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***153 ADAPTING ENVIRONMENTAL JUSTICE: IN THE AGE OF CLIMATE CHANGE, ENVIRONMENTAL JUSTICE DEMANDS A COMBINED ADAPTATION-MITIGATION RESPONSE**

The Environmental Justice Movement of the late twentieth century had a lofty goal: to protect poor and minority communities from being adversely affected by environmental harms such as toxic waste dumps and polluted waters. Many agree that today's greatest environmental danger is climate change, a worldwide problem with intensely local impacts; and poor and minority communities may be adversely impacted by that environmental harm as well. In the climate change case, experts foresee that the people in developing countries and island nations stand to face climate-change-related dangers ranging from increased hurricanes to desertification of cultivating lands to total inundation as sea levels rise. One goal of the Kyoto Protocol's carbon-exchange market is to mitigate the impacts on developing countries. Yet not all the consequences of climate change will be felt on the international scene, and within the United States, Environmental Justice concerns dictate that mitigation should not be the only regional and national response to the planet's rising temperatures. Environmental Justice demands an adaptive response.

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*154 INTRODUCTION

At this moment in 2012, cap and trade seems dead. The Waxman-Markey comprehensive climate change bill, passed by the U.S. House of Representatives in the 2009-10 session, never passed the Senate. A national carbon cap-and-trade program has hardly been mentioned in Washington, D.C., since.¹ Despite recent failures and the current political turmoil, experts agree that a carbon market will come to the United States in the reasonably near future.² When such a scheme does arise, whether on the national or regional level, it is likely to be modeled on the Regional Greenhouse Gas Initiative (RGGI). The RGGI, a regulatory program comprising ten Northeastern and Mid-Atlantic states, caps carbon emissions, auctions the allowances on their market, and funnels funds into greenhouse-gas-reduction programs within each state. Under it, carbon offsets available to power plants create benefits that stay within RGGI states. Through such offsets, thousands of Americans in poor and minority communities have received benefits such as green-job training, vouchers for the reduction of energy bills, and subsidies toward environmentally efficient home energy upgrades.

The people in these communities are the same people who were the concern of the Environmental Justice Movement (“EJ Movement”) during the 1970s, 1980s, and 1990s. As was the case in the twentieth century, the needs of people in such Environmental Justice Communities (“EJ Communities”) are distinct from those without, even while the world *155 faces a newer, twenty-first-century problem: climate change. The most widely accepted approach to solving that problem--capping emissions of greenhouse gases to halt the manmade altering of the atmosphere and its resultant increase in planetary temperature--does not fully address the concerns of people in American EJ Communities. Just as with toxic hotspots and Superfund sites, the people in our nation’s EJ Communities might be those most acutely affected by climate change. Therefore, addressing the consequences of climate change should incorporate the mission of the EJ Movement.

This Article provides a brief history of the EJ Movement in the United States. Part II details how Environmental Justice has already been incorporated into the national and international discussions of climate change. Part III examines the accepted approaches toward addressing climate change: mitigating climate change through reductions in emissions, and adapting to the changing environment. Part III also explains this Article’s focus on adaptation strategies, and why these are more important to EJ Communities than other communities. Finally, Part IV offers an idea for how incentivized adaptation programs could work, and why, for the sake of EJ Communities and the future of Environmental Justice itself, it is of paramount importance that adaptation projects move to the fore.

I. RACE, CLASS, AND THE HISTORY OF ENVIRONMENTAL JUSTICE

A. Case Study: Tucson, Arizona

Like many communities around the nation, Tucson, Arizona is a Superfund site. Specifically, the local Superfund site, the Tucson International Airport Area (TIAA), sits in the Pacific Southwest Region IX Superfund.³ According to the Environmental Protection Agency (EPA), during the post-World War II boom, Tucson entered a period in which many industrial facilities operated in the TIAA:

At least twenty separate facilities have operated at the TIAA area since 1942 including: aircraft and electronics facilities [which discharged waste liquids directly into the soil]; fire drill training areas [where wastes from training operations were left in unlined pits]; and unlined landfills [which received various wastes from several sources].⁴

*156 It is unknown precisely how many facilities dumped toxic chemicals at the TIAA site or when they began, but the lawsuit that eventually resulted from the dumping did establish that one of the most dangerous chemicals in TIAA was the industrial solvent trichloroethylene (TCE). The City of Tucson and Hughes Aircraft began dumping TCE in the ground in 1952.⁵ TCE can be used to dissolve oily and greasy substances, and was used in many industries to clean grease from

metal--especially airplane parts⁶--such as those in the Tucson International Airport Area.

The TIAA is on the South Side of the Tucson municipal area, surrounded by largely Hispanic neighborhoods.⁷ For years, people who lived there were getting sick. A 2006 newspaper article revisited the TCE cases as the litigating parties reached a final settlement. Tucson Citizen reporter Blake Morlock wrote that when people first began falling ill, they were told “it was because of the chilies and beans they ate.”⁸ Eventually, investigators were able to make a connection between the groundwater contamination and the suppression of the immune system, which led to a variety of illnesses.⁹ Media coverage resulted in lawsuits; more than 1,600 plaintiffs eventually filed suit and received approximately \$100 million in settlements, first from Hughes Aircraft and the water-providing City of Tucson; then from the insurance companies and the airport authority.¹⁰

The TCE suit had a lasting legacy: the voice it gave to the people of Tucson’s South Side. Richard Gonzales was one of the three lead attorneys. “I remember growing up on the South Side. We never had any political muscle and never exercised a voice in government,” Gonzales said. “There was an entrenched sense that the South Side was powerless to look out for their interests.”¹¹ That changed after the TCE suit.

