Resilience Matters

*Forging
a Greener, Fairer Future
for All*

Foreword by

Laurie Mazur

About the Kresge Foundation

The Kresge Foundation is a $3.5 billion private, national foundation that works to expand opportunities in America's cities through grant making and investing in arts and culture, education, environment, health, human services, and community development in Detroit. Its Environment Program helps communities build environmental, economic, and social resilience in the face of climate change.

For Kresge, resilience is more than just withstanding stresses—it also includes the capacity to prosper under a wide range of climate-influenced circumstances. In the long term, resilience is possible only if society reduces greenhouse gas emissions and avoids the worst impacts of climate change. So, strengthening a community's resilience requires efforts to:

- Reduce the greenhouse gas emissions that contribute to climate change;
- Plan for the changes that already are under way or anticipated;
- Foster social cohesion and inclusion.

As a foundation committed to creating opportunity for low-income people and communities, Kresge is particularly concerned with the effect climate change has on people with limited economic resources. It works to engage people from historically underrepresented groups in efforts to build resilient communities and plan for climate change.

About the JPB Foundation

AND ITS ENVIRONMENT PROGRAM

The JPB Foundation's mission is to enhance the quality of life in the United States through transformational initiatives that promote the health of our communities by creating opportunities for those in poverty, promoting pioneering medical research, and enriching and sustaining our environment.

The JPB Environment Program's goal is to enable healthy and resilient communities by enriching and supporting the environment because JPB believes it measurably impacts the well being of our human and natural systems. A theme across all program areas is the intent to protect, enhance, and advance the human and civil rights of individuals.

About Island Press

About the Urban Resilience Project

Over the last three decades, Island Press has published seminal works on resilience, ecosystems, and sustainable urban design. As our cities confront turbulent times, much depends on how resilience is defined and implemented. Seeing an opportunity to shape that outcome, Island Press launched the Urban Resilience Project in 2013, with the support of The JPB Foundation and The Kresge Foundation.

The project's goal is to advance a holistic, transformative approach to thinking and action on urban resilience in the era of climate change, an approach grounded in a commitment to sustainability and equity. We bring together leading thinkers with a broad range of expertise to generate and cross pollinate ideas. And we share those ideas in a variety of media – books, articles, interviews, webinars, and educational courses.

For more information, and to find out how you can get involved, visit www.islandpress.org/URP

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In an era rocked by climate change and other disruptions, our cities must be resilient to survive and thrive. But what does that mean, exactly? How can we address the problems facing cities today—poverty, job loss, crumbling infrastructure, pollution—while preparing for an uncertain tomorrow?

To help answer those questions, Island Press launched the Urban Resilience Project, with support from The Kresge Foundation and The JPB Foundation. We began by reaching out to a diverse group of thinkers—activists, academics, architects and many others. And we asked them to help envision the sustainable, equitable, resilient cities of the future.

In 2015, those thinkers produced a wide-ranging series of articles, blogs and op-eds, which are collected in this volume. Here, we include 34 articles that represent the work of 27 authors and 26 partner organizations. Their writings cover a wide range of topics—energy, food, and social justice, to name just a few. Yet from their disparate perspectives, several themes emerge:

Cities are key to a resilient future. Today, for the first time in history, most people live in cities. Those cities can concentrate challenges and risks—but they can also incubate solutions.

Inequality weakens resilience. Economic inequality and social injustice weaken the bonds that are key to community resilience—and place the most vulnerable people at greatest risk.

Sustainability is resilient. The changes we must make to live more lightly on the Earth—renewable energy; sustainable, local agriculture; walkable, transit-friendly neighborhoods—would also make our communities more resilient to disaster and disruption.

Resilience is an idea with potentially transformative power. The need for resilience could spark transformative changes in American cities. But the transformative potential of resilience is far from assured: If resilience is conceived simply as "bouncing back" from disaster, it could serve to reinforce the inequitable, unsustainable status quo.

For a truly resilient future, mitigate climate change. We must adapt to the now inevitable ravages of a changing climate. But the worst projected impacts may surpass our capacity to adapt—especially for vulnerable communities. True resilience, then, calls for redoubled effort to reduce greenhouse gas emissions and mitigate climate change.

We can—and must—take action. Turbulent times present us with extraordinary opportunities to reshape the cities so many of us call home. In the pages that follow, you will find many ways to think about that challenge. And, importantly, you will find calls to action.

In the years to come, the Island Press Urban Resilience Project and its partners will continue to advance transformative approaches to resilience, grounded in a commitment to sustainability and equity. We will lift up new voices, and help imagine and inspire the cities of the future. We invite you to join the conversation at www.islandpress.org/URP

Introduction to Resilience

Is "Resilience" the New Sustainababble?

Laurie Mazur and Denise Fairchild

Originally published January 14, 2015 on Grist.com

Suddenly, "resilience" is everywhere. It's the subject of serious books and breezy news articles, of high-minded initiatives and of many, many conferences. After Superstorm Sandy, it was triumphantly plastered on city buses, declaring New Jersey "A State of Resilience."

What's going on? Does all this talk about resilience mean that we've basically given up on averting climate change and other environmental catastrophes—and that our only hope is to roll with the punches? Have we leapfrogged over denial, anger, and bargaining, landing squarely in acceptance?

Not necessarily. Resilience, like sustainability before it, is an idea with potentially transformative power. Resilience is all about our capacity to survive and thrive in the face of disruptions of all kinds. If we were to take resilience seriously (highly recommended in our increasingly disruption-prone world), we would make some far-reaching changes in how we live.

A truly resilient city would look very different from those we now inhabit—in ways that would make Grist readers proud. For example, our resilient city would:

- Rely on distributed, renewable energy, rather than on the ridiculously vulnerable centralized grid—so that a disruption in one area doesn't mean lights out for everyone.

- Support diversified local agriculture, so that when supply chains are cut off, we can continue to eat.

- Foster social equity and inclusion, so that the greatest risks are not dumped on the most vulnerable communities.

- Reduce greenhouse gas emissions, because the worst projected impacts of climate change are simply more than we can adapt to.

Or at least that's what resilience *should* mean. But right now, the meaning is up for grabs. And it seems that resilience might be following the same trajectory as "sustainability." That concept shaped the thinking of a generation of enviros, and laid the foundation for real improvements in energy efficiency, recycling, and more. But it has also been co-opted to cover up distinctly *unsustainable* practices, mutating into what Bob Engelman of the Worldwatch Institute calls "sustainababble." After all, it is more profitable to *pretend* to be sustainable than to actually be so.

Now the co-opters are hard at work on "resilience." For example, the pollutocrat-friendly American Enterprise Institute, which opposes efforts to reduce greenhouse gas emissions, promotes instead what it calls the "resilience option" for climate change. (In essence: Deal with it.)

Aside from out-and-out co-optation, there is a danger that resilience will be defined too narrowly, and deprived of its power to transform. Too often, resilience is simply seen as *bouncing back* after disaster (let's build *bigger* beach houses on the Jersey shore!) or as protecting the status quo (the Stafford Act, which funds federal disaster response, requires that everything be built back exactly as it was before).

You could say that "sustainability" was hollowed out by co-optation, but also by a failure of imagination. We enviros haven't really mounted a challenge to an economic system based on growth and profit at all costs, and we have missed opportunities to join forces with others challenging that system. If "resilience" is just about making that system stronger, it, too, will ring hollow.

So, is resilience the new sustainababble? It doesn't have to be. The need for resilience could jump-start significant changes in our built environment, our relationship with the natural world, and our relationships with one other. But to seize that opportunity, we need to get real about what resilience is—and what it isn't.

Meet Obama's Chief Resilience Officer

Laurie Mazur

Originally published February 25, 2015 on Grist.com

Harriet Tregoning, a rock star in the world of smart growth and urban planning, took the helm of HUD's Office of Economic Resilience (OER) last year. Formerly known as the Office of Sustainable Housing and Communities, OER helps cities, towns, and counties build a strong foundation for a diverse and prosperous economy by enhancing quality of place, economic opportunity, fiscal stability, transportation choice, and affordability.

