

TOWARD EQUITY: PRIORITIZING VULNERABLE COMMUNITIES IN CLIMATE CHANGE

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I. INTRODUCTION

There is now over two decades of science establishing the existence of climate change. Gerald Galloway cites eleven major international studies conducted from 1987 to 2002 that all predict significant climate change induced hazards, including increased flooding, higher mean atmospheric temperatures, higher global mean sea levels, increased precipitation, increased droughts, increased atmospheric moisture-holding capacity, increased heat waves, increased strength of storms, more energetic waves, storm surges that reach further inland, under-capacity of urban sewerage and drainage systems, increased blight, increased vulnerability of port cities, and disproportionate impacts on disadvantaged population segments.¹ Disadvantaged population groups around the world already bear inequitable environmental burdens.² However, there is inadequate knowledge of what new disproportionate impacts will emerge under climate change and what mitigation and adaptation options disadvantaged populations should pursue.

Much of the climate change discourse recommends transitioning to a greener economy—clean energy, hybrid cars, energy efficient buildings, green jobs, et cetera—as a solution to the dual realities of climate change and economic stagnation.³ However, the consequences of a green transition for disadvantaged people are often left unstated and unclear. The United Nations warns that addressing the inequitable distribution of the costs of climate change and the benefits of a green transition will be the most difficult policy challenge for a global approach to climate change.⁴ Vandana Shiva argues that current inequities between rich and poor have been exacerbated by a global economy that is also contributing to climate change.⁵ She identifies increasing food insecurity as a

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1. Gerald Galloway, *Reacting to Climate Change, Floods, and Uncertainty*, NAT. HAZARDS OBSERVER, July 2009, at 4, 6–7.

2. GORDON MCGRANAHAN ET AL., *THE CITIZENS AT RISK: FROM URBAN SANITATION TO SUSTAINABLE CITIES* 14 (2001); UNITED NATIONS DEV. PROGRAM, *UN HUMAN DEVELOPMENT REPORT 2011* iv (2011) [hereinafter UN HUMAN DEVELOPMENT REPORT 2011].

3. Maywa Montenegro, *The Green Collar Solution?*, SEED MAG., Apr. 23, 2009, http://seedmagazine.com/content/article/the_green_collar_solution/.

4. UNITED NATIONS DEV. PROGRAM, *HUMAN DEVELOPMENT REPORT 2007/2008* 5 (2007).

5. Vandana Shiva, *Soil Not Oil: Environmental Justice in an Age of Climate Crisis*, ALTERNATIVES J., Apr. 2009, at 19, 23.

hazard that will specifically impact disadvantaged people worldwide, and she recommends bottom-up, community-based solutions such as the organic farming movement that she has established in India.⁶

Disadvantaged populations are more vulnerable, because they are unable to displace environmental threats that would cause them harm. As threats escalate from local to regional to global in scale, the circumstances and situations these populations face must be better understood. What strategies and solutions should disadvantaged communities embrace in preparation for climate change and a green transition? Can they expect to benefit from the growth of green jobs or should they expect further burdens? How should they target their local organizing efforts and what should they ask of their representatives? Some preliminary answers to these questions can be gained by looking at the case of New Orleans, a city already experiencing the negative impacts of climate change, a fossil fuel economy, and inequitable development.

The purpose of this article is to reflect on the local and global dimensions of inequitable development in light of environmental and economic shifts that threaten to place further burdens on the most vulnerable communities. This article focuses on New Orleans as a case study, because it represents inequitable development and environmental vulnerability, and because New Orleans is likely experiencing the impacts of both climate change (for example, Hurricane Katrina) and late stage fossil fuel development (that is, the Deep Water Horizon oil spill). After a brief description of key concepts in the Background section, the inequitable development of New Orleans is introduced followed by some specific examples of the environmental threats confronting its vulnerable communities. This article concludes with a reflective discussion on how to come to terms with the escalating risk vulnerable communities will face on top of the already unacceptable baseline of risk with which they now live.

II. BACKGROUND

This section provides background information on three sets of concepts: green development versus just development, climate change and the green energy transition, and environmental vulnerability.

A. Unpacking the Just Versus Green Dichotomy

Development has become more *green* in the past four decades as exemplified by expanding grassroots environmental movements around the globe, by recurring international environmental conferences, and by increasingly important environmental goals and multilateral agreements. A case in point is the growth of civil society organizations (CSOs) and non-governmental organizations (NGOs) advocating for health and human rights, such as the environmental justice and indigenous rights movements. In 2000, there were

6. See *id.* at 19, 22-23 (arguing the “global supermarket of commodification and consumerism . . . is destroying our food, our farms, our homes, our towns, and our planet,” and that solutions will come from biodiverse, ecological farming); see also Vandana Shiva, *Organic Movement: From the Suicide Economy to Living Economics*, NAVDANYA, <http://www.navdanya.org/organic-movement> (last visited Apr. 1, 2012) (describing Dr. Shiva’s organic movement in India).

approximately 40,000 international CSOs worldwide,⁷ up from a mere 6,000 in 1990.⁸ This represents nearly a 670% increase in only one decade. The 1972 United Nations Conference on the Human Environment in Stockholm, Sweden is often cited as the starting point of international cooperation on the environment, while the 1992 UN Conference on Environment and Development in Rio de Janeiro, Brazil marked a turning point in the expanding role of CSOs, NGOs, and developing countries in international environmental debates.⁹ In spite of this early progress, the 2009 UN Climate Change Conference in Copenhagen, Denmark, which failed to arrive at any major agreement on the most widespread environmental threat we have known—climate change¹⁰—is indicative of where these debates now stand: deadlocked.

As a planet, we are in a stalemate about *green* versus *just* development. *Green*—denoting alternative energy, sustainable buildings, and resource efficiency—does not necessarily mean *just*—as in distributional equity, consumption reduction, and cleanup of the environment. Groundbreaking multilateral environmental agreements of recent decades—including the 1981-1990 International Drinking Water Decade for improving access to clean water, the 1987 Montreal Protocol for protecting the ozone layer, the 1997 Kyoto Protocol for reducing greenhouse gases, and the 2000 Millennium Development Goals for improving global socioeconomic conditions¹¹—have broadened in scope over time in an attempt to address both the increasingly global nature of environmental threats and the increasingly unjust distribution of environmental impacts. Last year's UN Human Development Report, entitled *Sustainability and Equity: A Better Future for All*, argues that critical global challenges of sustainability and equity must be addressed together and shows how the world's most disadvantaged people suffer the most from environmental degradation.¹²

The majority of people on the planet are people of color (seventy-five percent are nonwhite) and are very poor by industrialized country standards. As of 2005, eighty percent of the world's population lived on less than ten dollars per day, which is a total of over five billion very poor people.¹³ What would a global energy transition mean for the majority of the world's population? If an energy transition is to have any positive impact on climate change, it would have

7. JOHN KEANE, *GLOBAL CIVIL SOCIETY?* 26 (2001).

8. *The Non-Governmental Order: Will NGOs Democratize, or Merely Disrupt, Global Governance?*, THE ECONOMIST, Dec. 9, 1999, <http://www.economist.com/node/266250>.

9. See, e.g., UN HUMAN DEVELOPMENT REPORT 2011, *supra* note 2, at 13 (2011).

10. See, e.g., John Vidal et. al, *Low Targets, Goals Dropped: Copenhagen Ends in Failure*, THE GUARDIAN, Dec. 18, 2009, <http://www.guardian.co.uk/environment/2009/dec/18/copenhagen-deal> (discussing various, mostly negative, reactions to the 2009 Copenhagen Conference).