Such a legacy came at a steep price, said Steve Leal, the former Tucson city councilman whose district included much of the affected TIAA site: “It was a painful way that social and economic justice issues got articulated in Tucson.”¹²

B. Environmental Justice Throughout the United States

The journey of Tucson’s South Side residents was mirrored around the nation, where in community after community, residents revolted against the poisoning of their *157 environments. This nationwide community uprising has become known as the Environmental Justice Movement (“EJ Movement” or “Movement”). The Movement, now well established, was born in the 1980s, forced forward by the participation of “community groups engaging in local action within their communities.”¹³ Such groups were urged into action by a string of environmental calamities, from Three Mile Island, to Love Canal, to the Woburn, Massachusetts case later made famous in the book and film “A Civil Action.”¹⁴

The Council on Environmental Quality first documented a correlation between income and the risk of toxic exposure in 1971.¹⁵ The report showed that a lack of income adversely affected the ability of the urban poor to improve their environment;¹⁶ in other words, people were too poor to move. By the 1980s, government studies were showing that the correlation between lack of wealth and risk of toxic exposure extended not only to income disparity, but also to minority communities.¹⁷ For example, the U.S. General Accounting Office (GAO) conducted a study to determine if race was a factor in the placement of hazardous waste disposal. Examining Southeastern EPA Region IV, the GAO study showed that three-fourths of the landfills in that region were sited near communities with high minority populations.¹⁸ A private study went even further: The report, *Toxic Wastes and Race in the United States: A National Report on the Racial and Socio-economic Characteristics of Communities with Hazardous Waste Sites*, released in 1987 by the United Church of Christ Commission for Racial Justice, supported the argument that race is the most consistent factor correlated with hazardous-waste facility siting.¹⁹

The activists bringing attention to the newborn EJ Movement gathered in the First National People of Color Environmental Leadership Summit in October 1991.²⁰ There, the *158 delegates adopted seventeen *Principles of Environmental Justice* as their first official act.²¹ These principles displayed the delegates’ devotion to their communities, to the fight against racism, and to Earth itself, beginning with the preamble:

WE, THE PEOPLE OF COLOR, gathered together ... to begin to build a national and international movement of all peoples of color to fight the destruction and taking of our lands and communities, do hereby re-establish our spiritual interdependence to the sacredness of our Mother Earth; to respect and celebrate each of our cultures, languages and beliefs about the natural world and our roles in healing ourselves; to ensure environmental justice; to promote economic alternatives which would contribute to the development of environmentally safe livelihoods; and, to secure our political, economic and cultural liberation that has been denied for over 500 years of colonization and oppression, resulting in the poisoning of our communities and land and the genocide of our peoples.²²

The seventeen goals themselves ranged from demands that public policy “be based on mutual respect and justice for all peoples, free from any form of discrimination or bias”; to “universal protection from nuclear testing ... and disposal”; to “the fundamental right to clean air, land, water, and food.”²³ In short time, the EPA created the Office of Environmental Justice, and incorporated these values into government policy.²⁴ Still an active office, the Office of Environmental Justice operates in the Department of Compliance and Enforcement with the goal of providing “an environment where all people enjoy the same degree of protection from environmental and health hazards and equal access to the decision-making process to maintain a healthy environment in which to live, learn, and work.”²⁵ The EPA website defines Environmental Justice as

the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EPA has this goal for all communities and persons across this Nation. It will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work.²⁶

In the most sweeping act in the history of the Movement, President Clinton issued Executive Order 12898 in 1994, mandating that federal agencies incorporate Environmental Justice in their missions.²⁷ Since the 1990s, some doubts have been raised as to the relevance *159 of race and class in the distribution of environmental harms in the United States. Some even consider the EJ Movement a harmful distraction in that it highlights racial concerns in lieu of bringing attention to more serious environmental risks.²⁸ Environmental concerns such as toxic hotspots may or may not, in fact, result from *intentional* racial or socioeconomic discrimination, but all evidence still points to the existence of a disparate impact in their siting.²⁹ A recent report by the Virginia National Resources Leadership Institute, a Virginia-based program dedicated to bringing multiple groups together for environmental decision-making, found that nationally, race and ethnicity continue to be the “strongest predictors of environmental injustice.”³⁰ And, “whether burdens have a greater effect on minority groups or those living in poverty, the costs are most often endured by the poorest members (socially, economically, politically) of our society.”³¹

II. ENVIRONMENTAL JUSTICE IN THE CLIMATE CHANGE CONTEXT

Environmental Justice was born out of a past era, one concerned with Superfund and toxic hotspots, lead paint and sulfur dioxide. These intense issues of the late-twentieth century had tangible, quantifiable consequences, from cancer clusters to acid rain.

Climate change, for years called “global warming,” has been more, for lack of a better word, *complicated*. The newer “climate change” nomenclature reflects the dramatic impact humans are having on the environment through the increased concentration of greenhouse gases in the atmosphere, including methane, nitrous oxide, and carbon dioxide.³² The most environmentally damaging of these anthropogenic gases, due to its sheer volume of emissions, is carbon dioxide. Since the start of the Industrial Revolution in the mid-nineteenth century, carbon dioxide has been emitted consistently--and ever increasingly--through the combustion of fossil fuels.³³

Ironically, in light of modern-day skepticism, scientists have been aware of climate change for nearly as long as greenhouse gases have been affecting the planet’s climate. In 1938, about 100 years after the beginning of the Industrial Revolution, British engineer Guy Calendar reported to the Royal Meteorological Society that the world was warming.³⁴ In 1957, scientists Roger Revelle and Hans Suess expressed similar concerns about the anthropogenic warming of the planet:

*160 [H]uman beings are now carrying out a large scale geophysical experiment of a kind that could not have happened in the past nor be reproduced in the future. Within a few centuries we are returning to the atmosphere and oceans the concentrated organic carbon stored in sedimentary rocks over hundreds of millions of years.³⁵

The effects of climate change go far beyond mere warming. Along with an increase in the average global temperature from between two and four degrees centigrade “comes the threat of more extreme weather, including more intense and longer droughts that have already been observed, heavy precipitation including increased intensity of tropical cyclones, and hot extremes and heat waves.”³⁶ In North America, this is likely to manifest as “more severe storms, hurricanes, floods, droughts, heat waves and wildfires.”³⁷ For island nations around the world, the consequence of increased heat will be rising sea levels, lost coastline, and, possibly, total inundation.³⁸

