In the last five years, managed retreat has been referenced instead as a form of adaptation (Beryl, landscape architect; Roberta, architect; Hannah, planner). Without discussions about what retreat from certain areas would look like, or how to adaptively keep people safely in place, the more crucial it is to examine how low-income communities are disproportionately impacted.

Hino, Field, and Mach (2017) defined managed retreat as "the strategic relocation of structures or abandonment of land to manage natural hazard risk" (p. 364). In considering managed retreat and marginalized communities, the conversation with this study's participants more often than not circled back to the "experts" who make the assessments and conclude whether it is best if people stay or go. In the context of lessons learned after Sandy for designers/planners, one of the architects summed it up in the context of managed retreat in this manner:

> The first step is to assess risk from the standpoint of the community. What are the risk factors now and how does that dovetail with future projections? I think we have to understand that we seldom see risk from the eyes of those who live through it. If we don't we are simply mindless technocrats not practitioners. (Kaasar, planner)

**Summary of key findings.** While there are projections of what the future may hold, there are no assurances. One of key findings was that from impermanence and uncertainty come reflection about who design/planning professionals are after being impacted personally, professionally, and societally. As many within the study expressed, it will become increasingly harder to not address issues of social justice, diversity, and economic inequity as more urban

populations are being impacted by Hurricane Sandy-like events. This extends not only to communities within urban populations but within the profession itself. Further reflection on these key findings bring to mind the following: In the context of both resiliency and managed retreat, transparency and a willingness to be guided by the very people designers/planners are called upon to serve remains an important part of the professional interpersonal dynamic. This translates into, "We must support the strong. We must give courage to the timid. We must remind the indifferent, and we must warn the opposed. Civil rights, which are God given and constitutionally guaranteed, are not negotiable in 1963" (Whitney Young, Educational Radio Network coverage of the 8/28/1963 March on Washington for Jobs and Freedom). My challenge to designers/planners in response to these key findings is this: What is not negotiable in 2020?

**Limitations of the Research**

There were three key limitations to this research. These limitations pertained to ethnic or racial diversity, experience within the field, and professional diversity. First, there was an underrepresentation of racial diversity within the study. To reiterate, problems faced by marginalized populations is a significant theme in this study. This relates not only to those in affected communities but also to the professionals within the field. The questions stands out: Would first-hand experience growing up in a marginalized and disaster-affected community influence professionals' views of resilience, managed retreat, or how they proceed with post-disaster recovery and planning? Late in this study I became aware of an initiative that are promising in terms of a start at rectifying the design/planning professions' underrepresentation of long-time marginalized groups, the ones, as this study has shown, who ironically and tragically are usually the ones most impacted by climate change-driven disasters. BlackSpace (2020) comprises "Black urban planners, architects, artists, activists, and leaders working to protect and

create Black spaces" (para. 1). Architect and educator Sekou Cooke (2020) has recently offered a compelling perspective on "Blackness and Architecture in America" (para. 5). He pondered openly, "Maybe there is a parallel to be drawn between the lack of Black perspectives within the architectural 'we' and the inability of the architectural profession to find a suitable response to the current state of social justice" (Cooke, 2020, para. 8). So clearly a study like the present one that finds its own ways to be inclusive could contribute enormously to foreseeing how designer/planners can work better with and for marginalized communities.

A second limitation to the research was not interviewing professionals with less than 10 years of experience. Over time, there has been more information about climate change in the mainstream media. Would there be quite different results in a study if the sample was drawn more from younger professionals who have grown up with climate change a more inescapable truth now and for the future? It is frequently suggested that Millennials are more aware of climate change (e.g., Meehan, 2019) and that it plays an important part in how they think about the future. The current version of global climate movement, as invigorated by 17-year-old Greta Thunberg (Leiserowitz et al., 2018; Meehan, 2019), is one such example. However, recent applied research on climate-related risk and risk management options suggest that this is not necessarily the case. In fact, in some cases, the younger generations are less concerned than older generations and do substantially less to combat it (Costache & Sencovici, 2019; Gray, Raimi, Wilson, & Árvai, 2019). No matter the overall trends, how younger generations of designers/planners perceive climate change is of paramount importance to the way in which these fields move forward.