Before joining HUD, Tregoning was director of Washington, D.C.'s Office of Planning, where she worked to make D.C. a walkable, bikeable, globally competitive, and sustainable city. She was the director of the Governors' Institute on Community Design and cofounder, with former Maryland Gov. Parris Glendening, of the Smart Growth Leadership Institute. She served Glendening as both secretary of planning and then as the nation's first state-level cabinet secretary for smart growth.

Tregoning is also an avid bicycle commuter, who really wishes that someone would invent a foldable bike helmet.

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Q. Throughout your career, you have worked under the banner of smart growth and sustainable development. How is resilience different from those two concepts?

A. Resilience is really focused on shocks and stresses. While not geared toward any single shock or stress, resilience is part of a recognition that the future is going to be considerably different than the past.

Resilience favors diversity. It favors more choices. It favors innovation. It favors social connectedness and cohesion. It must focus on the most vulnerable geography and the most vulnerable people, because how people fare in the event of a shock of some kind is extremely different based on whether they have the resources to bounce back.

Resilience can be thought of as a place-based attribute, but places don't have these qualities unless they are very deliberate about it. It's almost never the automatic byproduct of a laissez-faire market-based system.

Communities have to decide what kind of future they want to have, and then they have to make very difficult and deliberate changes to get these sustainable smarter-growth outcomes. That's absolutely true for resilience as well. The better and more inclusive the process, the better the outcome.

There is a lot of overlap: Many of the things that make a community walkable, livable, economically competitive, sustainable, and equitable will also make that community resilient. For example, those transportation choices that make you so attractive to the knowledge economy are awfully helpful when you have to evacuate your community.

Q. Because they're more diverse—so if one goes down, others are still functioning?

A. Yes. It's that, but it's also an issue of capacity. We haven't sized any of our infrastructure so that everyone can go in the same direction at once, by any mode. If you have bike lanes and bicycles and lots of people used to taking them along with transit, then you really have a lot more capacity. Think of Houston after Hurricane Irene. Some of the biggest-sized highways in the country, and it was a parking lot. In the weeks after Hurricane Sandy, your most viable way to get around was by bike.

Those things that make for a walkable, wonderful, livable community every day also stand you in good stead in terms of resilience.

Q. **When you think about what makes people and communities resilient, it seems the answer is both broad and deep. There's a broad array of factors that matter: social, environmental, the built environment. There are deep-rooted issues, as you said earlier, that have to do with people's differential vulnerability to disaster. How do you address this issue in a way that's appropriately broad and deep and still get stuff done?**

A. To get specific, we're running a $1 billion National Disaster Resilience Competition. We are partnering with the Rockefeller Foundation, which is putting $5 million worth of technical assistance into the first six months of the competition. They've been doing a series of "resilience academies" around the country to help the applicants think broadly and deeply about resilience.

In the academies, a lot of focus has turned toward underlying conditions: poverty, segregation by race and income, unemployment, and lack of access to the basic needs of life—such as jobs, health care, and educational opportunities. Addressing those fundamental conditions is an important part of making a community more resilient. The resilience frame has been demonstrably useful in raising these issues that have sometimes been very hard to address.

The notion that is also very much a part of this competition is that resilience isn't just about preparing for some future unexpected event. It's about investing in your community in a way that brings you benefits every single day.

Why would we ever again build a berm or a levy if a waterfront park would give us the same protection from flooding? That waterfront park is a community amenity. It might help to revitalize a distressed neighborhood. It provides those benefits every single day.

We really can't afford to build single-purpose investments when we have such great needs in so many communities. It's about how do we get the most out of every dollar that's spent and how do we bring the greatest number of benefits out of these investments?

Our hope for this competition is that everyone comes to see that the real money isn't our $1 billion but the many billions of dollars that states and localities are spending every year, and how that money could also be invested differently to give them resilience benefits and dividends that they're not currently receiving.

Q. You're a seasoned veteran of debates over revitalization and gentrification. Of course, some have argued that the creation of bikeable, walkable, green downtowns has come at the expense of displacing long-time low-income residents. How do you see that concern, and is this an issue that surfaces again in the resilience work?

A. I always find it so interesting, the notion that if you invest in a neighborhood, that's a bad thing. That our strategy for affordability should be a disinvestment strategy. No amenities, no choices, no access—that's our affordability strategy.

That on its face doesn't seem remotely reasonable, but at the same time it is true that communities and neighborhoods with these kinds of amenities are in short supply relative to the demand. Those neighborhoods become more desirable with those amenities, but they're also desirable to the people who already live there.

As I was saying before, you don't get a walkable, livable, sustainable community automatically as a byproduct of the free market; you have to be deliberate about it. You have to also be deliberate about ensuring permanent long-term affordability in those neighborhoods. You can do that by using zoning controls, by ensuring that your subsidies are in place, by using the property you own as a locality to guarantee long-term affordability.

Q. When I look at what needs to be done to make communities more resilient, it seems that there are some fairly major changes that need to be made. Where will the push to make those kinds of changes come from?

A.   Some of it comes from the shock of the events themselves. It's the 10-year anniversary of Hurricane Katrina this year. We've had some very big and costly disasters in the last 10 years. There were more than 200 presidentially declared disasters just between 2011 and 2013. Hurricane Sandy, in particular, was the second most costly disaster we've ever had. It affected the East Coast in a way that was, frankly, shocking to the communities and the states that were so impacted.

I think every event is an opportunity for people to say, "Wait a minute. We weren't prepared, and this could happen again. How can we get more prepared?" I think people are getting more sophisticated. Whatever the next event will be, it won't be exactly like the one we just had. How do we more broadly prepare for this more uncertain future, this more extreme weather, these rising sea levels?

That conversation doesn't necessarily happen in the immediate wake of disaster. It's actually an awfully hard conversation to have right after a disaster because it's the normal human impulse to want to try to return to the previous state as soon as you can. You want to feel normal again. You want things to return to where they were.

It either takes a prepared mind before a disaster or some amount of time to have passed before you're ready to say, "Wait a minute. We have a lot of long-term recovery resources coming to our community. We need to do better than just building it back as it was."

Q.   **Any final thoughts?**

A.   I do think that climate change is one of the most enormous challenges of our time. I don't always talk about climate change when I talk about resilience, but those two things are very closely linked, at least in my mind.

I feel like it's a great privilege and honor to be able to have any role in addressing those issues. I'm trying to bring everything I've learned in all my many other jobs to bear at this moment, grappling with this set of issues.

7 Ways to Talk About Climate Impacts with Just About Anyone (Yes, Even Republicans!)

Cara Pike

Originally published March 20, 2015 on Grist.com

Climate change remains a polarizing issue in Washington, where members of Congress engage in endless, Groundhog Day-like debates over the (settled) science, instead of taking action.

But, out beyond the Beltway, many Americans are waking up to the reality of a changing climate. Unfortunately, that's largely because of ever-more-frequent extreme weather events, changes in growing seasons, and other impacts. Yet those impacts present an opportunity to start a dialogue—even with those who don't necessarily believe in human-induced climate change.

The key, my colleagues and I have found, is to focus on *preparedness*. Quite simply, it makes good sense to prepare for—and to reduce the risk of—climate impacts. Here are a few pointers on how to get the conversation started, drawn from a new report by my group, Climate Access:

1. **Preparation is practical.** Most Americans agree that when it comes to extreme weather—regardless of what is causing it—it's better to be safe than sorry. People not only support the idea of preparedness, they are willing to take action to protect themselves and their communities. Rather than continue to debate the science, talk about practical steps we can take to reduce risk, and about the economic, community, cultural, and other benefits of being prepared.

2. **Uncertainty does not justify inaction.** We don't know exactly how climate change will play out in our communities, but that

doesn't mean we should do nothing. After all, we buy auto insurance even though we are not 100 percent sure we'll wreck our car. So, if there is even a small chance of a devastating climate impact, and there are steps we can take to prevent or prepare for the event that pay off in other ways, why not do so?

3. **Meet people where they are.** Don't lead with climate change if it will alienate your audience. Instead, start with what stakeholders care about and answer the question, "What does this mean for me?" Focus on local, observable impacts. For people in coastal communities, flooding looms large. For farmers, it may be water availability. For low-income people in vulnerable communities, equity concerns such as involvement in decision-making and access to assistance during storm events might be top of mind.