Professor Maxine Burkett, Associate Professor of Law at the William S. Richardson School of Law, University of Hawaii, has explored climate change and the EJ Movement in several articles, including *Just Solutions to Climate Change: A Climate Justice Proposal for a Domestic Clean Defense Mechanism*.³⁹ She argues that the implementation of a Clean Development Mechanism (CDM)--a critical aspect of any carbon cap-and-trade regime that attempts to correct for the uneven development positions of nations around the globe--could serve as a model for implementing an Environmental Justice-oriented strategy in the response to climate change.⁴⁰

The theory behind CDM is that polluting nations that have agreed to a cap on carbon emissions may offset their total emissions by investing in green and renewable projects in developing nations.⁴¹ Global CDM is a key aspect of the Kyoto Protocol.⁴² For example, a CDM project might involve the electrification of a village through the use of solar panels, or the installation of more energy-efficient boilers in an already-electrified *161 community.⁴³ The United Nations Framework Convention on Climate Change (UNFCCC)⁴⁴ operates CDM projects under the direction of the CDM Executive Board.⁴⁵ The UNFCCC website describes CDM as a “mechanism [that] stimulates sustainable development and emission reductions, while giving industrialized countries some flexibility in how they meet their emission-reduction limitation targets.”⁴⁶ Verified completion of projects results in Certified Emissions Reductions (CERs), which can be sold or recorded in a Kyoto-bound nation’s carbon account, and then applied as credits to their total emissions allowance. A CDM project earns one CER for each ton of reduction of emitted carbon dioxide.⁴⁷

Professor Burkett proposes that domestic CDM (dCDM) would work in a similar manner to the international regime administered under international treaty. Her proposal assumes that at some point in the near future, a cap-and-trade regime *will* be implemented in the United States, even if political and economic concerns curtail its ambitions.⁴⁸ Under such a regime, Congress (or an administering office or agency, likely the EPA⁴⁹) would create a fixed number of permits for emitting greenhouse gases (GHGs), and then distribute or auction the permits to GHG-emitting businesses. The GHG emitters would then buy, sell, or trade these credits in accordance with their ability to keep their emissions under the cap.⁵⁰ Just as with CDM under the Kyoto Protocol, dCDM would allow emitters to offset some of their emissions by investing in greening projects, but these projects would take place within the United States rather than abroad. Small-scale dCDM projects could range from the construction of solar-home systems,⁵¹ to green roofs,⁵² to afforestation and reforestation projects that green urban communities with open spaces.⁵³ Larger-scale projects could *162 include those that would impact rural areas, such as building wind farms on Indian reservations.⁵⁴

Domestic CDM that incorporates projects such as those mentioned above would serve the twofold purpose of CDM: investing in poor communities while decreasing their carbon footprint--just on a domestic scale rather than a global one. Such projects would also steer urban redevelopment into the national marketplace, where there is a steady revenue stream built around the national “enthusiasm” for the greening of America.⁵⁵ Therefore, dCDM should be considered a valid and marketable response to climate change that comports with the goals of Environmental Justice (EJ). Professor Burkett allows that some advocacy groups, such as the Black Chamber of Commerce, have organized against EJ suggestions, theorizing that EJ activism “seeks to prevent all economic development in communities of color.”⁵⁶ However, the necessarily global nature of the human response to climate change demands that the EJ Movement become “a critical and consequential crafter of domestic, and ultimately global, solutions.”⁵⁷

III. ENVIRONMENTAL JUSTICE AND DOMESTIC ADAPTATION STRATEGIES

Professor Burkett’s paper makes a strong case for how the missions and goals of the EJ Movement would be served through the adoption of a domestic Clean Development Mechanism that ushers greening projects to communities of color, which are disproportionately impacted by environmental harms. Today, these harms stem from climate change and its consequences, which include: rising summertime temperatures that affect the poor and elderly in urban environments such as Chicago;⁵⁸ the high incidence of respiratory disease in inner cities, where conditions such as asthma can be worsened by rising temperatures;⁵⁹ and coastal communities endangered by the threat of floods and the rising sea level, as so devastatingly demonstrated by Hurricane Katrina and its impact on New Orleans, particularly the EJ community of the Lower Ninth Ward.⁶⁰ Professor Burkett *163 argues that dCDM-- with its focus on the immediate dangers of climate change--has the attraction of bringing immediate, or at least prompt, response to EJ communities.

The dCDM approach is grounded in the longtime strategy of reducing GHGs, a mitigation strategy. Climate-change-response

policy has always focused on mitigative techniques. However, as the years spool by post-Kyoto with no globally cohesive GHG-reduction strategy in place, and with the United States as far from adopting a cap-and-trade regime as ever,⁶¹ one has to wonder if mitigation strategies offer too minimal a response to climate change. As the planet continues to heat up, the United States may also need to employ *adaptive* strategies--responses that make it possible for the members of our current ecosystem--human life, animal life, and plant life, alike--to continue to inhabit a planet that is two to four degrees warmer.

In the near future, if an adaptive approach becomes preeminent, can Environmental Justice continue to be incorporated?