11. See MAGGIE BLACK, 1978-1998: LEARNING WHAT WORKS: A 20 YEAR RETROSPECTIVE VIEW ON INTERNATIONAL WATER AND SANITATION COOPERATION 4, 18 (1998), available at http://www.un.org/esa/sustdev/sdissues/water/InternationalWaterDecade1981-1990_review.pdf; Montreal Protocol on Substances that Deplete the Ozone Layer, *opened for signature* Sept. 16, 1987, 1513 U.N.T.S. 293 (entered into force Jan. 1, 1989); Kyoto Protocol to the United Nations Framework Convention on Climate Change, *adopted* Dec. 11, 1997, 2302 U.N.T.S. 148 (entered into force Feb. 16, 2005); United Nations Millennium Declaration, G.A. Res. 55/2, U.N. Doc A/RES/55/2 (Sept. 18, 2000).

12. UN HUMAN DEVELOPMENT REPORT 2011, *supra* note 2, at 1.

13. *Poverty Facts and Stats*, GLOBAL ISSUES, <http://www.globalissues.org/article/26/poverty-facts-and-stats#src1> (last visited Mar. 17, 2012).

to be global in scale, with corresponding global economic and environmental impacts. It is reasonable to expect that these economic and environmental impacts would disproportionately affect the world's most vulnerable population groups, which makes the energy transition also a justice issue. The *just* framework sees affluence, development, and patterns of growth not as inevitable outcomes, but as part of the problem to be solved. In this sense, the *just* framework offers a critique of the economic and environmental impacts of development based on minimizing negative impacts to currently vulnerable population groups (that is, intragenerational equity), while the *green* framework offers a critique based on minimizing negative impacts to future populations (that is, intergenerational equity).¹⁴

Despite the inclusive language found in international development documents, in practice, the green sustainability agenda typically excludes the environmental problems faced by vulnerable population groups. Some scholars argue that environmental problems are largely differentiated by the level of affluence of cities.¹⁵ Affluent cities, such as Sao Paulo, Brazil have the ability to displace more of their environmental pollution to regional and global sinks and thereby keep their immediate environment relatively clean at the expense of other ecosystems.¹⁶ On the other hand, poor cities such as Accra, Ghana do not have the ability to displace environmental burdens on a grand scale and therefore tend to degrade their own local or regional environment.¹⁷ The conditions can be described as an epidemiological transition in which poor cities are faced with immediate threats to human health resulting from local environmental burdens (for example, waterborne disease, diarrhea, et cetera), while affluent cities face longer-term threats based on the degradation of global life support systems (for example, climate change and energy resources).¹⁸ This framework explains why the mainstream green agenda is focused on a concern for global over local water issues, climate change over indoor air pollution, and sustainability over justice. Unlike the UN's approach of integrating sustainability and equity, some conclude it might be best to keep these aspects distinct to ensure progress for all areas while recognizing their geographically distinct needs.¹⁹ In other words, the environmental issues of concern in green sustainability do not automatically include the environmental issues of concern in environmental justice.²⁰

Economic growth is seen as essential to sustainability,²¹ while distributional equity and environmental protection are generally treated as if they were dispensable, or perhaps even unaffordable. The green sustainability movement has come a long way in putting environmental objectives on the mainstream economic development agenda. Sometimes justice objectives are partially

14. MCGRAHAN ET AL., *supra* note 2, at 5.

15. *Id.* at 14.

16. *Id.* at 83.

17. *Id.*

18. *Id.* at 5.

19. *Id.* at 157, 160.

20. *Id.*

21. *Id.* at 4.

included along with environmental objectives, but here too, distributional equity is potentially dispensable to the core agenda. As a consequence, the justice movement struggles for a place on either agenda. The favoring of economic and global environmental objectives over equity and local environmental objectives should be recognized as systematically flawed, because both climate change and an energy transition will disproportionately impact the most vulnerable population groups (that is, children, elders, disabled, women, people of color, and people in poverty), who will therefore require additional attention. We also know that these populations are burdened with a baseline of immediate environmental threats that are often downplayed in policy discussions. A *just* framework prioritizes the needs of vulnerable populations.

B. Climate Change and the Energy Transition

Much of the science of climate change is well-established and widely dispersed to the global public by organizations such as the United Nations Environment Programme and the Intergovernmental Panel on Climate Change.²² Atmospheric carbon dioxide (CO₂)—which triggers a “greenhouse effect” that traps heat in the atmosphere—has increased by thirty percent over the past few centuries²³ and by nine percent since 1992.²⁴ Correspondingly, atmospheric temperature has increased by 0.7 °C since 1860²⁵ and by 0.4 °C since 1992.²⁶ The global temperature rise results from both naturally occurring greenhouse gases (GHGs), (for example, CO₂, CH₄, N₂O, H₂O, and O₃) and human-induced GHG emissions (for example, CO₂, CH₄, N₂O, CHF₃, SF₆, HFCs, PFCs, and CFCs) associated with rapid industrialization and population growth.²⁷ Global materials extraction has increased by forty-one percent and global population has increased by twenty-six percent since 1992.²⁸ Seventy-six percent of all GHGs are emitted collectively by the energy supply sector (especially the burning of fossil fuels and gas flaring), the industrial manufacturing sector (especially cement production), the forestry sector (especially deforestation practices), and the agricultural sector (especially animal husbandry).²⁹ These facts are not disputed.

Climate change poses multiple potential dangers to the planet. Using the European Climate Forum’s 2004 conceptualization, “determinative” dangers posed by climate change are those that are dangerous, unprecedented, and

22. See, e.g., S. SOLOMON ET AL., IPCC CLIMATE CHANGE 2007 REPORT: PHYSICAL SCIENCE BASIS (2007); UNITED NATIONS ENV’T PROGRAMME, KEEPING TRACK OF OUR CHANGING ENVIRONMENT: FROM RIO TO RIO+20 (1992–2012) (2011) [hereinafter KEEPING TRACK]; *About DEWA*, UNITED NATIONS ENV’T PROGRAMME, <http://www.unep.org/dewa/> (last visited Mar. 17, 2012).

23. Stephen H. Schneider & Janica Lane, An Overview of ‘Dangerous’ Climate Change 2 (2006) (unpublished manuscript), available at http://stephenschneider.stanford.edu/Publications/PDF_Papers/Schneider-lane.pdf.

24. KEEPING TRACK, *supra* note 22, at 28.

25. Schneider & Lane, *supra* note 23, at 2.

26. KEEPING TRACK, *supra* note 22, at 29.

27. *Greenhouse Gases*, THE ENVTL. LITERACY COUNCIL, <http://www.enviroliteracy.org/article.php/428.php> (last visited Mar. 9, 2011); S. SOLOMON ET AL., *supra* note 22, at 28–35.

28. KEEPING TRACK, *supra* note 22, at 2, 16.

29. *Id.* at 24.

global in scope, such as the loss of entire ecosystems, extinction of vital species, loss of human cultures, significant mortality increases, and impacts on water resources.³⁰ “Early warning” dangers include existing hazards and known threats that will grow and spread with continued warming, such as glacier melting, forest fires, and droughts.³¹ “Regional” dangers are those confined to a single large region, such as food security, water supply, infrastructure, and ecosystems.³² Further global temperature increases on the order of up to 1 °C will likely cause disintegration of the Greenland ice sheet and widespread bleaching of the coral reefs.³³ An increase of up to 2 °C is expected to result in disintegration of the West Antarctic ice sheet and in broad ecosystem impacts around the planet.³⁴ Increases of 3–4 °C might shut down thermohaline circulation in the world’s oceans (that is, decreasing salt content and increasing the temperature of ocean currents), triggering cooling of the North Atlantic.³⁵ In general, these global changes will result in worsening local environmental disasters of all types, including more intense and more frequent droughts, floods, heat waves, storms, and ultimately, famines. The probability of all of these predicted effects is under much discussion and ongoing study.³⁶

The expected benefits of transitioning to green energy are: a reduction in total GHG emissions; mitigation of climate impacts associated with reduced GHG emissions and reduced fossil fuel extraction and transportation activities; and an increased reliance on renewable energy sources rather than finite and increasingly expensive fossil fuels.