Lastly among limitations, there were issues with the types of professionals I was able to interview. I had hoped to have a greater cross-section of engineers as part of the study. But many

engineers that I had invited to participate declined because I worked with a firm that was seen as a competitor. Additionally, there were no participants engaged in the study who were climate deniers. Perhaps this meant missing the perspectives of professionals with radically different points of view on the approach to recovery and planning in the future.

**Future Leadership for Designers/Planners**

> The natural environment is a collective good, the patrimony of all humanity and the responsibility of everyone. If we make something our own, it is only to administer it for the good of all. If we do not, we burden our consciences with the weight of having denied the existence of others. (Pope Francis, 2015, Article 95)

At some juncture, designers/planners will need to find their place as leaders of a movement in which designers/planners take both a reflective and proactive stance to both climate and social justice. A leadership model that addresses our environmental challenges may be hard to achieve, but greatly needed. Based on the themes garnered from this study, to achieve effective design/planning, professionals now working in the face of rapid climate change, would need to do the following:

- embrace shared community-based solutions rooted in dignity and inclusivity;

- balance the present with the designing/planning for future generations;

- witness other people's stories and be aware of personal and cultural biases.

- recognize the kinship between human nature and mother nature;

- affirm that social, economic, and environmental justice are non-negotiable.

The following are four leadership theories that embody this ambitious agenda:

- complex adaptive leadership,

- servant leadership with inclusive leadership,

- leadership in place, and

- Indigenous leadership.

Designers/planners within this study have exhibited both the capacity and desire to lead change that might otherwise not be possible. This will require leadership such frameworks to challenge status quo and reaches beyond personal ambition.

**Complex adaptive leadership/Real-time strategic change.** Addressing the multifarious issues of Sandy's aftermath requires the ability to work within a *complex adaptive system*, which Uhl-Bien, Marion, and McKelvey (2008) defined as a framework where hierarchical structures and the needs of individuals and groups of individuals overlap and must be addressed interdependently. This can be particularly challenging when the needs of the individuals and these hierarchal structures conflict and leadership within a relational context becomes increasingly critical to generating system-wide solutions that are not dictatorial but interactive in approach. The adaptive leadership model can be an effective tool in achieving these results because it provides an overarching framework that provides for engagement and coordination among administrative, adaptive, and enabling leadership, in particular between a complex adaptive system and bureaucracy (Uhl-Bien et al., 2008, p. 199).

Thus, while leadership within a complex adaptive systems may provide the ability to adapt swiftly and creatively to environmental changes (Uhl-Bien et al., 2008), immediately after a disaster like Sandy, there is a period of shock followed by the gradual awareness that not only is the situation catastrophic, it is even worse than anyone had initially expected. In the aftermath, victims will look to first responders to make decisions and take action to deliver emergency services. However, because damaged public infrastructure to impacted communities (roads, electrical power grid, water, and sewage, etc.) makes entry inaccessible, actual on-the-ground contact with people and professionals outside the community can be greatly delayed. This can result in a form of disequilibrium described by Plowman and Duchon (2008) as "people and

groups interacting, exchanging information, and taking adaptive actions without the intervention of someone occupying the central controller . . . calling into question the purpose of leadership, as it is traditionally viewed" (p. 134). This is the scenario that designers/planners as the second wave of responders would probably experience.

In the case of Sandy, communication was cut off when the power went out and people within these heavily impacted communities had to mobilize without any formal leadership structure. With no central authority, leadership was exercised through interaction with your neighbors or local grassroots assistance, a form of "enabling adaptive responses to challenges through network-based problem solving" emerged (Uhl-Bien et al., 2008, p. 196). During Sandy, this type of adaptive structure was critical to the survival of many individuals as well as providing a structure into which design/planning professionals could begin the process of reassessment, rebuilding, and planning.

Given the complexity of post-Sandy issues, real time strategic change (R. W. Jacobs, 1997) would augment the adaptive leadership approach. Real time strategic change deliberately includes multiple stakeholders where aligned action is required and results need to be achieved in radically reduced time frames. Consistent with the participants' views, this approach advocates for participants within a community to interact with their internal leaders, outside experts, and each other forming a collective framework for analyses and strategy development.