A. Mitigation, Adaptation, and International Funding

CDM is a mitigative response to climate change because it is grounded in the goal of reducing GHGs, even if its CDM projects do not actually reduce carbon emissions. In contrast, adaptation techniques operate on the assumption that the planet is experiencing irreversible anthropogenic climate change and global inhabitants must either adapt to a warmer planet or go extinct. The World Health Organization defines adaptation as:

Adjustment in natural or human systems to a new or changing environment. Adaptation to climate change refers to adjustment in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Various types of adaptation can be distinguished, including anticipatory and reactive adaptation, public and private adaptation, and autonomous and planned adaptation.⁶²

Recent reports from the Intergovernmental Panel on Climate Change (IPCC)--the international panel that reviews and assesses the most recent scientific research and scholarship relating to climate change⁶³--focus on adaptation strategies. In 2011, two special ***164** reports looked specifically at adaptation and mitigation.⁶⁴ The IPCC Fourth Assessment Report (*Climate Change 2007*) includes a chapter assessing adaptive strategies. Adaptation practices are defined as “actual adjustments, or changes in decision environments, which might ultimately enhance resilience or reduce vulnerability to observed or expected changes in climate.”⁶⁵ Investing in coastal protection infrastructure to reduce vulnerability to storm surges and anticipated sea-level rise is an example of actual adjustments.⁶⁶

At this time, international financial support for both adaptive and mitigative responses to the effects of climate change is enormous.⁶⁷ With the lack of binding GHG-reduction commitments in the Kyoto Protocol--and the fact that the United States is a non-signatory in the first place-- international climate funds serve as a method of impacting climate change without enforcing a significant cap on emissions. They do this by implementing climate-action programs in the developing nations and regions of the planet that will be most impacted by the warming of the planet.⁶⁸ At the end of 2010, the World Bank announced that \$6 billion had been pledged to greening programs in forty developing nations through its Climate Investment Funds (CIF) program,⁶⁹ the most well-funded and important of the array of international climate funds.⁷⁰

***165** Through the CIF and its developed-nation financiers, private investors’ support flows from multilateral development banks (MDBs) to programs in developing nations.⁷¹ “The Climate Investment Funds provides a unique financing instrument designed to support low-emissions and climate-resilient development through scaled-up financing channeled through the African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank, and the World Bank Group.”⁷² Projects are wide-ranging in scope, goals, and impact. Recent projects include the implementation of climate-friendly transport and energy use in cities throughout Mexico; a solar project that will supply electricity to people throughout the Middle East and North Africa; and an international plan increasing the potential of carbon sequestration through agricultural crop production.⁷³

The World Bank CIF and similar funders distribute money to both adaptive and mitigative projects, but the preference for mitigation still rules. The Climate Fund Info website--an aggregator of information on the CIF and other funds-- explains that preference:

The emphasis on this site is on funds that aim to *mitigate* climate change, less attention is given to climate funds that focus on *adapting* to climate change. This reflects our view that while adaptation is an increasingly important necessity, it is still mitigation that is the crucial, decisive issue for us all.⁷⁴

Some international funds do go toward adaptive strategies in developing countries. However, developing nations are not the

only places where the effects of climate change will be felt; some impacts are anticipated to land directly upon the United States and other developed nations.⁷⁵ Effects in the United States will be felt from coast to coast and from cities to farms. Some are already being observed, such as:

increases in air and water temperatures, reduced frost days, increased frequency and intensity of heavy downpours, a rise in sea level, and reduced snow cover, glaciers, permafrost, and sea ice. A longer ice-free period on lakes and rivers, lengthening of the growing season, and increased water vapor in the atmosphere have also been observed. Over the past 30 years, temperatures have risen faster in winter than in any other season, with average winter temperatures in the Midwest and northern Great Plains increasing more than 7 degrees Fahrenheit

...

Likely future changes for the United States and surrounding coastal waters include more intense hurricanes with related increases in wind, rain, and storm surges ... as well as drier conditions in the Southwest and Caribbean. These *166 changes will affect human health, water supply, agriculture, coastal areas, and many other aspects of society and the natural environment [S]ea-level rise will increase risks of erosion, storm surge damage, and flooding for coastal communities, especially in the Southeast and parts of Alaska. Reduced snowpack and earlier snowmelt will alter the timing and amount of water supplies--posing significant challenges for water resource management in the West.⁷⁶

While a substantial funder of the international climate funds, the United States has not been a significant recipient of the MDB funds so far; this is not surprising, as the purpose and goal of funds such as the CIF is to encourage the greening of communities in developing nations. One independent cataloguer of climate funding, an arm of nonprofits including Heinrich Boll Stiftung, the Green Political Foundation, and the Overseas Development Institute, reports that not a single international dollar has gone toward either adaptation or mitigation projects in the United States.⁷⁷

B. Current Mitigation Strategies in the United States

While international monies destined to help the poorest and most vulnerable nations are justifiably flowing elsewhere, there is no doubt that poor and vulnerable communities exist in the United States. Again, decades of research and the entire Environmental Justice Movement have borne that out. Furthermore, even without a national cap-and-trade program, greenhouse gas initiatives are taking place in the United States under the lead of the states. The most well-established of these is the Regional Greenhouse Gas Initiative (RGGI), a regulatory program comprising ten Northeastern and Mid-Atlantic states that caps carbon emissions, auctions the allowances on its market, and funnels the resulting funds into GHG-reduction programs within the states.⁷⁸

Just like the international scheme, RGGI's framework includes carbon offsets, or allowances granted to carbon emitters that have bound themselves to staying under the cap.⁷⁹ Allowances and offsets make the cap systems more attractive and palatable to participants--the power plants of the Northeast corridor--and are allowed because "[b]y recognizing CO₂-equivalent emissions reductions and carbon sequestration outside the capped sector, offsets provide compliance flexibility and create opportunities for low-cost *167 emissions reductions and other co-benefits across sectors."⁸⁰ RGGI limits the amount of offsetting available--setting allowable offsets at 3.3 percent of a power plant's total compliance obligation⁸¹--and the standards for the carbon reduction programs are strict, with an application and verification process in place.⁸² If compliant with all regulations, a single CO₂ offset allowance represents "the sequestration of one ton of CO₂ or an equivalent reduction in emissions of CO₂ or another GHG."⁸³ Unlike the offsets allowed under Kyoto, RGGI benefits are designed to stay within the RGGI states. "These requirements ensure that awarded CO₂ offset allowances represent CO₂-equivalent emissions reductions or carbon sequestration that is real, additional, verifiable, enforceable, and permanent. All offset projects must be located within one of the RGGI participating states."⁸⁴

The carbon-auction market operated through RGGI generates money--a lot of money. A recent report stated that, since its first auction in 2008, RGGI has generated more than \$993 million in allowance proceeds.⁸⁵ Of that, 80 percent has gone to

“strategic energy programs” or “programs that benefit consumers and build a clean energy economy.”⁸⁶ It is in these benefit projects that it is possible to see the effects of the EJ Movement on even this private-sector, state-initiated carbon-auction market.