But transitioning will produce winners and losers.³⁷ For example, delivery drivers and commuters will likely pay higher prices for carbon-based fuels, while fossil fuel workers will likely see their jobs impacted by the transition to non-fossil fuels, and low-income households will likely pay a higher proportion of their income on heating fuel. Some of these impacts may be offset by increased green employment in areas such as building retrofits (for example, solar panels) and weatherproofing for increased energy efficiency.

Furthermore, the cost of not transitioning to a green energy economy would likely be catastrophic to the competitiveness of U.S. industries, as foreign competitors in Europe and China have already invested in such a transition.³⁸ Seeing the inevitable end of fossil fuels and the increasing likelihood that fossil fuels will become less available and more expensive with or without climate change, many countries have already begun to take serious action.³⁹

As a policy measure, one could argue the benefits of an energy transition

30. Schneider & Lane, *supra* note 23, at 7.

31. *Id.*

32. *Id.*

33. *Id.* at 10.

34. *Id.*

35. *Id.*

36. *See id.* at 10–11 (showing each of the stated probabilities with accompanying studies listed as references and also stating that extensive literature has arisen in recent years).

37. NAT’L RESEARCH COUNCIL, AMERICA’S CLIMATE CHOICES 60 (2011).

38. *Id.* at 61.

39. *See id.* (stating the importance and efforts China and the European Union’s twenty-seven member states have already placed on clean and renewable energy industries).

apart from its impact on GHG emissions and climate change. Nevertheless, energy, GHGs, and climate change are inextricably linked, and the impacts of an energy transition on vulnerable populations must be viewed in the context of climate change as it is highly unlikely that the world will be able to slow or stop climate change even if the energy transition was to be adopted immediately by every country in the world. We are left with the reality of having to undergo an energy transition as part of our adaptation to climate change. Neither event is optional.

C. Environmental Vulnerabilities

Stephen Schneider and Janica Lane identified the following human vulnerabilities to climate change: monetary loss, loss of life, risk of hunger, risk of water shortage, risk of coastal flooding, risk of disease, and risk of forced migration.⁴⁰ These are climate-change-specific vulnerabilities that all humans share. However, many people face a number of existing vulnerabilities that further limit their ability to absorb and adapt to major stresses like climate change. Existing education gaps make it harder for vulnerable populations (who may already be underemployed or unemployed) to obtain the green jobs that will likely become available in an energy transition, which leads to increases in poverty and hunger.⁴¹ Preexisting environmental justice vulnerabilities make it harder for vulnerable populations (whose health is already compromised as a result of existing environmental burdens) to protect themselves against increasing climate change health burdens, such as waterborne disease.⁴² Vulnerable populations already living in disaster-prone areas (as a result of poverty and discrimination) are even more vulnerable to the coming onslaught of more intense and more frequent storms.

In no other place in the United States are these factors more salient than in the city of New Orleans, which is directly affected by rising sea levels, increased flooding, increased storms, and oil-related environmental contamination. Hurricane Katrina may have been such a climate-change-related event. Nevertheless, the impacts associated with climate change occur on top of a baseline of preexisting environmental threats to vulnerable populations in the city (that is, children, the elderly, people of color, the disabled, women, and the poor). The next section analyzes the disproportionate impacts experienced by vulnerable communities in New Orleans during and after Hurricane Katrina.

III. HURRICANE KATRINA: A CASE TO REMEMBER

With the onslaught of Hurricane Katrina and the levee failure in New Orleans (widely known as “Katrina”), far too many poor people were trapped, unable to flee or find food and shelter.⁴³ Decades of inept and discriminatory

40. Schneider & Lane, *supra* note 23, at 9.

41. See JONATHAN ROTHWELL & ALAN BERUBE, EDUCATION, DEMAND, AND UNEMPLOYMENT IN METROPOLITAN AMERICA 1 (2011) (stating that large education gaps hinder the ability to grow in the more education-intensive industries, such as health care).

42. See, e.g., MCGRANAHAN, *supra* note 2, at 14.

43. Mafruzha Khan, *The Color of Opportunity and the Future of New Orleans: Planning, Rebuilding, and Social Inclusion After Hurricane Katrina*, in RACE, PLACE, AND ENVIRONMENTAL JUSTICE AFTER

public policies had created a concentration of racialized poverty in the city.⁴⁴ Race has greatly influenced our nation's institutions and systems and has been a major determinant of access to opportunity and power. The disaster "brought to the forefront the fundamental problems of structural racism in this country and its resultant economic, social, and racial segregation."⁴⁵

Like many urban enclaves, New Orleans was a very poor city prior to Katrina.⁴⁶ The city was mostly comprised of poor people of color living in declining neighborhoods with a declining tax base, failing schools, and a high crime rate.⁴⁷ The labor movement had for years battled for a living wage in a city dominated by low-wage service sector industries dependent on tourism.⁴⁸ Blacks were among the most severely vulnerable population groups and continued to be excluded from opportunities, while immigrant labor was exploited as a standard business practice.⁴⁹

In 1970, the city was forty-two percent black, but by 2000 that number had risen to sixty-seven percent. While New Orleans elected its first black mayor during this period (and has elected three in total since that time), the number of neighborhoods living in concentrated poverty grew by two-thirds.⁵⁰ During the thirty-year period from 1970 to 2000, the poverty rate increased from twenty-six percent to twenty-eight percent.⁵¹

Before Katrina, twenty-eight percent of New Orleans' population was at or below the poverty level.⁵² The city as a whole suffered from low wages, poor education, crime, and unemployment.⁵³ Unfortunately, black residents suffered considerably more.⁵⁴ The following information confirms the existence of concentrated racialized poverty and other demographic and socioeconomic trends in New Orleans since 1970 and prior to Katrina:

- In 2000, median household income for blacks was half that for whites.
- More than three times as many blacks were poor than whites (35 percent compared to 11 percent).
- Poor blacks were five times more likely than poor whites to live in extremely poor areas (43 percent compared to 11 percent).
- Nearly half (44 percent) of black men 16 and older were unemployed compared to less than a third (30 percent) of white men.

HURRICANE KATRINA: STRUGGLES TO RECLAIM, REBUILD, AND REVITALIZE NEW ORLEANS AND THE GULF COAST 205, 205 (Robert D. Bullard & Beverly Wright eds., 2009).

44. *Id.*

45. *Id.*

46. *Id.* at 207-08.

47. *Id.* at 208.

48. *See id.*

49. *Id.*

50. *Id.*

51. *Id.*; ALAN BERUBE & BRUCE KATZ, KATRINA'S WINDOW: CONFRONTING CONCENTRATED POVERTY ACROSS AMERICA 2-3 (2005).

52. Khan, *supra* note 43, at 208.

53. *Id.*

54. BERUBE & KATZ, *supra* note 51, at 2-3.

- Less than half (41 percent) of black households owned their home compared to more than half (56 percent) of whites.⁵⁵

Other vulnerable groups include the disabled, the elderly, and the poor:

- Many New Orleanians had disabilities—10.3 percent of 5–20 year-olds, 23.6 percent of 21–64 year-olds, and 50.1 percent of those age 65 and older had disabilities.
- Over 11 percent of New Orleanians were elderly.
- More than 105,000 city dwellers did not have a car during Katrina’s evacuation. Nearly one-third (32.7 percent) of black residents did not have a car to help get them out of harm’s way compared to less than 10 percent of whites. More than half (52 percent) of poor black residents lacked access to a car compared to only 17 percent of poor whites.⁵⁶

Past public policy choices created concentrated and racialized poverty in New Orleans.⁵⁷ But post-Katrina rebuilding policies could potentially create opportunities for all, particularly for historically disenfranchised populations and for groups that continue to face structural barriers to opportunity. Similarly, climate change may be the catalyst for a transition to a green economy in which green jobs and equal access to opportunity could potentially serve to combat concentrated racialized poverty.