> It is, how you co-create this process in a way that works for the way that you live as a community and build a mutual responsibility and hope that is key to leadership. You sit down with someone and say, tell me how you see this place. (Roberta, architect)

The three phases of real time strategic change assist in the consideration of multiple possibilities for moving forward post-disaster. This collective design complements the uniqueness of a group's culture, needs, and constraints, "ultimately allowing a community to

develop their own road map which symbolizes the power and possibilities of the collective" (R. W. Jacobs, 1997, p. 276).

Bringing alignment of purpose among core community leaders and designers/planners will help build a solid foundation between strategies, actions, processes, systems, practices, scope, scale, and plan. This becomes the basis of translating actions and ideas into something tangible that can be implemented as short-term achievable victories and longer-term phased implementation.

**Servant and inclusive leadership**. A leader within the design/planning community must be both reflective and proactive. Their actions must be guided by a high level of self-awareness combined with a commitment to be of service for the greater good. This description is aligned with Greenleaf's (1977) model of servant leadership. Servant leadership is based on a model of service and has the capacity to produce outcomes in the context of vulnerable circumstances. This is a model that is about human nature and making life better for others rather than doing things at the expense of others. This does not imply that servant leaders are powerless. Power is a tool that can serve the moment and be passed onto others. As Greenleaf said, "Servant-leaders differ from other persons of goodwill because they act on what they believe. . . . and there is a sustaining spirit when they venture and risk" (as cited in Keith, 2008, p. 71). Servant leaders are active listeners, gather feedback, support the expression of others, and create living systems within which everyone can participate. This approach aligns with one study participant's comment that "Leaders need be a bridge between the earth herself and the people living on the earth." Leaders would therefore need to be exercise wisdom and meaning that goes beyond their own personal goals and ambitions.

It is challenging for leaders to adopt this stance given the rapid change, human vulnerability to injury and loss, and a highly emotionally-charged circumstances of a post-disaster environment. "With its strong altruistic and ethical overtones," writes Northouse (2007), servant leadership "emphasizes that leaders should be attentive to the concerns of their followers and empathize with them; they should take care of them and nurture them" (p. 348). This is leadership of social responsibility, social justice, and equanimity. Would this idealistic leadership model be able to stand up to the harsh realities of disaster-related events? Given the views of the professionals canvassed in this study, a leadership theory that values everyone within the community and fosters dignity, trust, and strength, is exactly what is needed after the post-Sandy losses and recovery. In the context of post-disaster/climate change leadership, I would position inclusive leadership as closely allied with servant leadership largely because of its parallel emphasis on consensus. It is a good combination of the aspirational (servant leadership) and the pragmatic (inclusive leadership).

Inclusive leadership is an approach within which members of the community and local authority feel valued, respected, and engaged in a shared vision. Inclusive leaders, create and support integrated groups that cross boundaries (geographic, professional, cultural, etc.) and are valued both for who they are and for their ideas. Not all people engaged need to be leaders but can still be made to feel like owners with an empowered stake in their own future. Diverse voices can be heard and approaches can be more consistent with the common goal of achieving consensus that serves many constituent groups. Inclusive leaders are authentic in their approach and respect for others—they are committed to diversity. "Not being afraid to engage leadership at all levels, and play inside ball, but also play outside ball," was critical to leadership post-Sandy world, from Thomas's perspective. As a landscape architect/urban planner, he further

noted the importance of "being a connector of resources and a conveyer of power, and not a concentrator of power."

**Leadership in place**. Leadership in place is another important potential leadership model in the context of dealing with climate change. As described by Wergin (2004), it is,

> A form of leadership that deliberately avoids any trappings of hierarchy and privilege, or any form of formal authority at all. Instead, it's a type of lateral leadership that promotes collaboration and joint exploration of issues, with decisions that are built on solid, evidence-based deliberation. (p. 2)

While Wergin posited this form of leadership in an academic environment, it has direct applicability to cities and community-based adaptation given that it is based more on human exchange than power and creates space for people outside of the traditional top-down hierarchical model. In the case of climate-impacted cities and communities, formal authority, while an integral part of the equation for implementation and change, is ineffective without in-place leaders. Wergin (2004, 2007), drawing upon Heifetz's (1994) adaptive learning and Mezirow's (1991) transformative learning, created a much-needed balance in leading and learning, needs and process.