For example, a New York State program offering rebates for the purchase of more energy-efficient home appliances often has an income threshold, so that new, subsidized dryers and dishwashers are going to state residents most in need.⁸⁷ New York also uses RGGI funds, among others, to allow low-income residents to apply for money to pay to heat their homes in the winter through the Low-Income Home Energy Assistance *168 Program.⁸⁸ While not ruled by EJ concerns, the benefit programs indicate that program guidelines and administrators have an awareness that benefits should be spread to those most in need.

Whoever the end recipients are, the programs that generate their funding remain largely mitigative. They are designed to lower, or at least offset, the amount of carbon emitted by the RGGI-bound power plants. In fact, the five project categories eligible for Certified Emissions Reduction (CER) offsetting under RGGI are exclusively mitigative remedies: 1) the capture or destruction of methane from landfills; 2) the reduction of emissions of sulfur hexafluoride; 3) the sequestration of CO₂ through afforestation; 4) the reduction of CO₂ emissions by cutting electricity use and increasing energy efficiency in buildings; and 5) the avoidance of methane emissions through the management of agriculture operations.⁸⁹ Each project category “is designed to reduce or sequester emissions of three GHGs: carbon dioxide (CO₂), methane (CH₄) and sulfur hexafluoride (SF₆).”⁹⁰ Any project that furthers a mitigative end goal of reducing GHGs’ impact on the Earth’s environment surely causes more good than harm. On the other hand, the singular focus on mitigation to the detriment of development of adaptation strategies could actually be harmful. The next sections of this Article further explore the idea that some adaptation strategies are bound up in mitigation-funded programs, and that agencies should actively support the combination.

C. Adaptation Exists in Mitigation Programs

Adaptation strategies, when they exist, tend to be bound up in programs that are also mitigative. For example, Massachusetts, one of the RGGI states, has expanded a job-training program administered by the Massachusetts Clean Energy Center, which benefits from RGGI strategic energy funds.⁹¹ The program trains people to enter energy-saving jobs, which both curtails GHG emissions and provides the low-income and minority participants a pathway to earning a better living in a sustainable career.⁹² In this manner, the adaptive strategy--raising participants’ income-earning potential, which could allow them the freedom of movement to avoid the direct consequences of climate change--is combined with the mitigative strategy of moving people toward more-sustainable, lower-carbon-emitting jobs. The same combination of goals is evident in a 2009 RGGI-funded energy upgrade that took place at a nonprofit rehabilitation center in New Hampshire. There, a \$176,531 RGGI grant allowed the center to decrease its carbon footprint by installing a central heating system fueled by woodchips harvested from the *169 neighboring forests. Simultaneously, the residents of the center, low-income disabled clients, were made more comfortable.⁹³

Programs such as the green-job training in New York and reduction of the carbon footprint at a center for a compromised, underserved population in New Hampshire demonstrate the confluence of the key themes of this Article: Environmental Justice; climate change; and adaptation and mitigation strategies. These programs also provide a template for how decision-makers should proceed in the distribution of funds designed for at-risk populations in the United States, and how EJ goals will not be forgotten as benefit programs begin their inevitable swing toward adaptation.

D. Bringing Environmental Justice Goals into Funding Decisions Requires a Combination of Adaptive and Mitigative Strategies

The world and the nation are consumed with the monumental planning and implementation effort required to lower carbon emissions and reverse--or at least stay--the anthropogenic warming the planet has experienced for the past 150 years. Mitigation is viewed as our present--and our future. Yet observers tend to see adaptation as a *possible* future, one that will come to pass only after mitigation techniques have failed. So rather than being viewed as part of a *current* attack on climate change, adaptation is being left as a response tool for the future only--and a remote future at that. The challenge facing proponents of adaptive strategies is bringing those strategies out of the future and into our present decision-making.

A deeper look at some of the seventeen goals of the EJ Movement shows why an awareness of the needs of EJ Communities requires bringing the domestic adaptation conversation to the fore with greater urgency.

1) Environmental Justice affirms the sacredness of Mother Earth, ecological unity and the interdependence of all species, and the right to be free from ecological destruction.

2) Environmental Justice demands that public policy be based on mutual respect and justice for all peoples, free from any form of discrimination or bias.

...

*170 8) Environmental Justice affirms the right of all workers to a safe and healthy work environment without being forced to choose between an unsafe livelihood and unemployment. It also affirms the right of those who work at home to be free from environmental hazards.

9) Environmental Justice protects the right of victims of environmental injustice to receive full compensation and reparations for damages as well as quality health care.

...

12) Environmental Justice affirms the need for urban and rural ecological policies to clean up and rebuild our cities and rural areas in balance with nature, honoring the cultural integrity of all our communities, and provided fair access for all to the full range of resources.

...

16) Environmental Justice calls for the education of present and future generations which emphasizes social and environmental issues, based on our experience and an appreciation of our diverse cultural perspectives.

17) Environmental Justice requires that we, as individuals, make personal and consumer choices to consume as little of Mother Earth's resources and to produce as little waste as possible; and make the conscious decision to challenge and reprioritize our lifestyles to ensure the health of the natural world for present and future generations.⁹⁴

The concepts of the preservation of the Earth, self-determination of peoples, and just compensation for damages have adaptation--a change in behavior--at their core. But the question remains: What does an adaptive strategy look like, as applied to a domestic EJ Community?