4. **Emphasize prevention.** Promote emissions reductions as a preparation strategy. Heading off the worst impacts is the most effective step we can take to reduce risk, not just respond to it. Point out the human and financial cost of inaction: Given the trend lines, the challenge will only be more difficult and costly if we wait.

5. **Talk about co-benefits**. Emphasize solutions that make sense regardless of climate disruption and provide multiple benefits. For example, forested parks can reduce the urban heat island effect and sequester carbon while providing recreation, health, and beautification benefits for communities.

6. **Highlight success stories.** Across the country—in red states and blue states—leaders are taking action to prepare for climate impacts. While Portland and New York may spring to mind when it comes to local climate leadership, communities such as Indianapolis, Ind., and Tulsa, Okla., are also taking steps to prepare, and seeing economic and security returns. Highlight the benefits of solutions that have already been implemented and link those to a realistic, yet hopeful, vision of what else can be done.

7. **Connect to values.** People assess risk and take action based on their values, worldviews, and identities—not just on the "facts." That's why it's important to connect to deeply held, nonpartisan values like protection, responsibility, ingenuity, stewardship, and fairness.

Adopting a preparation approach is not just about finding the right language to use. In the risk-communication field, there is evidence that people respond best when they are working together to explore risks and potential solutions, rather than having the risk and response strategy prescribed for them.

Community engagement must start early in climate planning, be focused on creating a two-way conversation and decision-making processes, and be as inclusive as possible. Engaging the community isn't just a nice thing to do, it's also a smart thing to do—because incorporating a diverse range of worldviews, knowledge, and skill bases into problem solving leads to innovative solutions and creates a strong voice for policy change.

Many leaders in Congress continue to debate the cause of climate change, but climate impacts are happening here and now. Americans are ready to take action to protect themselves and their communities. By focusing on preparedness, we can fully engage Americans—*all* Americans—in crafting solutions to the greatest challenge of our time.

When the Pope, the President and Top Health Experts Agree, Maybe It's Time We Listened

Jennifer Miller, PhD

Originally published June 24, 2015 in The Hill

The president of the most powerful nation in the world, the leader of a major world religion, and one of the most prestigious peer-reviewed medical journals agree: Climate change is a major threat to human health, and immediate action is critical.

That message was central to Pope Francis' encyclical, released earlier this month. It is echoed in a new report by the UCL/Lancet Commission, and in last week's White House summit on climate and health, led by Surgeon General Dr. Vivek Murthy.

For those of us who work in public health, this consensus comes as no surprise; we are already seeing the impacts of a changing climate. We're seeing more heat waves, wildfires and extreme storms, with resulting increases in heat stroke, asthma, injuries and mental trauma. Ragweed seasons are longer and stronger – bad news for allergy sufferers. Dengue fever and Lyme disease are cropping up where they've never been seen before.

Increasingly, medical and public health professionals recognize climate change as a health problem. Organizations such as the American Academy of Pediatrics, the American Public Health Association, and the American Nurses Association have put out position statements on climate change. So has the California State Parent Teacher Association, because of the growing impact on children's health and their futures.

Hospital and health care systems are taking on climate change, too, committing to hospital "greening", and in some cases even divesting from fossil fuels, as part of medicine's ethical commitment to "first, do no harm."

Many of the steps we must take to limit climate change will have broader health benefits. For example, reducing carbon pollution from power plants will give us cleaner air and healthier lungs.

Making our communities more walkable to reduce greenhouse gas emissions from cars is good for health, too, because it makes it easy for people to incorporate physical activity into their everyday lives. For years, we've been encouraging people to eat less red meat and more fresh fruits and veggies to reduce heart disease and diabetes, but it would also reduce greenhouse gas emissions from our farms.

These changes would not only improve people's health; they'd also save money—reducing costs from ER visits and hospitalizations, lost work and missed school. In fact, one of the core principles of public health is prevention – create communities and a society that helps prevent people from getting sick in the first place. Given the health impacts we're already seeing from climate change, and the climate change that's already locked in, taking steps to reduce greenhouse gas emissions is critical.

Religion, politics and medical science rarely agree on anything. So when the president, the pope and the Lancet Commission are all sounding the same alarm, it is time to stop debating the problem and start working on solutions.

The Legal Consequences of Ignoring Climate Change

Edward Thomas and Laurie Mazur

Last month, in a case that sent shivers through corporate America, a former peanut-company executive was sentenced to 28 years in prison for his role in a deadly salmonella outbreak. The executive, Stewart Parnell, knowingly shipped contaminated peanut butter to stores across the country. Nine people died and hundreds more were sickened.

Parnell's punishment was unprecedented for a foodborne-illness case. But it signals an important shift in the prevailing legal winds: More courts are holding people to account for failure to prevent harm. Increasingly, corporate and civic leaders face stiff civil—and potentially, in the most egregious situations, criminal—penalties when they endanger others.

It's a shift that has important implications for local decision-makers—the public officials, developers and property owners who shape the places where we live and work. As our largely ill-prepared cities and towns confront an uncertain and changing climate, those decision-makers may be held accountable for development that puts people in harm's way.

Here's why. The law, in theory if not always in practice, encourages responsible behavior based on a "standard of care" as exercised by an individual, agency or corporation. People with special capabilities, such as engineers or architects, are held to an even higher standard of care.

Typically, when someone breaches a duty of care and others suffer harm, civil litigation is the legal remedy of choice, and the harm is most often offset with monetary damages. Today, we are seeing more litigation over actions that result in foreseeable harm.

For example, Des Moines Water Works recently sued the leaders of three upstream farming counties for failing to keep nitrates out of the water supply. The lawsuit alleges that the counties' voluntary measures to reduce nitrate pollution have failed, forcing the utility to filter water at considerable public expense.

In the Des Moines case, county officials knew they were missing the mark on nitrate pollution. But other cases have found civil liability when responsible parties *unknowingly* made a mistake. For example, lenders and corporations that read FEMA flood-insurance maps incorrectly have historically escaped liability, even when their mistakes result in uninsured losses for homeowners. But that changed in 2008 with a federal appeals court ruling that allowed a Mississippi couple to sue a company that determined that their property was not in a federal flood zone and therefore didn't need flood insurance. Their home was inundated by Hurricane Katrina.

Could local officials be held accountable if they fail to protect their citizens from climate disaster? Recent federal rulings suggest that they could. Notably, in May of this year, the Court of Federal Claims found the U.S. Army Corps of Engineers liable for damage caused by flooding from Katrina and other storms. Judge Susan Braden ruled that the corps' failure to properly maintain the Mississippi River-Gulf Outlet exacerbated flood damage, depriving landowners of the use of their homes. Federal flood-control projects usually enjoy immunity from liability, but in this case the government's negligence was found to be an unconstitutional "taking" of citizens' property.

Failure to prevent climate disaster could even, in the rarest and most egregious circumstances, result in criminal charges. Even if someone does not deliberately intend to cause harm, they may be accused of a crime if they act in a manner that leads to serious harm or loss of life. Such was the case last year when James Pflueger, the owner of a dam in Hawaii, was indicted for common law murder. Pflueger's failure to safely maintain the dam resulted in a catastrophic 2006 breach that killed seven people. (The case was eventually dropped due to Pflueger's advanced age and his willingness to pay considerable restitution to the victims' families.)

Decision-makers who fail to ensure climate-safe design and construction could find themselves in similar straits. Most American cities and towns

are sorely unprepared for the *current* climate, and even less prepared for future climate-change impacts. Some municipal governments have made significant contributions to adaptation planning and implementation, but generally there remains a troubling and ever-increasing gap between climate-related vulnerabilities and local preparedness. According to a 2011 survey, only 13 percent of U.S. cities had even completed an assessment of their vulnerabilities and risks.

Failure to prepare is not a victimless crime. In unprepared communities, people will suffer vast, preventable misery. Families will lose their homes. Lives will be lost. Public treasuries will be drained, leaving fewer resources available for education, infrastructure and other public needs. And those who suffer will seek justice.