Hurricane Katrina and the failure of the levees demonstrated that the negative effects of climate change fall heaviest on the poor and people of color.⁵⁸ This disaster displaced more than 378,000 people from New Orleans, creating “one of the largest disaster diasporas in U.S. history.”⁵⁹ Eighty percent of New Orleans was flooded, but low-income and minority neighborhoods were hit hardest.⁶⁰ Nearly thirty percent were living at or below 150% times the poverty line, and another forty percent were living with incomes below 200% of the poverty line.⁶¹ Thirty-eight of the region’s forty-nine concentrated poverty neighborhoods were flooded by Katrina.⁶² These regions tended to be poorer, have more renters, and be predominantly nonwhite. Approximately eighty percent of the city’s minority population were residents of the flooded neighborhoods.⁶³

Unfortunately, pre-storm vulnerabilities continue to limit the participation

55. Khan, *supra* note 43, at 208 (using the 2000 U.S. Census).

56. *Id.* at 210 (using the 2000 U.S. Census).

57. *Id.* at 213.

58. See MICHAEL ERIC DYSON, COME HELL OR HIGH WATER: HURRICANE KATRINA AND THE COLOR OF DISASTER 4–5 (2006); MANUEL PASTOR ET AL., IN THE WAKE OF THE STORM: ENVIRONMENT, DISASTER AND RACE AFTER KATRINA 3 (2006); Mike Bruner, *FEMA Trailers “Toxic Tin Cans”?*, MSNBC.COM (July 23, 2006), http://risingfromruin.msnbc.com/2006/07/are_fema_traile.html (reporting that the temporary housing offered by FEMA, which is utilized primarily by the poor, is inadequate and in fact harmful).

59. Rick Jervis, *New Orleans May Have Hit Plateau*, USA TODAY, Aug. 4, 2008, at A1.

60. BERUBE & KATZ, *supra* note 51, at 2.

61. THOMAS GABE ET AL., CONG. RESEARCH SERV., RL 33141, HURRICANE KATRINA: SOCIAL-DEMOGRAPHIC CHARACTERISTICS OF IMPACTED AREAS 16 (2005).

62. Khan, *supra* note 43, at 210.

63. BERUBE & KATZ, *supra* note 51, at 2.

of thousands of disadvantaged individuals and communities in the after-storm reconstruction, rebuilding, and recovery. In these communities, days of hurt and loss have become years of grief, dislocation, and displacement. The following sections examine inequities in more detail for four specific areas of vulnerability: housing, funding, disasters, and food.

A. Displacing Poor People Through the Destruction of Affordable Housing

All eyes continue to watch New Orleans' rebuilding efforts and are most pointedly fixed on how the city addresses the repopulation of its historically African-American neighborhoods and its decimated vestiges of public housing.

Over 49,000 people lived in public housing before Hurricane Katrina: 20,000 lived in older, large-scale developments such as the St. Bernard Complex, and 29,000 lived in Section 8 rental housing.⁶⁴ The number of public housing units in New Orleans was on the decline for more than a decade prior to the disaster.⁶⁵ In 1996, the city had 13,694 units of conventional public housing.⁶⁶ In 2005, just before the disaster, the number had fallen to 7,379.⁶⁷ Public housing in New Orleans was among the lowest quality in the nation, and the model on which it had been designed, whereby poor people were segregated and concentrated, is now considered outdated and ineffective.⁶⁸

After the disaster, the U.S. Department of Housing and Urban Development (HUD) announced it would invest \$154 million to rebuild public housing in New Orleans and would assist the city in bringing displaced residents home,⁶⁹ but critics' fears that government officials and business leaders were planning to demolish the old projects and privatize public housing have largely been realized.⁷⁰ Ten months after the disaster, eighty percent of public housing in New Orleans remained closed.⁷¹ Sixty percent of the largest public housing developments in the city are boarded up, with the other forty percent in various states of repair.⁷²

In June 2006, federal housing officials announced that more than 5,000 public housing apartments for the poor would be razed and replaced by developments for residents from a wider range of incomes.⁷³ The demolition plan would eliminate 4,500 public housing units in the city while building only about 800 new units of traditional public housing.⁷⁴ This move heightened the

64. Robert D. Bullard & Beverly Wright, *Race, Place, and the Environment in Post-Katrina New Orleans*, in RACE, PLACE, & ENVIRONMENTAL JUSTICE AFTER HURRICANE KATRINA, *supra* note 43, at 19, 28. Section 8 housing is a federal housing program that provides housing assistance to low-income renters and homeowners in the form of rental subsidies. *Id.*

65. *Id.*

66. *Id.*

67. *Id.*

68. See DYSON, *supra* note 58, at 7.

69. *Id.*

70. *Id.*

71. *Id.*

72. *Id.*

73. *Id.* at 29.

74. CHRIS KROMM & SUE STURGIS, HURRICANE KATRINA AND THE GUIDING PRINCIPLES OF INTERNAL DISPLACEMENT: A GLOBAL HUMAN RIGHTS PERSPECTIVE ON A NATIONAL DISASTER 23 (2008).

anxiety of many low-income black Katrina survivors who feared they would be pushed out in favor of higher-income families.⁷⁵ Again, their fears were well founded.

Post-disaster economic conditions drove housing prices up and forced families to compete for the limited supply that remained and for newly-constructed units.⁷⁶ An average two-bedroom apartment that would have cost \$676 per month in 2005 rented for \$990 in 2010.⁷⁷ Research shows that housing discrimination increases when the housing supply is scarce, which hits African-American renters and homebuyers especially hard.⁷⁸ A Greater New Orleans Fair Housing Action Center study of the New Orleans metropolitan area after the disaster found discrimination in nearly six out of ten transactions, with African-Americans encountering less favorable treatment based on race.⁷⁹ Overall, the post-disaster housing situation resulted in the displacement of hundreds of thousands of poor New Orleanians, many of whom were African-American, to places outside the city.⁸⁰

Katrina allowed “disaster capitalism” to shift into high gear.⁸¹ Immediately after the flood, billions of no-bid contracts were awarded to a handful of politically connected national contractors; the federal Davis-Bacon Act (which mandates workers be paid the prevailing wage) was suspended; and a host of environmental waivers were granted.⁸² Hurricane Katrina made clear the links between race and vulnerability. What people often term “natural” disasters or “acts of God” are in fact acts of social injustice perpetuated by public policies and business practices on the poor, people of color, and the most vulnerable of our society—groups least able to withstand such disasters.⁸³ The perpetuation of injustice continued in the distribution of disaster recovery funds, as described next.

B. Recovery Funding Equity Analysis

In a preliminary technical report commissioned by the Deep South Center for Environmental Justice, the planned distribution of hurricane recovery funds was analyzed for New Orleans’ thirteen planning districts.⁸⁴ The analysis was

75. Bill Walsh, *Feds Oppose Full Replacement of N.O. Public Housing Units; HUD’s Stance Takes Landrieu by Surprise*, TIMES-PICAYUNE (New Orleans), Sept. 26, 2007, at National 3.

76. Bullard & Wright, *supra* note 64, at 29.

77. *Id.*

78. *Id.*

79. Deborah Barfield Berry, *Testers Play Crucial Role in Exposing Discrimination*, USA TODAY (Sept. 28, 2007, 1:46 AM), http://www.usatoday.com/news/nation/2007-09-28-housing-testers_N.htm.

80. NAT’L FAIR HOUSING ALLIANCE, *NO HOME FOR THE HOLIDAYS: REPORT ON HOUSING DISCRIMINATION AGAINST HURRICANE KATRINA SURVIVORS* 4–5 (2005).

81. NAOMI KLEIN, *THE SHOCK DOCTRINE: THE RISE OF DISASTER CAPITALISM* 6 (2008).

82. Beverly Wright & Robert D. Bullard, *Afterword: Looking Back to Move Forward*, in *RACE, PLACE, & ENVIRONMENTAL JUSTICE AFTER HURRICANE KATRINA*, *supra* note 43, at 265, 266.