For some communities, such as New Orleans, the answer is obvious. Mitigating the effects of climate change and the resultant sea-level rise on the EJ community of the Lower Ninth Ward is the same as the mitigative strategy that would be applied anywhere: lower or offset carbon emissions so that the sea does not rise in the first place. An adaptive strategy looks far different, though. At a minimum, it involves restructuring and rebuilding the levees and other protective barriers to keep the seawaters from flooding the below-sea-level city; at a maximum, it means funding the relocation of the people of New Orleans.

However, most examples are not so obvious. Consider rising temperatures in inner cities, which are often EJ Communities that will become heat islands as the planet warms. An adaptation strategy could subsidize cooling expenses in the homes of low-income people. It is unlikely that such a program would garner political support, and might be too unpopular for an advocate to even write the grant request. Furthermore, such a program would be directly at odds with the constant mitigation strategy that calls for the reduction of carbon emissions.

***171** Another adaptive strategy--carbon sequestration through afforestation-- could be applied to an inner-city EJ Community disparately impacted by the heat-island effect. Planting trees and creating parks in such communities can continue to be seen as a mitigative strategy.⁹⁵ The EJ adaptation component--the cooling of the heat island inhabited largely by the poor and minorities--is simply along for the ride.

It is likely that adaptation strategies will need to be coaxed into existence through such combined-goal projects for some time. Mitigation as a theory and action plan is not dead yet, and for the foreseeable future, just as now, such carbon reduction projects will continue to garner the bulk of funding, whether from international projects or from the consumer-benefit programs under a RGGI-type carbon market. For now, to bring such combination projects to fruition, and to further EJ-aware adaptation, funding decision-makers will need incentive to approve the mitigation projects with an adaptation component.

IV. INCENTIVIZING MITIGATION

The encouragement that may be necessary to achieve end-user programs containing an adaptation component will not be difficult to find; the entire RGGI offset program already operates on an incentive-based system,⁹⁶ and any future nationally based cap-and-trade scheme is likely to have something similar. The 3.3 percent offset limit on power plants could be increased just slightly--even to 5 percent--an increase that would push many more millions of dollars into the offset credit market. In the RGGI scheme, such an increase in the cap actually already occurs at times.⁹⁷ With more funds available from the offset market, more would also be available to fund consumer benefit programs operated by the RGGI states.

To ensure that states award grants to projects that contain an adaptive strategy, another round of incentivizing could occur. At this stage, the participants in the cap-and-trade scheme could be encouraged to allot their benefit programs to adaptation-mitigation-combined projects by allowing benefit dollars to go farther when an adaptation component is involved. In other words, the cap administrator would subsidize the consumer project by absorbing some of the cost of the grant. An initial 50 percent subsidy would serve as strong incentive for state grant awards.

This formula, applied to an aforementioned adaptation-mitigation-combined project would have worked like this: Massachusetts' green-job-training program operates through the state's Clean Energy Center, which announced a recent round of "green ***172** collar"-job-training grants, totaling \$734,000.⁹⁸ Some of the funds Massachusetts used to award those grants were generated on the RGGI offset market. Under the adaptation-incentive proposal, if \$100,000 of the green-collar job funding came from RGGI, because it ended up awarded in an adaptation-mitigation combination manner, Massachusetts would have been able to "charge" RGGI \$200,000 for the program because the grants were awarded in an adaptation-combination manner. This would raise the total available grant money to \$834,000, funding even more job training.

This "charge" to the cap administrator would actually be a reallocation of funds. Since it would be funneling twice as much to the combination consumer benefit program, the administrator would theoretically have less money to allot to all the other state participants. If adaptation-aligned projects incentivized the grantor in this manner, then adaptation will rise more quickly to the forefront. This is because at the final accounting, \$100,000 less is available to mitigation projects, a result that reallocates auction-generated funds to adaptation, and to the underserved populations who require adaptation to fully meet their needs in the face of climate change.

CONCLUSION

The principles of the EJ Movement have always shifted the focus of environmental activism. If an active, affluent community succeeds in keeping pollutants out of its neighborhood, state, or even nation, some would view that as success. If the success

is simply to move the emitted pollutant to another, poorer, less-activist community, state, or nation, the Environmental Justice activist will view the activity as a failure. Because of the specific goals of the EJ Movement, the success of any environmental activity will be assessed in terms of the ability of the poor, minority, and underserved communities to take advantage of the benefits. With the United States on the cusp of becoming a cap-and-trade nation, American programs that help humans *adapt* to the ways we have changed the world could lead the way to justice for all.

Footnotes

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¹ *H.R. 2454 (111th): American Clean Energy and Security Act of 2009*, GOVTRACK.US, <http://www.govtrack.us/congress/bill.xpd?bill=h111-2454> (last visited Feb. 22, 2012); *Times Topics: Cap and Trade*, N.Y. TIMES (Mar. 26, 2010), http://topics.nytimes.com/topics/reference/timestopics/subjects/g/greenhouse_gas_emissions/cap_and_trade/index.html.

² See discussion *infra* Part II.

³ *Tucson International Airport Area*, U.S. ENVTL. PROTECTION AGENCY, <http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/vwsoalphabetic/Tucson+International+Airport+Area?OpenDocument> (last visited Feb. 22, 2012); *Pacific Southwest, Region 9*, U.S. ENVTL. PROTECTION AGENCY, <http://www.epa.gov/region9/superfund> (last visited Feb. 22, 2012). The Pacific Southwest Region serves Arizona, California, Hawaii, Nevada, Pacific Islands, and Tribal Nations. TIAA is one of sixteen Superfund sites on the EPA's National Priorities List. *Site Overviews by State and County*, U.S. ENVTL. PROTECTION AGENCY, <http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/WSOState!OpenView> (last visited Feb. 22, 2012).

⁴ *Description and History*, U.S. ENVTL. PROTECTION AGENCY, <http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/vwsoalphabetic/Tucson+International+Airport+Area?OpenDocument> (last visited Feb. 22, 2012).