At its core, government exists to prevent us from harming each other. When government fails in that duty, the victims may well seek to share their misery with all who have contributed to their misfortune. Decision-makers who ignore the threat of climate change, take note: Whether at the gates of St. Peter's or before a judge, you may be called upon to answer for your actions.

Building for Resilience Makes (Good Business) Sense

Sarene Marshall

Katrina. Sandy. Joaquin. Patricia. If it seems to you that weather-related disasters are on the rise, you're not mistaken: the number of such disasters in North America has nearly quintupled since 1980. That's because a changing climate brings more extreme weather, and because more people and property are in harm's way than ever before.

These disasters—from drought and wildfires to hurricanes and flooding—are spurring forward-thinking architects and developers to "build for resilience." A new report from the Urban Land Institute (ULI) shows that building for resilience makes sense for people, for the planet—and for the bottom line.

Building for resilience means following emerging best practices in land use, design, and construction to protect buildings—and their inhabitants—from climate risks. The ULI report, *Returns on Resilience: The Business Case* offers ten case studies of projects that have adopted this approach.

Consider, for example, the Spaulding Rehabilitation Hospital in Boston. When Partners Healthcare set out to build the new hospital a decade ago, it chose a site on the Boston waterfront, where patients could engage in water sports, including kayaking, as part of their rehab program. But, just as planning began, Hurricane Katrina struck New Orleans and dozens of patients died in that city's hospitals because of flooding and systems failures—a catastrophe that forced Spaulding to rethink the project.

Determined to prevent a similar disaster, the Partners team built Spaulding to withstand intense storms, flooding, and power loss. They raised the hospital's first floor well above the 500-year flood level, and all

mechanicals—boilers, chillers, air handlers—are installed in a penthouse so they can operate during a flood. Backup generators are fueled by diesel from a flood-proof vault.

Importantly, the building is designed to save energy, so it's easier to provide backup power when the grid goes down. High-efficiency mechanicals, a gas-fired "cogeneration" system, and a super-insulated building envelope reduce Spaulding's energy use to half that of comparable facilities.

Resilience measures raised the cost of the project—adding $1.5 million to the hospital's $225 million price tag. But the investments quickly paid for themselves. Nearly half the cost was offset by utility company rebates. And energy efficiency shaves $500,000 a year off the hospital's operating costs. Moreover, resilience measures have contributed to a beautiful, comfortable building that offers priceless peace of mind to patients and staff. Perhaps as a result, Spaulding has a long waiting list of patients seeking treatment.

Spaulding's experience is not unique. Case studies in the ULI report include 1450 Brickell, a Miami office tower built to withstand hurricane-force winds and flying debris. The building's high-tech glass windows also deflect heat—saving the building owners $1 million a year on electrical costs. Resilience measures—including two backup generators—help explain why 1450 Brickell was quickly fully leased, while comparable properties remained only half occupied.

As shown by the previous examples, and the others included in the ULI report, sustainability and resilience make good partners. Design and construction choices that can qualify a project for LEED certification do double duty for resilience and triple duty for the project's bottom line. Sturdy, insulated building shells protect against storms while saving energy and reducing electricity bills. Installing green roofs, recycling graywater, and using cisterns can help conserve precious water during historic droughts and generate regular savings on water bills. Sustainability and resilience efforts, working in tandem, can reduce a project's negative effect on the environment, including curbing climate-changing greenhouse gas emissions.

At the same time, resilience makes a property more attractive. Projects built and maintained with resilience in mind enjoy greater marketing, sales, and leasing success. More resilient projects also benefit from better financing options, more competitive insurance rates, greater long-term savings on maintenance, and higher overall value compared to more vulnerable properties.

And yet—despite all of these advantages—building for resilience is not yet standard operating procedure in the United States. Why not?

Building codes are one issue. City planning and construction codes evolve slowly; they often reflect historic dangers rather than emerging threats. But, in a changing climate, "building to code" might not be enough to safeguard people and property.

And, among builders, planners, and investors, there are still many who take a short-sighted view of building costs. Yes, building for resilience entails greater up-front expenditures. But those costs are quickly recouped, and the payback—in protection and profits—is enormous.

That's why, as we face an uncertain future in a changing climate, there is no reason not to build for resilience.

Resilient Communities

Here's Why Climate Advocates Should Love Obama's Community College Plan

Denise Fairchild

Originally published February 21, 2015 on Grist.com

We already know that President Obama's proposed federal budget is full of goodies to fight climate change.

But there are climate benefits hidden in other parts of the budget, too—notably, in the president's proposal to make community college education available tuition-free for millions of students.

Why should climate advocates care about community colleges? Because these colleges are building the knowledge and skills we need to create a sustainable, resilient future.

Hundreds of community colleges have formally committed to train students on the importance of sustainability, and to prepare them for green jobs. The American Association of Community Colleges' Sustainability Education and Economic Development Center helps community colleges deliver best-in-class programs, including a resilience training toolkit and sustainability curricula across all disciplines.

Community colleges are also greening their campuses and, in the process, creating living laboratories for sustainability. By merging campus facilities management with academic study, they are reducing their carbon footprints, saving taxpayers money, and providing experiential learning opportunities for students. For example, Laney College in Oakland is building a state-of-the-art green campus facility that will be used to develop curricula in sustainable building operations.

And community colleges strengthen social resilience by getting students involved in local problem-solving. The Democracy Commitment, as just one example, is a national effort to engage community college students in civic learning and democratic practice. And the Community Learning Partnership (CLP), a sponsored project of the Emerald Cities Collaborative (ECC), helps faculty and students collaborate with community-based organizations. One CLP initiative—a partnership between the Los Angeles Trade–Technical College and the nonprofit Community Development Technologies Center—enables residents of South L.A. to earn college credits by promoting energy efficiency in their communities.

Finally, community colleges serve as "anchor institutions" in their communities (they are *anchored* because—unlike fickle industries—they are not going anywhere). As such, they can use their purchasing power to build community resilience by encouraging urban food production and creating local jobs. (For more on how to harness the power of anchor institutions, check out the Evergreen Cooperatives in Cleveland, Ohio. Evergreen's employee-owned, for-profit companies—greenhouses, a laundry, and a clean energy service company—tap into the purchasing power of large community-based employers to supply critically needed green products and services for these institutions, as well as the larger community.)

As anchor institutions, community colleges can also help the most vulnerable communities mitigate and adapt to climate change. For example, colleges can use their energy and real estate assets to deliver back-up and alternative energy to the surrounding community. And, as trusted community institutions, they can offer safe havens during disasters. Another recently formed ECC collaborative, Anchors for Resilient Communities, is working with foundations, nonprofits, and community-based institutions in the Bay Area to explore similar strategies.

Finally, community colleges could bring climate resilience to lots of new places and people. These colleges are in urban and rural communities, and in red and blue states—with the largest systems in Texas, North Carolina, and Illinois as well as California and New York. Many are rooted in communities that are among the most vulnerable and least resilient to climate impacts.

There are plenty of reasons to support President Obama's community college plan. But this is definitely another one: Community colleges could offer a kind of one-stop shop to build America's economic, social, and physical resilience.

More Than a Drafting Error: Why Scott Walker Is Wrong

Denise Fairchild

Originally published March 11, 2015 in The Huffington Post

Scott Walker, the Wisconsin Governor and Republican Presidential hopeful, recently took a calculated swipe at his state's university system. First, he proposed to cut the system's budget by $300 million. Then—adding insult to injury—he edited the university's century-old mission statement, deleting its charge to "educate people and improve the human condition" and "serve and stimulate society." Instead, according to Walker, the university should stick to the narrower goal of meeting "the state's work force needs."

Walker's attack on state universities may have been a naked attempt to curry favor with his party's right wing. And, when it backfired, he backpedaled—saying that the altered mission statement was merely a "drafting error."

But this was no mere drafting error. Walker's proposed cuts and clumsy edits reflect a desire to scale back investment in public higher education, which is pervasive on the right. It's an astonishingly shortsighted view. At a time when a college degree is the surest ticket to middle class life, and private colleges are unaffordable for most, cutting funds for public universities will limit the horizons of countless young men and women.

And there is another reason why defunding higher education is the wrong thing to do right now. As we face the mounting threat of climate change, public colleges and universities can help us build the knowledge and skills we need to create a sustainable, resilient future.