The inclusiveness within the leadership in place model and servant leadership does have specific value when looking at leadership and fostering effective design responses within post-disaster communities. Additionally, the key points that foster adaptive leadership and transformative learning seemed like a made-to-order manual of the responsibilities leaders should embrace in communities impacted by climate disaster: "Go deep . . . Be patient with distress . . . Attend to needs . . . Monitor the process . . . Record progress" (Chapman & Randall, 2007, p. 60).

Advancing Mezirow's model (1991) and looking through the lens of Sandy, designers/planners along with a government agency or a local grassroots group would need to

become co-learners and leaders so that people around them can determine what adaptation and transformation looks like for them and mobilize to bring them into effect. These events are personal but also contextual and situational. While there are shared solutions, they are also not necessarily one-size-fits-all. Even at the most local scale this variability must be kept in mind. Someone from the eastern end of The Rockaways would experience the storm and its aftermath differently than someone from the western end.

The advantage of the leadership in place model in a post-Sandy environment is that at different points in the process one person may be a leader and at a different time, a follower depending on the events that are unfolding and how it is impacting the situational dynamic. The model calls for and enables leadership as fluid as the context in which it must be exercised.

**Indigenous leadership.** What is missing from the leadership theories noted thus far is a framework focused on both the human and natural worlds, as well as on storytelling. An approach is needed to "promote partnerships that foster effective climate solutions from both Western and Indigenous perspectives" (Cochran et al., 2013, p. 50). "What is also needed is an approach that engages storytelling," wrote Kenny (2012, p. 1 ), an Indigenous scholar of leadership. She continued, "For thousands of years prior to colonization, leadership in Indigenous communities was based upon the character of the land and the needs of the people in their traditional territories" (p. 1). She explained the power and centrality of storytelling in achieving such leadership: "Stories are a creative act of leadership through which we manifest our solidarity and strengthen our people to take their next steps in encouraging good and healthy lives" (Kenny, 2012, p. 1).

In the course of interviewing design/planning professionals for this study, my objective has been to understand how these complex problems have impacted them personally,

professionally, and societally. After completing the analysis of the research, it was clear that the participants' stories are necessary for a deeper understanding of the profession in the wider context of humans as part, not at war with, nature. These personal experiences will contribute to the profession as the built environment takes on changes that many leaders within the field have not seen in their lifetime or are ill-prepared to even imagine. "Stories, especially in the oral tradition," wrote Kenny (2012), "provide powerful bridges that connect our histories, our legends, our senses, our practices, our values, and, fundamentally, our sustainability as peoples" (p. 4).

There is an intergenerational aspect to Indigenous leadership that looks at seventh generational thinking within a multi-generational framework (Gutierrez, 2012, p. 97). This is where lived experience integrates with shared knowledge. This is the place from which wisdom is born. Given the complexity of climate impactful events, and the impacts on design/planning professionals and the communities they serve, stories of reflection that connect us to our hearts, the earth, and to each other, will grow increasingly important. One of the architects from the study thought that one of the leader's important qualities would be to "find the answer to how you talk to one generation about the future of the next generation" (Samuel).

**Future Research and Practice**

This research served as an initial guidepost for a more holistic approach for designers/planners to consider as they tackle the challenges of post-disaster adaption in the future. There are a number of significant areas that lend themselves to future research using mixed methods and action research methodologies.

- What is the relationship between design, power, and social justice? A study exploring this relationship would deepen what has already been discussed in this study. Ideally,

the community would lead the design and the designers/planners would act as a resource as facilitators and docents.

- A study that focuses on the interrelationship between designers/planners and peacekeepers. The study would look at the similarity and/or differences in the challenges they each face; where their practices intersect and what the two professions can learn from each other.

- A study that focuses on designers/planners with less than 10 years of experience with an emphasis on a diverse representation of participants. The broader sampling would help to deepen understanding of intergenerational/intragenerational and racially and ethnically diverse perspectives.