⁵ Blake Morlock, *Last TCE Settlement Going to Plaintiffs*, TUCSON CITIZEN, June 9, 2006, <http://tucsoncitizen.com/morgue/2006/06/09/15334-last-tce-settlement-going-to-plaintiffs>.

⁶ *What is TCE?*, U. ARIZ. DEAN CARTER BINATIONAL CENTER FOR ENVTL. HEALTH SCIS. & SUPERFUND RES. PROGRAM (SRP), http://superfund.pharmacy.arizona.edu/sites/superfund.pharmacy.arizona.edu/files/default_files/Information_Sheets/TCE/What_is_TCE.pdf (last visited Apr. 3, 2012).

⁷ Morlock, *supra* note 5.

⁸ *Id.*

⁹ *Id.* Morlock wrote about Rose Augustine, a neighborhood activist who said: "A mother came up to me once and said, 'I've had five children, and three died in my arms.'" *Id.*

¹⁰ *Id.*

¹¹ *Id.*

12 *Id.*

13 *See* Alice Kaswan, *Environmental Justice: Bridging the Gap Between Environmental Laws and “Justice”*, 47 AM. U. L. REV. 221, 226 (1997).

14 These events were among the most well-known environmental calamities of the era. The Three Mile Island disaster was a meltdown at the Three Mile Island Nuclear Generating Station in Pennsylvania in 1979, which resulted in the release of 13 million curies of radioactive noble gases. Stephanie Rogers, *America’s Top 10 Worst Man Made Environmental Disasters*, EARTH FIRST, [http:// earthfirst.com/americas-top-10-worst-man-made-environmental-disasters](http://earthfirst.com/americas-top-10-worst-man-made-environmental-disasters) (last visited Mar. 16, 2012). During the 1970s, the Love Canal Homeowners Association near Niagara Falls, N.Y., discovered that Hooker Chemical had dumped toxic chemicals in a dump that later became the site of a school and homes. *Id.* The Woburn, Massachusetts, case examined in the book and film, “A Civil Action,” stemmed from dumped chemicals that made their way into drinking-water supplies, causing health problems including high leukemia rates in area children during the 1970s. *Complaint Filed on Toxic Pollution in Woburn, May 14, 1982*, MASS MOMENTS, <http://massmoments.org/moment.cfm?mid=143> (last visited Mar. 16, 2012).

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18 *Id.*

19 *Id.*

20 *Principles of Environmental Justice*, EJNET.ORG, [http:// www.ejnet.org/ej/principles.html](http://www.ejnet.org/ej/principles.html) (last visited Feb. 22, 2012).

21 *Id.*

22 *Id.*

23 *Id.*

24 *Environmental Justice: Factors and Influences*, *supra* note 15, at 1.

25 *Environmental Justice: Basic Information*, U.S. ENVTL. PROTECTION AGENCY, <http://www.epa.gov/environmentaljustice/basics/index.html> (last visited Feb. 22, 2012).

26 *Environmental Justice*, U.S. ENVTL. PROTECTION AGENCY, [http:// www.epa.gov/environmentaljustice/index.html](http://www.epa.gov/environmentaljustice/index.html) (last visited Feb. 22, 2012).

27 Exec. Order No. 12898, 59 Fed. Reg. 7629 (Feb. 11, 1994).

28 *Environmental Justice: Factors and Influences*, *supra* note 15, at 3.

29 *Id.*

30 *Id.*

31 *Id.*

32 Richard B. Alley et al., *Summary for Policymakers*, in INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS 2 (Susan Solomon et al. eds., 2007), available at <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf> (last visited Feb. 22, 2012).

33 *Id.*

34 Maxine Burkett, *Just Solutions to Climate Change: A Climate Justice Proposal for a Domestic Clean Development Mechanism*, 56 BUFF. L. REV. 169, 173 n.3 (2008).

35 *Id.*

36 *Id.* at 173-74.

37 *Id.* at 177.

38 See *Climate Change - Health and Environmental Effects*, U.S. ENVTL. PROTECTION AGENCY, <http://www.epa.gov/climatechange/effects/coastal/index.html> (last visited Apr. 4, 2012).

39 At the time of the publication of the Buffalo Law Review article, Professor Burkett was an associate professor at the University of Colorado Law School. Burkett, *supra* note 34, at 169 n.1. She has since moved to the University of Hawaii, where she serves as the inaugural Director of the Center for Island Climate Adaptation and Policy (ICAP), at the University of Hawaii Sea Grant College Program. Maxine Burkett, UNIVERSITY OF HAWAII AT MANOA WILLIAM S. RICHARDSON SCHOOL OF LAW, <http://www.law.hawaii.edu/personnel/burkett/maxine> (last visited Feb. 22, 2012).

40 Burkett, *supra* note 34, at 172-73.

41 *Id.* at 170-71.

42 *Clean Development Mechanism (CDM)*, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php (last visited Feb. 22, 2012).

43 *Id.*

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45 *Governance*, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, [http:// cdm.unfccc.int/EB/governance.html](http://cdm.unfccc.int/EB/governance.html) (last visited Feb. 22, 2012).

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49 *Id.* at 215.

50 *Id.* at 203.

51 *Id.* at 209.

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53 *Id.* at 240.

54 *Id.* at 229 (citing Winona LaDuke, *Local Energy, Local Power*, YES! MAG., Winter 2007, at 26). Native communities are already peering toward the potential of wind development on Indian lands, and maintaining local control of such ventures in the future. LaDuke, a Native American activist and environmental justice advocate, writes:
The reality is that this region of North America has more wind power potential than almost anywhere in the world. Twenty-three Indian tribes have more than 300 gigawatts of wind generating potential. That's equal to over half of present U.S. installed electrical capacity. Those tribes live in some of the poorest counties in the country.
Id. (citing LaDuke, at 26).

55 *Id.* at 222.

56 *Id.* at 240-41.

57 *Id.* at 243.

58 *Id.* at 178.

59 *Id.* at 178-79.

60 *Id.* at 185-86.