Coping with climate change requires an all-hands-on-deck effort. We need to make the transition from carbon-intensive energy to sustainable alternatives. And we need to strengthen our communities' resilience in

the face of extreme weather events and other disruptions. Public colleges and universities—especially the nation's 1,132 community colleges -are stepping up to these challenges.

Hundreds of community colleges have formally committed to train students on the importance of sustainability, and to prepare them for green jobs. The American Association of Community Colleges' Sustainability Education and Economic Development Center helps community colleges deliver best-in-class programs, including a resilience training toolkit and sustainability curricula across all disciplines.

Community colleges are also greening their campuses and, in the process, creating living laboratories for sustainability. By merging campus facilities management with academic study, they are reducing their carbon footprints, saving taxpayers money, and providing experiential learning opportunities for students. For example, Laney College in Oakland is building a state-of-the-art green campus facility that will be used to develop curricula in sustainable building operations.

And community colleges strengthen social resilience by getting students involved in local problem-solving. The Democracy Commitment, as just one example, is a national effort to engage community college students in civic learning and democratic practice. And the Community Learning Partnership (CLP), a sponsored project of the Emerald Cities Collaborative (ECC), helps faculty and students collaborate with community-based organizations. One CLP initiative - a partnership between the Los Angeles Trade -Technical College and the nonprofit Community Development Technologies Center - enables residents of South L.A. to earn college credits by promoting energy efficiency in their community.

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As anchor institutions, community colleges can help the most vulnerable communities mitigate and adapt to climate change. For example, colleges can use their energy and real estate assets to deliver back-up and

alternative energy to the surrounding community. And, as trusted community institutions, they can offer safe havens during disasters. Another recently formed ECC collaborative, Anchors for Resilient Communities, is working with foundations, nonprofits and community-based institutions in the Bay Area to explore similar strategies. Clearly, public colleges and universities have an important role to play in building community resilience to climate change. By slashing funding for these institutions, Scott Walker and his cronies will not only shortchange a generation of young Americans, they will also constrain our collective capacity to cope with a changing climate.

At the other end of the spectrum, President Obama has proposed a bold new plan to make community college education available tuition-free for millions of students. Unlike Walker et al., Obama understands that public colleges and universities have a mission to "educate people and improve the human condition" and "serve and stimulate society." In the era of climate change, that mission is more important than ever.

After Disaster, Tactical Urbanism Builds Resilience

Mike Lydon

When two major earthquakes hit Christchurch, New Zealand in 2010 and 2011, this coastal city of 400,000 was all but destroyed. What remains—historic facades propped up by shipping containers, buildings crumbling in on themselves, razed blocks covered in well-mowed grass—looks as though multiple post-apocalyptic movie sets were placed side by side.

But, walking around post-disaster Christchurch, it becomes clear that the earthquakes also shook loose a deep reserve of creative talent. Soon after the quakes, activist groups like Gap Filler and Greening the Rubble began developing temporary projects designed to bring community life, joy, art, and commerce back to the decimated city center.

In this way, Christchurch has become an epicenter of tactical urbanism – a strategy that harnesses the ingenuity and spirit of communities to improve city life. Tactical (also called emergent, adaptive, and user generated) urbanism deploys a broad range of short-term, low-cost, scalable interventions. It is audacious—breaking through the gridlock of planning processes and responding to city-dwellers' needs in real time. City dwellers around the globe are using these strategies for everything from guerilla wayfinding to pop-up retail and DIY traffic calming.

And, as I learned on a recent trip to Christchurch, tactical urbanism really shines in times of crisis. As I toured the city, I got to see the stunningly simple Cardboard Cathedral, built as a temporary replacement for the city's badly damaged 19th-century cathedral. I lingered in a community gathering space called The Commons, which until recently included the Pallet Pavilion, a venue for live music constructed entirely of wooden shipping pallets. Throughout the city, I encountered community gardens,

bike repair kiosks, container markets, streetscape installations—and even a mini-golf course spread out across the rubble. What struck me about these projects was their variety, but also their human scale, use of recycled material, and their "world made by hand" aesthetic.

Developed by artists, organizers, academics, developers, small business owners—and yes, even architects and planners—small-scale projects emerged as the dominant paradigm for remaking the city while the Crown government got its house in order. Together, these projects proved that social networks could mobilize faster than any government agency (though the city's local government deserves much credit, for investing in grassroots groups and giving them wide berth.)

What has transpired in Christchurch over the past four years is nothing short of remarkable. These projects have mobilized the ingenuity of the city's people. They created precedents for open and participatory city planning. And importantly, they helped the city heal by bringing people together—drawing residents and visitors back into the physical and cultural heart of the city.

In this way, tactical urbanism has also made the city more resilient. An emerging body of literature shows that resilient cities are characterized by innovation, participatory governance, and strong social ties—all of which are celebrated and strengthened by tactical urbanism.

Today, as Christchurch begins to rebuild in earnest, the fate of its quirky, post-disaster projects remains unclear. The City and the Crown-appointed rebuilding authority (CERA) are moving forward on a recently completed master plan. Dollars—big dollars—are flowing into the city, as evidenced by the half dozen cranes and roadwork projects seen around nearly every corner.

While the cranes and construction crews are a welcome sight in this battered city, let's hope they don't signal a return to the status quo ante. In the wake of disaster, the people of Christchurch mustered great creativity and solidarity—building their own resilience and that of their city. In a century that promises many shocks and surprises—from extreme weather events to financial crises and terrorism—that resilience will serve them well. And we have much to learn from their response to an extraordinary challenge.

Perhaps the work they accomplished has served its initial purpose, as an effective transition between what was and what will be. But maybe, just maybe, the upstart energy of tactical urbanism can be married to well-considered financial capital, and something altogether transformative will emerge and be sustained. We're all watching.

Riots and Resilience in Baltimore and Beyond

Denise Fairchild

> *What happens to a dream deferred?*
> *Does it dry up*
> *like a raisin in the sun?*
> *Or fester like a sore—*
> *And then run?*
> *Does it stink like rotten meat?*
> *Or crust and sugar over—*
> *like a syrupy sweet?*
> *Maybe it just sags*
> *like a heavy load.*
> *Or does it explode?*
>
> *-Langston Hughes*

I remember reciting this poem to my students in South Los Angeles two days before the 1992 civil unrest. Who knew then that the answer was imminent, with the reading of the Rodney King police verdict? INNOCENT!?? The city exploded in flames. Lives were lost. Billions of dollars' worth of property was destroyed. Businesses were shuttered forever. The dreams of aspiring Asian merchants were also crushed in a community uprising against persistent poverty and injustice.

What we witnessed in Baltimore was, in many ways, the same as in 1992 and in the recent string of events in Florida, Los Angeles, Ferguson and New York. It was certainly a response to dreams deferred—for too long, and for too many. It was also a provocation, a frontal assault against injustice. And—as the Humvees roll away and the volunteers finish sweeping up the broken bottles—it is a test of the city's resilience.

Resilience is a word we hear a lot lately, most often applied to communities devastated by the weather-related disasters (Sandy, Katrina) which have become increasingly common in the era of climate change. It also applies to cities, like Baltimore, that are reeling from civic unrest.

But what does resilience mean, exactly? How can our cities prevent—and recover from—disasters, whether natural or human-made? As we confront the existential threat of climate change in a world of widening inequality, it is a question with urgent relevance.

So, here are a few answers worth considering, gleaned from decades of work in community development and from the newer field of climate resilience. They relate to the three phases of resilience planning: mitigation, response and recovery.

- **Lesson one:** Mitigation matters. The best defense against any disaster is to anticipate and prevent it. For both climate disasters and civic unrest, we have the tools to do so—if we choose to act.

  Climate science enables us to isolate risk factors and predict the probability, frequency, location and degree of risks—such as melting ice caps, rising sea levels, hurricanes and tornadoes. This increasingly sophisticated science has driven many world leaders to work to mitigate climate change, by advancing policies, technologies and investments that reduce greenhouse gas emissions. The more prudent leaders also anticipate and prepare for the disasters that are now inevitable, by rebuilding infrastructure—transportation, communication, food and emergency response—to withstand extreme conditions.