- The findings from this study offer feedback to professional programs in architecture, landscape architecture, planning and engineering. Future applied research could address identifying and testing out new skill sets or interdisciplinary courses to enable emerging professionals who will have to grapple with a rapidly changing earth environment and vulnerable communities. For example, should there be courses specific kinds of courses in trauma psychology, conflict resolution, Indigenous philosophy and leadership, and storytelling as part of a core curriculum?

- Create a six-month series of design charettes where Native American and a larger cross-section of designers/planners of color work with a cross-section of participants from this study to look at where local challenges can create global solutions. Possible sites in the United States could include Rockaway or Red Hook; Isle de Charles/New Orleans; Sonoma, California; Tangier Island (climate deniers); Anchorage or Barrow, Alaska.

- Conduct a series of design charettes led by developers to re-imagine real estate in NYC in the next 50 years.

In addition, an area of complementary future research could involve community members in collaboratively assessing the work and accomplishments of architects, planners, landscape architects, and engineers. Community-based participatory action research (Genat, 2009) could be used to identify what was strong and supportive, and what was not, as professionals planned and implemented post-Sandy projects and initiatives. In the end, improvement and/or fundamental change to professional practice in the aftermath of major climate-change induced events, must be significantly defined and evaluated by those most affected.

## Significance of This Research

The designers/planners of this study have shared their insight, wisdom, an understanding of the vulnerabilities, fears, and resilience of communities that have endured the fury of Sandy. I intend that the personal narratives of this research will provide a point of reflection for the designer/planners within the profession. This is foreshadowed so well in the words of Isabel Lopez's (2000) "Finding Wisdom and Purpose in Chaotic Times":

> Only through reflection do we find our purpose and the core of who we are. Reflection enables us to become our own teachers, and we never finish—never finish taking our own class, reading our own heart, and liberating our own spirit. Reflection forces us to face our own lives and beliefs. . . . Perhaps the greatest gift of reflection is that we . . . can find the place that is true for us, the place where passion and serenity meet, both personally and professionally. (p. 85)

In the intersection between the personal, professional, and societal lies the understanding of not only how these individuals responded to challenges on the ground but how they were impacted by it. These shared experiences can support a dialogue between designers/planners that might otherwise not be exchanged. Further, these narratives have insights that show the importance of having a more racial, gender, and economically diverse community of

professionals. This has implications for education within the profession. It also extends to the intergenerational/intragenerational nature of their work that is not just about how the communities respond to designers/planners but how these professionals respond to each other.

In the focus group, we discussed development of a consortium of design councils at universities with mayors, to work collectively with designers/planners. By working collectively on similar challenges, a foundation of a shared ethic and ethos could be developed and implemented within a short timeframe. The significance would be development of a national platform for tackling the more challenging issues. It could also help develop an approach that is systems and wisdom-based, creating agency for both the built and natural worlds. This could help to reinvigorate designers/planners as a profession with a mission and a calling—a profession with societal impact that went beyond themselves. This was a way to take what is altruistic and create a structure with tactical steps that could develop a new model of leadership and change within a climate-vulnerable landscape. This led to further discussion on how the significance of such actions bore the potential for a "movement" within the profession and that the time was ripe for one.

**Personal Reflections**

> I am a pool in a peaceful place,
> I greet the great sky face to face,
> I know the stars and the stately moon
> And the wind that runs with rippling shoon
> But why does it always bring to me
> The far-off, beautiful sound of the sea?
>
> The marsh-grass weaves me a wall of green,
> But the wind comes whispering in between,
> In the dead of night when the sky is deep
> The wind comes waking me out of sleep
> Why does it always bring to me
> The far-off, terrible call of the sea?
>
> —*The Sea Wind* by Sara Teasdale (1915)

**Arising.** I remember speaking to a Sandy survivor in Coney Island in November 2012. She did not speak English, so shared in Russian, how the water kept rising until it stopped right below her nose. Not being able to swim, she stood there waiting for it to continue to rise and take her life. She stood frozen and cold waiting for death. It began to recede. In her recalling, she sobbed and shook with terror. So did I. I felt her story on a deep personal level. I could easily imagine myself in that same scenario with a different ending. She was at least three inches taller than me. I would have drowned. I too did not know how to swim. But as she said, her God and her height saved her life.