83. See John Powell, *Toward a Transformative View of Race: The Crisis and Opportunity of Katrina*, in *THERE IS NO SUCH THING AS A NATURAL DISASTER: RACE, CLASS AND HURRICANE KATRINA* 59, 60 (Chester Hartman & Gregory D. Squires eds., 2006).

84. Paul Mohai & Sangyun Lee, *Demographic and Resource Allocation Assessments for the thirteen New Orleans Planning Districts* (Dec. 6, 2010) (unpublished report) (on file with authors).

based on publicly available information provided in the Unified New Orleans Plan, a planning document that offers only a snapshot of an ongoing process, yet served as one of several post-disaster recovery plans with widespread community involvement.⁸⁵ The plan presented ninety-five recovery projects at a total cost of over \$1.55 billion.⁸⁶ Thirty-three percent of this amount was planned for recovery projects located in Planning Districts 1, 2, and 3 (that is, in the French Quarter/Central Business District, Garden District, and Uptown), which were among the least storm-damaged neighborhoods in New Orleans.⁸⁷ The remaining sixty-seven percent of recovery expenditures were planned for Planning Districts 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13—districts that include the greater proportion of the city's population and the hardest hit neighborhoods of Lakeview, Lower Ninth Ward, and New Orleans East.⁸⁸

Preliminary findings of this equity analysis support the Plan for the Future map produced by the Bring New Orleans Back Commission.⁸⁹ This map displayed: (1) areas identified for immediate rebuilding; (2) areas for redevelopment, including some areas for new housing for relocated homeowners; (3) approximate areas identified with the expectation of development as parks and green spaces; and (4) areas identified for enforcement of a building moratorium until neighborhoods prove viability.⁹⁰

The Plan for the Future proposed to significantly reduce the “footprint” or size of the city of New Orleans, reasoning that a significantly resource-constrained city would not be able to efficiently serve all neighborhoods when only a fraction of the pre-storm population and tax base had returned.⁹¹ The citizens of New Orleans largely rejected this plan and spoke against it at numerous city council and town hall meetings following its introduction to the public in 2007.⁹² The plan was rejected by citizens for many reasons, but the most significant was the perception of inappropriate and heavy-handed government intrusion into the private lives of citizens effectively denying their individual right of self-determination and the right to return to the city in which they lived.⁹³ Ironically, most areas slated for immediate rebuilding and redevelopment had suffered little, if any, damage from flood waters.⁹⁴ These

85. THE UNIFIED NEW ORLEANS PLAN, <http://www.unifiedneworleansplan.com/home3/> (last visited Mar. 22, 2012).

86. Mohai & Lee, *supra* note 84, at 2.

87. *See id.* at 8, fig. 10 (showing proposed resource allocations by Planning District).

88. *See id.* at 12, app. A (listing demographics of Planning Districts).

89. *Plan for the Future*, NOLA.COM, <http://www.nola.com/katrina/pdf/planmap.pdf> (last visited Mar. 22, 2012).

90. *Id.*

91. *See* Coleman Warner, *N.O. Planning Process Puts Residents on Edge*, NOLA.COM, Aug. 31, 2006, http://www.nola.com/katrina/index.ssf/2006/08/no_planning_process_puts_residents_on_edge.html.

92. *E.g.*, Kate Randall, *City Residents Denounce “Bring New Orleans Back” Rebuilding Plan*, WSWS.ORG, Jan. 14, 2006, <http://www.wsws.org/articles/2006/jan2006/newo-j14.shtml>; Michelle Krupa, *Many Areas Marked for Green Space After Hurricane Katrina Have Rebounded*, NOLA.COM, Aug. 23, 2010, http://www.nola.com/katrina/index.ssf/2010/08/many_areas_marked_for_green_space_after_hurricane_katrina_have_rebounded.html.

93. *See* Warner, *supra* note 91.

94. *Plan for the Future*, *supra* note 89; Warner, *supra* note 91.

areas were also predominantly white and affluent, while areas identified for conversion into green space and parks and areas required to prove their viability were predominantly African-American and less affluent.⁹⁵ The plan also appeared to ignore the fact that New Orleans had started losing population in the 1960s, resulting in significant blight and an insufficient tax base decades before Hurricane Katrina.⁹⁶ This only fueled the feeling among many residents that the storm was being used as an excuse to prevent certain neighborhoods from returning.⁹⁷

To put these facts into context, there are thirteen planning districts in New Orleans, four of which are predominantly white (Planning Districts 1, 5, 11, and 13). Eight planning districts are majority black (Planning Districts 2, 4, 6, 7, 8, 9, 10, and 12)⁹⁸ The four predominantly white planning districts (n=4) were allocated a combined total of \$208 million for redevelopment, which exceeds by a factor of two the \$204 million allocated to a total of eight predominantly black planning districts.⁹⁹ These findings, while disturbing, are not surprising to researchers, activists, and scholars who routinely illuminate environmental injustices and who regularly monitor governmental disaster response actions. Hurricane Katrina focused a magnifying lens on the environmental injustices suffered by the people of New Orleans immediately prior to, during, and after the storm.¹⁰⁰ The citizens of New Orleans were actively engaged in a process to determine the direction, size, and scope of the rebuilding, including the allocation of recovery funding.¹⁰¹ This preliminary equity analysis reveals a key feature of New Orleans' recovery. Principles for ensuring equitable distribution of recovery funds were not in effect. To this day, parts of the city are "back" while others are still languishing. Inequities continued in the next disaster when vulnerable population groups were disproportionately affected by an oil spill.

C. Disproportionate Impacts of the Deep Water Horizon Disaster

On the heels of the recovery from Katrina, the Gulf Coast experienced another devastating blow: the British Petroleum (BP) Deep Water Horizon Oil Disaster. The massive oil spill killed eleven workers and leaked 205.8 million gallons of oil into the Gulf of Mexico, surpassing the record-setting 140-million gallon Ixtoc oil spill on Mexico's coast from 1979 to 1980.¹⁰² The Deep Water

95. See Mohai & Lee, *supra* note 84, at 12, app. A (listing demographics of Planning Districts).

96. See generally, GREATER NEW ORLEANS CMTY. DATA CTR., POPULATION LOSS AND VACANT HOUSING IN NEW ORLEANS NEIGHBORHOODS (2011), available at https://gnocdc.s3.amazonaws.com/reports/GNOCDC_PopulationLossAndVacantHousingInNewOrleansNeighborhoods.pdf; *New Orleans History*, TUREAUD.COM, http://www.tureaud.com/Southern/new_orleans_history.htm (last visited Apr. 25, 2012).

97. Warner, *supra* note 91.

98. Planning District 3, located in "uptown" New Orleans, is neither majority black nor majority white with 47.28% whites and 46.37% blacks. Mohai & Lee, *supra* note 84, at 1.

99. *Id.* at 10 fig. 14.

100. PASTOR ET AL., *supra* note 58, at 3.

101. See *id.* at 36.

102. NAT'L COMM'N ON THE BP DEEPWATER HORIZON OIL SPILL & OFFSHORE DRILLING, DEEP WATER: THE GULF OIL SPILL DISASTER AND THE FUTURE OF OFFSHORE DRILLING 55 (2011) [hereinafter DEEP WATER]; Jeremy Repanich, *The Deepwater Horizon Spill by the Numbers*, POPULAR MECHANICS,

Horizon spill contaminated 665 miles of coastline, imperiled the multi-billion dollar fishing and tourism industries, and killed birds, sea turtles, dolphins, and other marine life.¹⁰³ The full health, environmental, and economic impacts of this catastrophe may not become clear for decades.