  The social sciences provide a similar set of tools. We may be able to predict the next Baltimore or Ferguson by examining incarceration rates, or the depth and persistence of income, health and educational disparities. And we can mitigate future crises by confronting underlying issues: the lack of human rights, social justice and economic opportunity that crush the dreams of low-income people of color.

  If we have the facts, why are we not unified around and proactively working to remove the stressors that inevitably lead to

disasters? While the resilience of the African-American community is of almost mythic proportions, how can we not anticipate urban disturbances, given our long human history of exploitation and subjugation? The Baltimore disturbance was a predictable response to dreams deferred. The surprise, indignation and victim blame for the eruption was as egregious as the failure to try to prevent the disaster in the first place.

- **Lesson two:** Community preparedness is essential. What do we do when our levees or emotions break? How do we bring order to inevitable chaos and confusion after a disaster?

  The Baltimore story shows that ''hardening" tactics—fortifying police with rifles and riot gear—are not as effective as community-driven disaster management. While the arrival of the National Guard escalated an already tense situation, it was the people of Baltimore who stemmed the violence, sent home the rioters, cleaned up the streets, managed vehicular traffic, negotiated peace, calmed hysteria and provided factual vs. hyped media reporting.

  This has proven true in climate-related disasters, as well. Efforts to harden cities against disaster—for example, with levees and seawalls—can be effective, until they fail. At that point, community response can literally mean the difference between life and death.

  The key lesson here is that fortification is no substitute for community engagement and preparedness. In fact, it can provide a false sense of security, leaving communities unprepared for disaster. And yet, to our peril, we underinvest in equipping our communities to effectively engage in disaster response.

- **Lesson three:** Build resilience with cooperative economics. In Baltimore and beyond, we see that communities come together in crisis—crossing natural and artificial boundaries, including gang territories, generations, religion, race, ethnicity and geography. We can invest in this collective human capacity to not only rebuild what disaster destroyed, but to create a more generative and protected society.

"Cooperative economics" is one way to do so. Cooperative economic enterprises are organized to benefit workers, communities and consumers—not just to maximize profits for shareholders. As documented in Jessica Nembhard's book, *Collective Courage,* the African-American community has a special history with cooperative economics, which protected threatened communities from economic and social disasters and also helped them to thrive—at least until they were destroyed by threatened competing economic interests.

Today, the cooperative movement is re-emerging as one important response to building climate and urban resilience. Worker, food, housing and energy coops can help redefine, restructure and rebuild the economic, physical and social resilience of our communities. For example, the Evergreen Cooperatives of Cleveland, Ohio create green jobs that pay a living wage. Evergreen's employee-owned, for-profit companies—laundry services, urban agriculture and renewable energy—are linked to the supply chains of the city's anchor institutions, which helps keep financial resources in the community. Evergreen builds resilience by protecting workers from the vicissitudes of the global economy, and also by protecting the ecosystems on which the city depends.

The Baltimore experience offers important lessons in crisis mitigation, response and recovery. Those lessons are especially important in the era of climate change—as weather-related disasters are layered over long-standing crises of inequality and despair. And those lessons apply beyond the hardest-hit low-income neighborhoods. The fact is, climate change strikes at the core of our basic material and psychic needs. It affects our food and water supply, quality of life and health, livelihood and lifestyle and overall sense of safety, certainty and well-being. Climate change is manifesting as the American Dream deferred—for everyone.

And yet, Baltimore shows us that a dream deferred does not have to fester, dry up, sag or explode. It can be a regenerative tool. It can remind us of our human capacity for resilience in the face of all manner of disasters.

In Uncertain Times, Design for Community

Alec Appelbaum

When I think about climate change, I like to look at a photo of my daughter and her two dear friends—not just because of their sweet smiles, but because the photo offers an important clue to how we can design cities to thrive in uncertain times. We don't know exactly how climate change will play out, but two things are clear: Parts of our cities are in for severe stress. And we will have to get through it together.

Back when this picture was taken, I thought of the riverfront of New York City as a place to play; I often took my daughter and her friends down to the repurposed docks for concerts and picnics. That was before Superstorm Sandy slammed into the city and the East River busted its banks. That storm refined my thinking about life with climate change.

We had it radically easier than thousands of other New Yorkers—we only lost power for four days. But we shared with them a sense of uncertainty: When will lights come back on? What system might conk out next?

And now there is a larger sense of uncertainty about the future. Climate change has become a part of our lives, and we're likely to face a series of crises: storms that whip our coasts and droughts that parch our heartland—though we don't know when, or where, or how severely. It's this constant uncertainty that we will have to address in our urban designs.

We do know that, in times of crisis, friends and neighbors can play a vital role in helping each other cope. Like many New Yorkers, we did what we could after Superstorm Sandy—donating supplies to families in the Rockaways, and dropping off food at the public housing community down the block.

Urban design can support that kind of community spirit, by bolstering connections among neighbors. The peninsula community of Red Hook, in Brooklyn, responded to Sandy this way. The community plans to raise the usable space of waterfront buildings above street level, creating new space beneath those buildings for people to gather, get help, and simply socialize. (My daughter, who was six at the time, had offered a similar idea, but then she listens to me daydream a lot.)

In uncertain times, urban design should make public places more flexible, more reassuring, and more public. This is in tune with the history of urban experimentation. Cities are places where unlike-minded people share limited space. Their innovations—parks, skyscrapers, farmers' markets, Foursquare–result from experiments that tried to squeeze maximum benefit from a crowded place.

Even big-budget projects are trying to design in human connections to manage uncertainty. For example, the federal Rebuild by Design process commissioned design teams to work with neighborhoods on ways to make Northeastern cities' coasts less vulnerable to storm surge. The "BIG U," the project that drew the biggest plug of funding, is underway, creating a series of berms and slopes that serve as public parks while blunting wave action.

If this plan succeeds, the water will be something to explore and adore, not something to fear. And if the fear quotient goes down and the sense of public comity goes up, perhaps people will be more willing to invest the dollars—and make the hard choices—necessary to face an unstable climate.

And if that's right, then decades from now people can take pictures on the scenic bluffs overlooking the East River. And perhaps those pictures will show kids with the same peaceful confidence that comes from knowing you can count on your friends and neighbors.

Got Food? How Local Food Systems Can Build Resilience for Turbulent Times

Wendy Slusser and Laurie Mazur

Consider, for a moment, that lettuce leaf on your plate. It probably traveled a long way to get there—about 1,500 miles, on average.[1] In fact, your dinner has probably seen more of the world than you have: the average American meal contains ingredients from at least five countries outside the United States.[2]

The complex, globalized system that puts food on our plates is a technical and logistical marvel, delivering unprecedented quantities of food at historically low prices.[3,4]

But that system is surprisingly fragile. Its globe-spanning supply chains are easily disrupted and its vast monocultures are vulnerable to drought and disease.[5,6] And, because the system is entirely dependent on fossil fuels, it is subject to the shortages and price swings that afflict those commodities.[7]

New Yorkers got a firsthand look at the fragility of the food system when Superstorm Sandy pummeled the city in 2012. Days after the storm, trucks were still stranded on roadsides, unable to make deliveries. Some grocery stores saw their stocks destroyed by the storm surge; others lost power and trashed their perishable goods. Thanks to "just-in-time" supply chains that kept inventories to a minimum, shortages set in quickly.[8] As a result, hungry New Yorkers stood in line for hours, waiting for emergency supplies of food and water.[9]

Most New Yorkers weathered those shortages, and a massive crisis was averted. Still, Sandy should serve as a wake-up call. In the era of climate

change, our cities will face more monster storms, floods, and other extreme weather events.[10] At the same time, a wide range of natural and human-made crises—from epidemics to terrorism—have the potential to bring our food system to its knees.[11]

In these turbulent times, we need to make our food supply systems more resilient. Producing and distributing food on the local level could help us weather disruptions of all kinds.