So how do I conclude such a long and arduous doctoral journey on Hurricane Sandy, rising sea levels, and all that goes with these without facing my own terror around water and learning how to swim? It can't be done. So, I did.

I don't know why the Russian émigré woman never learned to swim but for me it was because of an accident in a swimming pool. I am told I almost lost my life, had to be resuscitated. I have no memory of what caused the accident, but my body does.

Learning how to swim and drowning is not the point of this recollection. What is are the stories that connect us. The woman who spoke only Russian knew I understood every word of what she said because I understood her experience.

**Holding the research.** While I had previously conducted narrative interviews for other professional research projects and listened to historical oral histories, this experience was different. It was far more intimate and more directly aligned to my own personal and professional experiences. As a result, my heart and spirit felt a heavy weight during the analysis of the material. As for my soul, it listened quietly as the witness, remembering.

It seemed like the beginning of each chapter or rewrite in the past eight months was accompanied by yet one more climate-related calamity—another flood, tornado, fire, heat wave, drought. While these disasters underscored my sense of purpose, it did the same for my anxiety. I struggled with stories that were intimate, revealing, and provocative. They became my lived experience as I was writing and analyzing, which made me scrutinize everything I did. In cutting the narratives down, I did not want to inadvertently transfigure the literature of fact into fiction. Maintaining the dignity of the individuals within the community as well as their stories was, after all, a strong theme in the research. Reconciling the push to complete the work and the pull to honor all that I heard, created a dramatic tension within myself. I reconciled that by staying in the role of the witness rather than the actor.

**How does a mission become a movement?** Earlier in the doctoral journey, during what would later become known as my first dissertation topic, I was researching how a personal/professional mission at the Lower East Side Tenement Museum became a movement. Prior to delving into my interviews for this study, I reached out to Al Guskin, Professor Emeritus at the Antioch Leadership and Change Doctoral program, as well as a co-founder of the Peace Corps. My question to him was: How did a moment in time at the University of Michigan in 1960 became the groundswell of a societal movement of change? What had been the tipping point? Al noted that it was a confluence of events that he described as serendipity. The students were inspired by President Kennedy heralding a future that they could all imagine themselves as agents of change; they were saying yes to more than an idea: it was a calling. It seemed that what was going on environmentally required that same kind of collective action. The efforts from within the design/planning community seemed to be more piecemeal and siloed than the kind of collective action that was needed.

**Conclusion**

During a time when we as a society are being collectively called to take a stand for the equality, well-being, and future of the partnership between humanity and the earth, designers/planners have a significant role to play. This will require not resting content with the status quo. It will require an increased willingness to take risks.

> Risk is mystery. It requires a journey. Risk means we take a step toward and into the unknown. By definition, risk accepts vulnerability and lets go of the need to a priori control the process or the outcome of human affairs. It is the journey of the great explorers for it chooses, like the images of the maps of old, to live at the edge of cartography. Risk means stepping into a place where you are not sure what will come or what will happen." (Lederach, 2005, p. 163)

This demands leadership with courage, leadership that reclaims the ecosystem of a built environment standing on the foundation of the natural world. Everyone needs the courage and wisdom to step boldly into this unknown; designers/planners are uniquely positioned to rising to this call.

**Afterword**

Since defending my dissertation on March 16, 2020, much transpired in New York City, the nation, and the world. Within a few days, New York State (City) issues a Stay-at-Home order in an effort to flatten the curve of the COVID-19 Pandemic. For close to three months all non-essential businesses close. COVID-19 and Hurricane Sandy are not comparable in their levels of devastation and destruction. However, the engagement of design/planning professionals (architects, planners, engineers, landscape architects) is. Personally, professionally, and societally, the challenges of how we live, work, and publicly congregate in the days, weeks, and months ahead, will engage the very community of professionals at the center of this study.

While the COVID-19 "new normal" addresses the many and not the few, similar to Sandy, some communities are affected far more than others. As of June 2020, more than 400,000 people die from this virus across the globe—more than 100,000 in the United States; a disproportionate number of these deaths continue to be within communities of color (Vergano & Goba, 2020).

Amidst this, George Floyd is killed May 25, 2020, in Minneapolis by police officers, underscoring the widespread use of police force on Black lives for decades. Protests begin in Minneapolis the following day. A local response turns into a national movement that goes global. Rioting and looting run parallel but in opposition to peaceful protests.