While the media spotlight focused attention on efforts to stop the massive oil leak and the cleanup of the spill, the same level of attention was not given to oil spill waste disposal.¹⁰⁴ The largest amount of BP oil spill solid waste (14,228 tons) was sent to a landfill in Campbellton, Florida, a community where three-fourths of the residents are people of color.¹⁰⁵ Although African-Americans make up about thirty-two percent of Louisiana's population, three of the five approved landfills (sixty percent) in Louisiana that have received BP oil spill waste are located in predominantly-black communities.¹⁰⁶

People of color are disproportionately impacted by the environmental effects of hazardous waste disposal. They make up the majority (fifty-six percent) of those living in neighborhoods within two miles of the nation's commercial hazardous waste facilities, nearly double the percentage living in areas beyond two miles (thirty percent).¹⁰⁷ People of color make up a much larger majority (sixty-nine percent) in neighborhoods with clustered polluting facilities.¹⁰⁸ Siting disparities are widespread. Nine out of ten Environmental Protection Agency regions have racial disparities in the location of hazardous waste sites.¹⁰⁹ Forty of forty-four states (ninety percent) with hazardous waste facilities have disproportionately high percentages of people of color in host neighborhoods—on average about two times greater than the percentages in non-host areas (forty-four percent versus twenty-three percent).¹¹⁰ Host neighborhoods in an overwhelming majority of the forty-four states with hazardous waste sites have disproportionately high percentages of Hispanics (thirty-five states), African-Americans (thirty-eight states), and Asians/Pacific Islanders (twenty-seven states).¹¹¹ Host neighborhoods of 105 out of 149 metropolitan areas with hazardous waste sites (seventy percent) have disproportionately high percentages of people of color, and forty-six of these metro areas (thirty-one percent) have host neighborhoods comprised of a majority of people of color.¹¹²

Because people of color live in close proximity to hazardous waste facilities, they are disproportionately exposed to environmental pollutants. Residents

Aug. 10, 2010, <http://www.popularmechanics.com/science/energy/coal-oil-gas/bp-oil-spill-statistics>; *Ten Famous Spills*, INCIDENT NEWS, <http://www.incidentnews.gov/famous> (last visited Mar. 23, 2012).

103. Repanich, *supra* note 102; DEEP WATER, *supra* note 102, at 181, 185.

104. Robert Bullard, *BP's Waste Management Plans Raise Environmental Justice Concerns*, DISSIDENT VOICE, July 29, 2010, <http://dissidentvoice.org/2010/07/bp%E2%80%99s-waste-management-plan-raises-environmental-justice-concerns/>.

105. *Id.*

106. *Id.*

107. ROBERT BULLARD ET AL., TOXIC WASTES AND RACE AT TWENTY: 1987-2007, at 42-45 (2007).

108. *Id.* at xi.

109. *Id.*

110. *Id.*

111. *Id.* at 73-75.

112. *Id.* at 60.

living near the sites selected for the disposal of BP oil spill wastes are at a greater risk of increased exposure not only from the environmental pollutants from these waste sites, but also from air pollution resulting from increased diesel truck traffic to and from these facilities.¹¹³ Attempts to develop green energy from waste as a sustainable, climate-friendly practice still fail to consider the disproportionate impacts on vulnerable populations, as discussed below.

D. Waste-to-Energy: Green Energy or Environmental Injustice?

Research is replete with data supporting the disproportionate exposure of minority and poor communities to hazardous waste facilities and the disparities in clustering waste facilities within three kilometers of these communities.¹¹⁴ These vulnerable communities have become increasingly more endangered by the threat of new and risky technologies for waste disposal.

Over the past ten years, plasma arc technology has emerged as a potential trend for renewable energy in waste management.¹¹⁵ The City of New Orleans is the latest target for this experimental technology. The selected site for the project is the neighborhood of New Orleans East, the largest African-American community in the city (located in Planning District 9).¹¹⁶ New Orleans East has an industrial park that is zoned as heavy industrial, and for a long time, the neighborhood has served as a garbage dumping ground for the city and surrounding parishes.¹¹⁷ The neighborhood currently has twenty-three illegal dumpsites and numerous inactive and active landfills.¹¹⁸ The city of New Orleans does not have a comprehensive waste management plan to rationally manage this problem.

According to the Deep South Center for Environmental Justice (DSCEJ), “Sun Energy, [in partnership with Air Products,] through a joint venture company, Louisiana Gasification Facility LLC (LGF), propose[d] to build, own and operate what they call an ‘energy from waste . . . facility’ [in New Orleans East]. The LGF would use ‘Plasma Arc Gasification[.]’”¹¹⁹ Sun Energy claims that the technology is not incineration, *per se*.¹²⁰ However, though company websites, diagrams, and process descriptions claim the technology is a renewable energy facility, the proposed technology would in fact have the same polluting effect as

113. *See id.* at 86, 126.

114. *Id.* at 42–45.

115. *See* SOLENA GROUP, THE COMMERCIAL VIABILITY OF PLASMA ARC TECHNOLOGY 2, <http://www.solenagroup.com/files/plasma.pdf>. Plasma arc technology developed more than a century ago to provide extremely high heat in the metal industry; currently the technology has applications in the chemical, metallurgical, and waste management industries. *Id.*

116. *See* PETER BENNETT ET AL., NEW ORLEANS EAST BROWNFIELDS SURVEY 1-2 (2011), <http://www.dscej.org/images/stories/pdfs/brownfields%20survey%20final.pdf>.

117. *Id.* at 3, 19.

118. *Id.*

119. *Gulf Coast Community Residents Participate in BP Landfill Waste Community Training in Avondale, Louisiana*, DEEP SOUTH CTR. FOR ENVTL. JUST. <http://www.dscej.org/> (last visited Mar. 31, 2012) [hereinafter DSCEJ]; *see also Renewable Energy*, SUN ENERGY GROUP, LLC, http://www.sunenergygrp.com/renewable_energy.shtml (last visited Mar. 31, 2012) [hereinafter SUN ENERGY GROUP].

120. SUN ENERGY GROUP, *supra* note 119; *see also* DSCEJ, *supra* note 119.

a two-stage incinerator.¹²¹

While there are differences between traditional incineration technologies and plasma arc technology, the system proposed by Sun Energy involves incineration/combustion as an essential component.¹²² One difference is that while traditional incinerators burn the waste directly, plasma arc heats the waste in the gasification stage, creating a synthetic gas (or “syngas”). Key to the technology proposed by Sun Energy is the burning of the syngas in a turbine or boiler.¹²³ This combustion process is the incineration that results in emissions of toxic and criteria air pollutants into a neighborhood already overloaded with air pollution. These emissions would include dioxins and furans, highly toxic chemicals linked to a wide range of profound illnesses including cancer, reproductive, developmental, and immunological diseases. Plasma arc facilities around the country have been plagued with failed equipment and no merit of energy production from the syngas technology has been shown.¹²⁴ This new and risky technology represents the latest threat to New Orleans’ vulnerable communities. In our final example below, this article notes the inequities in access to healthy food as yet another measure of vulnerability commonly ignored by policymakers.

E. Food Deserts in the City of Food

The New Orleans metropolitan region is characterized by entrenched, segregated urban poverty, in which poor families—in this case mostly African-American families—live in neighborhoods that are distressed in myriad ways. New Orleans’ poor neighborhoods suffer from severe social and economic distress, measured as consistently high poverty rates, high unemployment rates, low education rates, poor quality housing, low access to healthy foods, low quality schools, limited transportation, and so forth.¹²⁵ These facts were true both before and after the Katrina and Deepwater Horizon disasters; for example, the city’s pre-Katrina 2004 poverty rate was approximately twenty-three percent and its post-Katrina 2009 poverty rate was just below twenty-four percent.¹²⁶ One

121. DSCEJ, *supra* note 119; *see also* GREENACTION FOR HEALTH & ENVTL. JUST., EVALUATION OF SUN ENERGY GROUP’S WEBSITE CLAIMS: JULY 7, 2009, CLAIMS VERSUS REALITY 1, <http://www.greenaction.org/incinerators/neworleans/documents/FactSheetSunEnergyWebClaims.pdf> (“Sun Energy’s permit application has many references to the ‘combustion’ of the syngas, which is the incineration stage in the plasma arc gasification process.”); GLOBAL ALLIANCE FOR INCINERATOR ALTERNATIVES, GREENACTION FOR HEALTH AND ENVTL. JUST., PLASMA ARC TECHNOLOGY FOR MUNICIPAL SOLID WASTE: A PROVEN TECHNOLOGY OR INCINERATOR IN DISGUISE? WILL FLORIDA’S HEALTH AND ENVIRONMENT BE PROTECTED? 3-5 (2008), <http://greenaction.org/incinerators/documents/GreenactionGAIAExposeOfFloridaPlasmaArcIncineratorInDisguiseProposals030908.pdf>.