Local food systems have taken root across the country in recent years, with a proliferation of farmers' markets, community-supported agriculture, and farm-to-table restaurants. There were more than 8,000 farmers' markets across the U.S. in 2014, up 180 percent since 2006.[12] Locally marketed food topped $6 billion in sales in 2012.[13]

As food author and activist Michael Pollan has observed, those smaller-scale local and regional food systems are better able to withstand shocks than their massive, globalized counterparts.[14] And because they are decentralized, local food systems offer less tempting targets to terrorists and saboteurs.

Local food systems support the resilience of people and communities in other ways as well. Because it travels shorter distances, locally grown produce is able to conserve nutrients better, making it more nutritious.[15] It also tastes better, which encourages people to eat more of it. Better nutrition means better public health—a cornerstone of disaster resilience.

And, while farmers growing for a global market must choose varieties that are uniform and ship well (hence the tasteless square tomatoes found in supermarkets year round), those growing for a local market can choose varieties for their nutrition and taste.[16] The greater crop diversity found on local farms means more nutritional diversity for consumers and more resilience to pests and drought.[15]

Local food systems also generate more jobs than conventional agriculture leading to increased economic resilience for communities. The U.S. Department of Agriculture found that produce growers supplying local and regional markets generate 13 full-time jobs for every $1 million earned, compared to just three jobs per $1 million for farms that do not serve local markets.[17]

Finally, by reducing the miles between farm and fork, local food systems limit greenhouse gas emissions. Food systems account for between 19 and 29 percent of emissions worldwide.[18] Reducing the carbon footprint of agriculture would go a long way toward mitigating climate change, which poses mounting threats to global food security.[19] Preventing the worst effects of climate change is a better resilience strategy than trying to adapt after it's already occurred.

So, local food makes all kinds of sense and is growing in popularity. But food grown for local markets still accounts for only 1.5 percent of U.S. agricultural production.[13] That's because the mostly small farmers who sell their produce locally struggle to compete with industrial farms whose economies of scale, hefty public subsidies, and sheer domination of the market enable them to sell their food more cheaply.

But with effort, those challenges can be overcome. One effective strategy is to create local "food hubs" that aggregate locally sourced food to meet demand. These collaborative enterprises enable small farmers to access wholesale, retail, and institutional markets they couldn't reach on their own. This strategy is catching on: the number of food hubs across the U.S. grew nearly threefold between 2007 and 2014.[13]

Communities can help by nurturing vibrant local food systems. For example, citizens in Placer County, California—a rapidly suburbanizing area with a rich agricultural heritage—took action to sustain nearby farms.[20] They created an agricultural marketing organization called Placer-GROWN that launched farmers' markets, festivals, and fairs featuring local produce, meat, and wine. PlacerGROWN educates the public about the benefits of local food and forges connections between the community and farmers. As a result, much of the county's best farmland has been protected from development, and in 2007, the county's farms, ranches, and vineyards generated almost $60 million worth of agricultural products.[21]

Others are bringing the farm to the city. In Milwaukee and Chicago, a group called Growing Power, Inc. has built state-of-the-art greenhouses in urban food deserts, engaging people from low-income communities in the production of nutritious food.[22] In Cleveland, the worker-owned Evergreen Cooperatives manage a sprawling greenhouse that provides jobs and fresh produce in an impoverished neighborhood.[23]

The scale of these efforts remains small, but history shows that local food production can ramp up quickly when it needs to. During World War II, Americans planted "Victory Gardens" to help the war effort and produced 40 percent of the vegetables grown in the U.S.[24] More recently, when food prices spiked in 2008—touching off riots around the world—many Caribbean countries invested in local agriculture to reduce reliance on imported food. It worked: today Antigua and Barbuda produce nearly half of their own food, up from only 20 percent in 2009.[25]

There are many reasons to embrace local food: it's healthier, it tastes better, and it's better for the planet. Here's one more: it can make us more resilient, in good times and bad.

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Not Waiting for Paris: Northern Manhattan Residents Develop Climate Action Plan

Aurash Khawarzad

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In December, world leaders will meet in Paris for the UN Climate Conference (COP21). Some say the fate of our planet depends on the outcome.

For local activists working on climate change, that's a chilling thought (even in a time of record breaking heat). The fact is, world leaders are not likely to deliver the changes that frontline communities need to prevent - and survive - the climate crisis. That's why we need to take action on our own, in our communities.

In the best-case scenario, the Paris conference will produce an international agreement that regulates global CO2 emissions. It may even provide scant resources for infrastructure and other improvements in "developing" countries. But no one expects that agreement to transform political and economic systems - and power dynamics - that cause climate change to have a disproportionate impact on poor and working class people.

To provide an alternative vision for climate policy, WE ACT for Environmental Justice has partnered with local residents to create the Northern Manhattan Climate Action Plan (NMCA), which emphasizes political and economic democracy as a means of achieving climate justice. By putting communities in charge of energy infrastructure, communications, governance and other key systems, advocates for justice can mesh climate change actions with efforts to eliminate poverty and build community. In this sense, the NMCA seeks to protect people - not just places and profits.

The plan focuses on four key areas:

1. **Energy Democracy:** Commonly owned and managed green energy infrastructure - such as cooperatively owned microgrids - can create more resilient energy systems, while providing much-needed capital for low-income residents. Tenant organizations and property owners can use shared space to house energy infrastructure and develop co-management systems that meet residents' needs.

2. **Emergency Preparedness:** Hurricanes Katrina and Sandy showed our lack of preparedness for severe weather events. To prepare for the next storm, we must revise design guidelines and other urban development policies to harden our infrastructure. At the same time, we must build new transportation systems, public spaces, urban gardens and other features that can reduce carbon emissions, address the urban heat island effect and create gathering spaces for democratic activity.

3. **Social Hubs:** To do this work, we need space. By building a network of temporary, semi-permanent and permanent spaces that can host meetings, store equipment/supplies and even incubate cooperatively owned enterprises - such as a restaurant, media production facility and/or food coop - community members will have centralized hubs to build social networks and produce/store physical resources.

4. **Participatory Governance:** To transform political and economic systems, we need to increase democratic participation. That means upping voter turnout, building partnerships with progressive legislators, educating constituents on political processes/theories, taking direct action and implementing proposals for public policies, developments, etc. At the same time, we must build systems of decision making that are open to all, regardless of class, race, gender, language, etc.

The four steps listed above seek to shift power dynamics so that local communities can play a greater role in producing their economy and built environment, while creating a new commons, in which life and equity are valued more than accumulating money and power.

Here in New York City, even in the De Blasio era, socio-economic inequality remains above the national average. But we have an opportunity to actually do something about it. The City government has set a goal of reducing CO_2 emissions by 80 percent by 2050. That will require a substantial investment, which some have put at more than $5 billion per year between now and 2050 - enough to create over 80,000 jobs annually. Depending on City policy, those employment opportunities and investments could go to dispossessed communities, which tend to be in the most geographically vulnerable areas, or they could wind up in the pockets of executives and corrupt politicians.

The stakes are high. The NMCA offers a blueprint for investments and social structures that would foster greater democracy. But, ultimately, we need deeper participation from residents to successfully confront power. We hope this plan is a meaningful step toward a future in which the power over our environment is in our hands.

Affordable, Multifamily Housing: Ready for the Next Storm?

Laurel Blatchford

When Superstorm Sandy ravaged New York in 2012, thousands of low-income apartment-dwellers found themselves in high-rise hell. Many lost power and heat—in some cases, for weeks. Lacking functional elevators, the elderly and disabled were stranded without food, water and medicine. Public housing was hit especially hard: more than 400 buildings managed by the New York City Housing Authority sustained flooding and other damage, affecting some 79,000 residents.

Now, as we approach the third anniversary of that devastating storm, it's time to revisit the lessons learned—and changes made—since then. If another disaster strikes, will the residents of affordable apartments stay safe?

To answer that question, Enterprise Community Partners and the U.S. Department of Housing and Urban Development (HUD) convened 300 leaders from the affordable housing and resilience communities at a symposium entitled "Ready to Respond: Building Resilience in Affordable Multifamily Housing Communities." The symposium, held at New York University on August 13, featured a keynote address from Harriet Tregoning, Principal Deputy Assistant Secretary at HUD, followed by two panel discussions with representatives from government agencies and housing organizations.