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- 67 *See* CLIMATE FUND INFO, http://www.climatefund.info/climate_fund_info (last visited Feb. 22, 2012).
- 68 Press Release, The World Bank, Finance for Climate Action Reaching People Who Need It (Dec. 8, 2010), *available at* <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:22785944~menuPK:34463~pagePK:34370~piPK:34424~theSitePK:4607,00.html>.
- 69 *Id.*
- 70 *See* CLIMATE FUND INFO, *supra* note 67. The Climate Fund Info site, a clearinghouse site directing users to more detailed information about climate funding, lists six key sources of international funding, including the World Bank. The others, listed in order of financial impact, are: the Global Environmental Facility (<http://www.gefweb.org>); The Adaptation Fund (<http://www.adaptation-fund.org>); The Clean Development Mechanism (<http://cdm.unfccc.int/index.html>); Clean Energy for Development Investment Framework (<http://go.worldbank.org/7W3DZHKNF0>); and Carbon Finance (<http://carbonfinance.org>).
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- 72 *Id.*
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- 74 CLIMATE FUND INFO, *supra* note 67.
- 75 *See* DAVID M. DRIESEN, ROBERT W. ADLER & KIRSTEN H. ENGEL, ENVIRONMENTAL LAW: A CONCEPTUAL AND PRAGMATIC APPROACH 27 (2011).
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- 77 *See Funded Projects*, CLIMATE FUNDS UPDATE, [http:// www.climatefundsupdate.org/projects](http://www.climatefundsupdate.org/projects) (last visited Feb. 22, 2012).
- 78 REGIONAL GREENHOUSE GAS INITIATIVE, <http://www.rggi.org/home> (last visited Feb. 22, 2012). The site describes RGGI Inc. as “a nonprofit corporation created to provide technical and administrative services to the Regional Greenhouse Gas Initiative CO₂ budget trading programs of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont.”
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- 80 *Id.*
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- 84 *CO₂ Offsets*, *supra* note 79.
- 85 *RGGI Benefits*, REGIONAL GREENHOUSE GAS INITIATIVE, [http:// www.rggi.org/rggi_benefits](http://www.rggi.org/rggi_benefits) (last visited Mar. 27, 2012).
- 86 *Id.* According to the report, the consumer benefit projects approved under RGGI go to four major areas: “52 percent to improve energy efficiency; 11 percent to accelerate the deployment of renewable energy technologies; 14 percent to provide energy bill payment assistance, including assistance to low-income ratepayers; 1 percent for a wide variety of greenhouse gas reduction programs, including programs to promote the development of carbon emission abatement technologies, efforts to reduce vehicle miles traveled, and programs to increase carbon sequestration.” *Id.*
- 87 *See Assistance for Low and Moderate Income Households*, N.Y. ST. ENERGY RESOURCE & DEV. AUTHORITY, <http://www.nysedra.ny.gov/en/Page-Sections/Residential/Programs/LowIncome-Assistance.aspx> (last visited Apr. 4, 2012). New York State Energy and Research Development Authority (NYSERDA) is a state agency that uses RGGI funds in its program development. *Id.* *See also Evaluation of RGGI Funds*, N.Y. ST. ENERGY RESOURCE & DEV. AUTHORITY, <http://www.nysedra.ny.gov/Page-Sections/Energy-and-Environmental-Markets/RegionalGreenhouse-Gas-Initiative/Evaluation-of-RGGI-Funds.aspx> (last visited Apr. 4, 2012).
- 88 *Id.*
- 89 *Fact Sheet: RGGI Offsets*, *supra* note 83, at 1.
- 90 *Id.* These three major GHGs account for 99% of the climate-change-causing GHGs, with CO₂ by far the most significant culprit, amounting to 72% of the GHG total. *See CO₂ - The Major Cause of Global Warming*, TIME FOR CHANGE, <http://timeforchange.org/CO2-cause-of-global-warming> (last visited May 12, 2011).
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- 92 *Id.*

- ⁹³ Press Release, Crotched Mountain, Crotched Mountain Rehabilitation Center Reduces Its Carbon Footprint with Help from NH Sustainable Energy Program: 25,000 Gallons of Oil Saved Each Year (Nov. 20, 2009), *available at* http://www.crotchedmountain.org/crotchedmountain/html/NewsArticles_202.htm; *2009 Success Stories*, REGIONAL GREENHOUSE GAS INITIATIVE, http://www.rggi.org/rggi_benefits/success_stories/2009-Success-Stories (last visited Apr. 4, 2012). For more examples of successful RGGI-funded mitigation programs with an adaptation component, see *In the News: Good Shepard CFL Program*, EFFICIENCY ME., <http://www.energymaine.com/news/post/good-shepard-cfl-program> (last visited Apr. 4, 2012); *MEA Provides Energy Upgrades for Residents of Prince George's County*, MD. ENERGY ADMIN., <http://energy.maryland.gov/News/press/ucap.html> (last visited Apr. 4, 2012); and others highlighted at *2012 Success Stories*, REGIONAL GREENHOUSE GAS INITIATIVE, http://www.rggi.org/rggi_benefits/success_stories (last visited Apr. 4, 2012).
- ⁹⁴ *Principles of Environmental Justice*, *supra* note 20.
- ⁹⁵ *See Heat Island Effect*, U.S. ENVTL. PROTECTION AGENCY, <http://www.epa.gov/heatisd/mitigation/trees.htm> (last visited May 20, 2011).
- ⁹⁶ *See supra*, Part III.B.
- ⁹⁷ The offset cap may be raised to “5% and 10%, if CO₂ allowance prices reach thresholds of \$7 and \$10 per allowance, respectively.” *Fact Sheet: RGGI Offsets*, *supra* note 83, at 1.
- ⁹⁸ *MassCEC Announces “Pathways Out of Poverty” Green Collar Job Training Grants*, MASS. CLEAN ENERGY CENTER, <http://www.masscec.com/index.cfm/cdid/12146/pid/11150> (last visited June 1, 2011).