122. *Id.*

123. *Id.*

124. *Id.*

125. BERUBE & KATZ, *supra* note 51, at 1-3.

126. *Id.* at 2 (“Between 2003 and 2004, the percentage of parish residents living below the poverty line rose from 20.8 percent to 23.2 percent.”); *New Orleans, Louisiana (LA) Poverty Rate Data*, CITY-DATA, <http://www.city-data.com/poverty/poverty-New-Orleans-Louisiana.html> (last visited Mar. 16, 2012); U.S. CENSUS BUREAU, TABLE 708: HOUSEHOLD INCOME, FAMILY INCOME, PER CAPITA INCOME, AND INDIVIDUALS AND FAMILIES BELOW POVERTY LEVEL BY CITY: 2009, *available at* <http://www.census.gov/compendia/statab/2012/tables/12s0708.xls>.

could focus on any one of these poverty indicators to see clearly the inequities of life in New Orleans. This section analyzes healthy food access.

In September 2011, NewsOne.com issued a special report concluding that New Orleans was the worst urban food desert in the United States.¹²⁷ The report defined food deserts as urban areas with the following characteristics: “(a) a lack or absence of large grocery stores and supermarkets that sell fresh produce and healthy food options; and (b) low-income populations living on tight budgets.”¹²⁸ Backing up this announcement was a 2007 study by the New Orleans Food Policy Advisory Committee documenting the lack of healthy food access in New Orleans and demonstrating that access had become even worse after Hurricane Katrina.¹²⁹ In 2007, nearly sixty percent of low-income residents had to travel three miles or more to a grocery store, and only eighteen out of thirty-five full-service grocery stores were reopened two years after the storm; most of the grocery stores were concentrated in affluent neighborhoods while poor neighborhoods had a predominance of liquor stores and fast food outlets.¹³⁰ These findings contrast sharply with New Orleans’ well-deserved reputation for food culture and fine dining. In the same month that New Orleans was declared the worst urban food desert, the September 2011 issue of *Travel and Leisure Magazine* declared New Orleans America’s best city to visit for “food, drinks, and restaurants,” the best city for “foodies,” and the best city for “neighborhood joints and cafes.” New Orleans also came in second place for “ethnic food.”¹³¹ Ironically, New Orleans is world famous for its distinct cuisine, and yet a large percentage of its population lacks access to healthy food.

Food access is both a local and a global issue that intersects with climate change, energy, and inequity. Every quantitative and qualitative assessment available has found that climate change will adversely affect global food security in terms of food availability, stability of the food supply, food utilization and disease, and food access.¹³² Josef Schmidhuber and Francesco Tubiello found that these impacts are the result of: changes in temperature and precipitation that reduce agricultural land and crop yields; pronounced variability in weather patterns; increases in infectious, waterborne, vector-borne, and foodborne diseases; and higher food prices and reduced agricultural incomes.¹³³ These negative impacts will fall disproportionately on the poor, especially in developing countries in Sub-Saharan Africa and South Asia.¹³⁴ Shiva connects

127. *America’s Worst 9 Urban Food Deserts*, NEWSONE.COM, Sept. 22, 2011, <http://newsone.com/newsone-original/jothomas/americas-worst-9-urban-food-deserts/>.

128. *Id.*

129. NEW ORLEANS FOOD POLICY ADVISORY COMM., *BUILDING HEALTH COMMUNITIES: EXPANDING ACCESS TO FRESH FOOD RETAIL 1* (2007), available at http://www.thefoodtrust.org/catalog/download.php?product_id=142.

130. *See id.* at 5.

131. *America’s Best Cities for Foodies*, TRAVEL & LEISURE MAG., <http://www.travelandleisure.com/articles/americas-best-cities-for-foodies/2> (last visited Mar. 26, 2012).

132. Josef Schmidhuber & Francesco N. Tubiello, *Global Food Security Under Climate Change*, 104 PROC. NAT’L ACAD. SCI. U.S.A. 19703, 19708 (2007), available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2148361/pdf/zpq19703.pdf>.

133. *Id.* at 19704-05.

134. *Id.* at 19704.

climate change and the food crisis to the peaking of fossil fuels, declaring these crises are a triple threat to disadvantaged populations around the world.¹³⁵ Further, biofuels hurt the world's poor by displacing land that could be used for agricultural food production, resulting in food shortages and higher food prices.¹³⁶ What the New Orleans case shows is that policies intended to be race neutral can accelerate rather than alleviate the burdens suffered by vulnerable populations. Policies must be especially sensitive to vulnerable populations, not neutral, in order to avoid disparate impacts on these populations.

IV. DISCUSSION

This article has offered a glimpse into the disproportionate impacts of two particular disasters in which—despite massive participation by well-organized communities and armies of volunteers, and despite large amounts of recovery dollars and serious debates on how to rebuild and recover—the resulting recoveries can only be characterized as inequitable. In each example, existing vulnerable populations shouldered disproportionate impacts. These disasters offer only a prelude to the intensifying and disproportionate impacts of climate change and the energy transition. Vulnerable populations in the United States and around the world, especially in the Global South, are subject to local and global risks that are escalating to catastrophic levels. New strategies must be developed to address these simultaneous threats, and new discourses must be created to prioritize them. Most of all, public policies must begin genuinely to address the needs of vulnerable populations in order to remain relevant.

One emerging discourse within the lineage of environmental justice is climate justice. The notion of climate justice first emerged at the 2000 Climate Justice Summit in The Netherlands, whereby climate change was declared a human rights issue.¹³⁷ As a result of this summit, a group of environmental justice leaders from across the country gathered to form the Environmental Justice Climate Change Initiative (EJCC):

The Environmental Justice Climate Change Initiative was founded in 2001 shortly after thousands of people from around the world gathered in The Hague, Germany [sic] for the United Nations Framework Convention on Climate Change 6th Conference of the Parties (COP6). During COP6, civil society groups coordinated the first Climate Justice Summit as an official alternative forum to the COP6. Grassroots leaders shared stories of the impact of climate change and offered community-based solutions for adaptation and mitigation. Several conference participants from the United States were inspired by the emerging global call for Climate Justice and saw the real need to develop a domestic counterpart.

In April 2001, these participants founded The Environmental Justice Climate Change Initiative as a project of Redefining Progress, a California-based environmental policy organization. The mission of the Environmental Justice Climate Change Initiative (EJCC) is to educate and to activate the people of

135. See Shiva, *supra* note 5, at 19, 22–23.

136. *Id.*

137. *Climate Justice Movements*, CLIMATE INSTITUTE, http://www.climate.org/climatelab/Climate_Justice_Movements (last visited Mar. 16, 2012).