As the history of systemic racism is further exposed and addressed within our communities, we once again have the opportunity to extend the conversation of social justice and civil rights to include not only design but the profession itself. This is not a new conversation. Like systematic racism and economic disparity, it must be addressed with action taken in our

workplace, our communities, our homes and how we interface with each other on our streets and

shared public spaces.

That said, my objective is not to make designers/planners the saviors. As architect Sekou

Cooke (2020) noted,

> If we set ourselves up as the saviors of society, we separate ourselves from the
> experiences of the people we design for. We must, instead, directly confront the realities
> of the environments we seek to manipulate. If these spaces do not become painfully real
> for us as designers, they will remain virtual play spaces in our minds, to be gutted and
> destroyed at will. (para. 11)

The questions arising from the events over the past three months are further akin to and

resonant with some of the other findings that are the subject of this study. Climate-impactful

disasters create uncertainty and underscore the impermanence and fragility of life. So too do the

events of today. In both contexts, it will become harder to avoid addressing intergenerational

racial, gender, and economic inequities personally, professionally, and societally as more

populations are impacted. To accomplish this will require a new kind of leadership, where

leaders have the courage to stand for a future where all are equal and live in right alignment with

each other and the earth.

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**Appendix**

**Appendix A: Copyright Permissions**

*For use of photograph in Fig. 1.1*

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**Maxinne Leighton**                     May 30, 2020, 2:15 PM (2 days ago)   ☆   ↩   ⋮
to Gretchen, Maxinne ▾

Hi Gretchen,

I am in the final stages of completing my dissertation on the impact of Superstorm Sandy on Design and
Planning professionals.  I wanted to obtain permission to use the photograph noted below in my
dissertation. The photograph will be credited to ©GretchenBank2012

I would deeply appreciate it if permission could be sent in response to this email at
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Many thanks,

Maxinne Leighton



**From:** Gretchen Bank <██████████████>
**Date:** June 1, 2020 at 1:35:22 AM EDT
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Maxinne -

Please use the photo as described in your message. Thanks so much.

Gretchen Bank

*For  Figure 2.2*—Table and map from "Future flood losses in major coastal cities" *Nature Climate Change.* Copyright 2013, *Springer Nature.*

***For Figure 3.1*** – Diagram from Merriam (2008, p. 37)

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*For Base Map used in Figures 4.3, 4.5, 4.6, 4.7, & 4.8*

From: **Julius Schorzman** <​⬛⬛⬛⬛⬛​>
Date: Tue, Apr 7, 2020 at 1:36 PM
Subject: Re: Adapted Versions of your Map of the Boroughs of New York
To: Maxinne Leighton <​⬛⬛⬛⬛⬛​>
Cc: Norman Dale <​⬛⬛⬛⬛⬛​>, Maxinne Leighton <​⬛⬛⬛⬛⬛​>

Hi Maxinne,

Yes, you have my permission to use the map.

You may simply credit me using my full name, "Julius Schorzman" -- for
example, "Map of New York City based on map by Julius Schorzman" or
such.

Thanks for writing!

On Tue, Apr 7, 2020 at 11:59 AM Maxinne Leighton <​⬛⬛⬛⬛⬛​> wrote:
>
> Dear Julius,

> My editor Norman Dale has referred me to contact you about using adapted versions of your map of the boroughs of New York, in my dissertation. The dissertation is titled, Arising: Hurricane (Superstorm) Sandy's Impact on Design and Planning Professionals. I am doing this at Antioch University's Program in Leadership and Change.

> What I want to do is have a series of locator maps that show where some of the specific neighborhoods mentioned in my dissertation are situated. I attach an example of what I am aiming to do.  There would be about 6 such maps in the text.

> When my dissertation is fully approved it will be made available free of charge in three open access sources:

> · OhioLINK Electronic Thesis and Dissertation [ETD] Center, Ohio's open access Dissertation repository http://etd.ohiolink.edu/
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> Thank you so much for your consideration in this.

> Regards
> Maxinne Leighton
> Doctoral Candidate,
> Antioch University Faculty of Leadership and Change