North America toward the creation and implementation of just climate policies in both domestic and international contexts. EJCC membership is a diverse, consensus-based group of U.S. environmental justice, climate justice, religious, policy, and advocacy groups that represent hundreds of communities across the country. The EJCC has emerged as a leading United States-based voice for justice and equity in domestic and international climate change conversations.¹³⁸

At the 2002 UN World Summit on Sustainable Development in Bali, a diverse group of NGOs created a set of twenty-seven climate justice principles.¹³⁹ In 2004, the Durban Group for Climate Justice was founded by various grassroots organizations and people's movements.¹⁴⁰ At the 2007 UN Framework Convention on Climate Change in Bali, the Climate Justice Now! coalition was formed by several international NGOs that developed another set of climate justice principles.¹⁴¹ And in 2009, the Climate Justice Action Network was established at the Fifteenth Conference of the Parties (COP15) to the UN Framework Convention on Climate Change.¹⁴² The essence of climate justice can be summarized in the following statement by Climate Justice Now!:

Communities in the global south as well as low-income communities in the industrialised north have borne the toxic burden of this fossil fuel extraction, transportation and production. Now these communities are facing the worst impacts of climate change—from food shortages to the inundation of whole island nations.

Inside the global climate negotiations, rich industrialised countries have put unjustifiable pressure on Southern governments to commit to emissions reductions. At the same time, they have refused to live up to their own legal and moral obligations to radically cut emissions and support developing countries' efforts to reduce emissions and adapt to climate impacts.

Climate Justice Now! will work to expose the false solutions to the climate crisis promoted by these governments, alongside financial institutions and multinational corporations—such as trade liberalisation, privatisation, forest carbon markets, agrofuels, and carbon offsetting.¹⁴³

Climate justice activists operating on the international stage seem to understand the common structural condition of vulnerable populations around the world and have created a powerful framework that includes all vulnerable people. Environmental justice activists, typically operating locally or regionally

138. *About*, ENVTL JUST. & CLIMATE CHANGE INITIATIVE, <http://www.ejcc.org/about/> (last visited Mar. 18, 2012).

139. *Bali Principles of Climate Justice*, INDIA RES. CTR., <http://www.indiaresource.org/issues/energycc/2003/baliprinciples.html> (last visited Mar. 22, 2012).

140. *Who Are We?*, DURBAN GROUP FOR CLIMATE JUST., <http://www.durbanclimatejustice.org/who-are-we> (last visited Mar. 22, 2012).

141. *Bali-CJN! Founding Presse Release*, CLIMATE JUST. NOW!, <http://www.climate-justice-now.org/about-cjn/history/bali-cjn-founding-presse-release/> (last visited Mar. 22, 2012).

142. *Call for "System Change not Climate Change" Unites Global Movement*, GLOBAL JUST. ECOLOGY PROJECT, <http://climate-connections.org/2010/11/29/call-for-%E2%80%9Csystem-change-not-climate-change%E2%80%9D-unites-global-movement/> (last visited Mar. 18, 2012).

143. *Climate Justice Now! Network*, WORLD DEV. MOVEMENT, <http://www.wdm.org.uk/climate-debt-campaign/climate-justice-now-network> (last visited Mar. 31, 2012).

with specific groups of vulnerable people, can benefit by bringing some aspects of the climate justice framework into their own guiding narratives. The National Association for the Advancement of Colored People (NAACP) has already begun this transition.¹⁴⁴ Their climate change statement highlights Hurricane Katrina in New Orleans, coal fired power plants in Pennsylvania and Ohio, mountain top removal in West Virginia, rising sea level on the Louisiana coast, placement of toxic facilities based on race, and lack of healthy food access in poor communities as examples of climate change issues.¹⁴⁵

In 2001, Oxford Professor Norman Myers described environmental refugees as a “new phenomenon” created by climate change.¹⁴⁶ He defined environmental refugees as “people who can no longer gain a secure livelihood in their homeland because of drought, soil erosion, desertification, deforestation and other environmental problems together with the associated problems of population pressure and profound poverty.”¹⁴⁷ In desperation, people seek shelter elsewhere or migrate in search of safer and more secure livelihoods. Presently, the UN High Commissioner on Refugees is projecting fifty million environmental refugees by 2020.¹⁴⁸ This is no small matter and cannot be reduced to the sensational machinations of the green movement.

The environmental, environmental justice, and climate justice movements are struggling to come to a compromise over differences in order to coalesce around a common goal: the elevation of climate change to a higher priority within the world community. The global economic crisis has reduced the chances of climate change increasing in priority. Unfortunately, the impacts of global warming and climate change on people have not decreased. The lack of forward movement in reaching a binding legal agreement among nations at the recent Climate Change Summit (COP17) in Durban, South Africa bears out this hypothesis.¹⁴⁹ We must now await the Rio+20 UN Conference on Sustainability in Brazil in June 2012 for any hope of such agreement among nations.¹⁵⁰ The prediction of fifty million environmental refugees flooding the Global North by 2020, fleeing food shortages sparked by climate change,¹⁵¹ should give pause to skeptics.

During the COP17 United Nations Climate Change Summit, Achim Steiner, the United Nations Under-Secretary-General and Executive Director of the UN

144. See *Climate Justice Initiative*, NAACP, <http://www.naacp.org/programs/entry/climate-justice> (last visited Mar. 22, 2012).

145. *Id.*

146. Norman Myers, *Environmental Refugees: A Growing Phenomenon of the 21st Century*, 357 ROYAL SOC'Y 609, 609 (2002), available at <http://rstb.royalsocietypublishing.org/content/357/1420/609.full.pdf+html?sid=9bee75ca-5a93-48d9-8739-5097d3cb7c51>.

147. *Id.*

148. Joanna Zelman, *50 Million Environmental Refugees by 2020, Experts Predict*, HUFFINGTON POST, Feb. 22, 2011, http://www.huffingtonpost.com/2011/02/22/environmental-refugees-50_n_826488.html.

149. See UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, COP 17, available at http://unfccc.int/meetings/durban_nov_2011/session/6294/php/view/decisions.php (last visited Mar. 22, 2012).

150. See EARTH SUMMIT 2012, <http://www.earthsummit2012.org/> (last visited Mar. 22, 2012).

151. Zelman, *supra* note 148.

Environment Programs, presented what he considers “[a] big array of options . . . available to assist in a low-carbon, resource-efficient future for the world.”¹⁵² According to Under-Secretary Steiner:

[C]ountries, companies and communities [across the globe] are already making significant strides: In 2010, more than \$211 billion . . . was invested in new renewable energies, more than in new fossil fuels.

In respect to solar, 17.5GW was installed in 2010, up 130 percent from 2009: Photo voltaic (PV) installations are forecast to rise further this year by perhaps 20.5GW, taking global capacity to around 50GW—the equivalent of around 15 nuclear reactors.¹⁵³

Currently, there are sixty regional and local governments taking significant action in reducing GHGs.¹⁵⁴ Quebec, Canada and São Paulo, Brazil, for example, are attempting to cut GHG levels to twenty percent below 1990 levels by the year 2020.¹⁵⁵

Steiner emphasizes the importance of jobs and how the transition to renewable energy is a job creator.¹⁵⁶ He reports that “[w]ith 1.3 billion people underemployed or unemployed and with half-a-billion young people joining the work force over the next decade,” jobs are critical.¹⁵⁷ By 2030, employment from renewable energy in Germany is predicted to rise to between 500 and 600 thousand jobs.¹⁵⁸ China’s renewable energy targets for 2020 could create up to 880 thousand jobs in solar photovoltaic (PV) systems.¹⁵⁹

V. CONCLUSIONS

The worldwide transition to a low-carbon, resource-efficient green economy must be the goal of humanity for sustainability. Equity, however, must be addressed in efforts to achieve global sustainability. We must ensure that as we progress toward a green economy, the transition for disadvantaged people will be prioritized.

152. Achim Steiner, *Towards a Green Economy*, THE MERCURY, Nov. 28, 2011, at 8.

153. *Id.*

154. These same sixty regional and local governments are responsible for fifteen percent of global GHG emissions according to Steiner. *Id.*

155. *Id.*

156. *Id.*

157. *Id.*

158. *Id.*

159. *Id.*