Panelists described an impressive array of public-sector efforts to support recovery and resilience in the wake of Superstorm Sandy—focusing on the particular challenges for affordable, multifamily housing.

Those challenges are daunting. Affordable apartments—both public and private—took a huge hit from Superstorm Sandy. But federal disaster

recovery programs, including FEMA grants, are typically geared toward owner-occupied single-family homes—which account for less than a third of residences in areas flooded by Sandy. That left building owners and managers in the dark (sometimes literally) about how to get help.

Looking ahead, there is clearly a need to bolster the resilience of New York's affordable multifamily housing, much of which is located in flood-prone areas. For example, simply moving boilers and other mechanical equipment out of the basement can prevent flood damage. But relocating mechanicals can mean the loss of apartment units—a big problem given New York's acute shortage of affordable housing.

And there are the challenges of retrofitting aging, fully-occupied buildings—including the question of how to pay for improvements without raising rents. Moreover, building owners who fail to meet the federal retrofitting requirements will be hit with much higher insurance premiums under the Biggert-Waters Act, enacted in 2012.

To address these and other challenges, the agencies represented at "Ready to Respond" have launched several initiatives:

- **Enterprise Community Partners**, with support from HUD, created the Ready to Respond Disaster Staffing Toolkit. The Toolkit addresses the urgent need for information on disaster planning and recovery for multifamily housing. It offers practical strategies to help affordable housing organizations of all sizes manage shocks from major disasters and develop the resilience needed to adapt to future emergencies.

- **HUD's $1 billion National Disaster Resilience Competition** helps communities that have been devastated by natural disasters build back stronger. In addition to providing direct support, the competition encourages state and local decision makers to consider resilience in all of their expenditures for new housing, infrastructure, parks and public buildings.

- T**he Governor's Office of Storm Recovery** launched the New York Rising Community Reconstruction program, a participatory recovery and resiliency initiative established to provide assistance to storm-damaged areas. Unlike traditional top-down

approaches to disaster recovery, NYRCR directly engages local residents and business owners in a democratic, bottom-up approach to rebuilding communities.

- **NYC's Department of Housing Preservation and Development** is incorporating resiliency measures into a broader set of preservation and affordability goals. Notably, the Multifamily Resiliency Retrofit Program is providing capital improvements and energy efficiency upgrades, in an effort to leverage disaster recovery funding to improve the city's affordable housing stock.

- **The New York City Housing Authority**—the nation's largest public landlord—is integrating resilience goals into its Next-Generation NYCHA strategic plan. NYCHA will deploy a $3 billion grant from FEMA (the largest FEMA grant in history) to repair and protect some 200 buildings—elevating boilers, installing flood barriers and standby generators. Where possible, NYCHA will install micro-grids, which can produce power for residents when the larger electric grid goes down.

Panelists also reported on critical lessons learned from these efforts. For example:

- **Seize the "collaboration dividend."** Partnerships across agencies and sectors produce outsized benefits, by leveraging the unique strengths and expertise of each partner.

- **Listen to the community.** No one knows a community's strengths and weaknesses better than residents themselves. For example, community-based organizations can help identify vulnerable residents—those on dialysis, or with limited mobility. That's why community input is the key to feasible, responsive resilience planning.

- **Make sure investments do double (or triple, or quadruple) duty.** Ensure that investments in housing yield multiple benefits—including resilience, sustainability, affordability, and economic vitality. For example, weatherization and efficiency measures can reduce energy costs for tenants and building owners, while making it more comfortable to "shelter in place"

during power outages. They can also provide jobs for community residents. And, as a bonus, those measures reduce emissions that contribute to climate change.

- **Don't plan just for the last event.** Sandy was a surge event, but the next emergency to affect New York City could be a windstorm, a terrorist attack or an epidemic. When allocating disaster recovery dollars, think of resiliency in broad terms, and apply available funds to measures that can enhance a building or community's resiliency to a wider range of climate—and other— impacts.

Much has been accomplished since Sandy, but more remains to be done. And the stakes are high: it is increasingly clear that a changing climate will bring rising seas, stronger storms and higher temperatures. Already, extreme weather events are increasing in frequency and severity: Between 2011 and 2013 the President declared major disasters in more than 2,100 different counties—over two-thirds of all counties in the nation.

Affordable multifamily housing, which shelters our most vulnerable citizens, must be ready to respond.

Choosing Hope in New Orleans

Rebecca Wodder

In 2006, six months after Hurricane Katrina devastated New Orleans, I toured the city's decaying wreckage with a delegation of national environmental leaders. Gruesome reminders were everywhere in the Lower Ninth Ward. On the walls of the remaining houses were spray-painted numbers, indicating how many dead bodies had been found inside.

After walking the destroyed neighborhoods, we flew over the area with experts from the U.S. Geological Survey. From the air, we saw vast expanses of water where wetlands had once stood between the city and the sea. Southern Louisiana has been melting away since the 1930s, and the enormity of the wetlands restoration needed to protect the city beggars the imagination.

At that time, I was deeply conflicted about the future of New Orleans. The people we met were so fiercely determined to rebuild, I couldn't help but cheer them on. At the same time, I had to wonder whether it was ethical—or sane—to rebuild in such a dangerous place.

I recently visited New Orleans again, and I've come to a very different conclusion.

Over the last decade, the people of New Orleans have reckoned with the task of building resilience. And they have made impressive progress.

I met people who are out in front of that effort—people like Arthur Johnson, who heads the Center for Sustainable Engagement and Development in the Lower Ninth Ward. Soft-spoken and passionate about his work, Arthur envisions a Lower Ninth with abundant local food resources; sustainable housing and infrastructure; and healthy wetlands and forests. His group is working with residents to start community gardens, so they can grow their own healthy food. They are helping homeowners install solar

panels and insulation—lowering utility bills and carbon emissions. And they are constructing rain gardens to capture storm water, lessening the "subsidence" that is causing the Lower Ninth to sink farther below sea level.

In the ten years between my first and second visits to New Orleans, I've moved from asking whether rebuilding the city is futile, to seeing that there is great value in what is happening here. Now, I wholeheartedly hope that New Orleans can be a place where locals lead the charge toward a resilient future, with support from across the country.

Why the change of heart?

First, New Orleans has rebounded far more than I thought possible 10 years ago. City leaders from government, business, philanthropy and nonprofits have embraced their environmental reality and developed sustainable strategies to live with water. That means rebuilding the city's natural capital—including its wetlands and floodplain forests—*and* its social capital—the bonds of culture and camaraderie that hold people together in good times and bad. It means strengthening the transportation system to improve evacuation in the event of a large storm. And it means working *with*—rather than against—the Mississippi River to rebuild coastal wetlands. Moreover, as a silver lining from the BP oil spill disaster, the city and the State of Louisiana actually have money to put these good intentions into action.

Second, the consequences of global warming, including sea level rise, are materializing much more quickly than appeared likely in 2005. A quarter of the world's population lives in the coastal zone and there will not be enough money or cement to protect all of those people from storms and flooding with man-made structures. That means we must develop sustainable strategies for coastal cities that work with nature. New Orleans is in a good position to lead the way.

The third change is a deeply personal one. I used to think that natural science and environmental law would save us; that if ecologists just talked longer (and maybe a bit louder) about what we know to be true, that skeptics and opponents would be convinced and their behavior would change. For better and worse, I no longer put all my faith in science and law. I've come to realize that human resilience is critically important, and that we must nurture it.

It is easier to be cynical and list all the reasons that rebuilding New Orleans is a wasted effort at best and a dangerous one at worst. And yet, as I headed to the airport on a Sunday afternoon, I watched the city turn out *en masse* for their football team, the New Orleans Saints. A quote from Jim Wallis, the evangelical theologian, came to mind:

> *"Perhaps the only people who view the world*
> *realistically are the cynics and the saints. Everybody*
> *else may be living in some kind of denial about*
> *what is really going on and how things really are.*
> *And the only difference between the cynics and*
> *the saints is the presence, power, and possibility of*
> *hope….Hope is not a feeling; it is a decision."*

The people of New Orleans have decided to choose hope. I've decided to join them.

Doubling Down
on Community Resilience

Denise Fairchild

Last month here in Rooflines, I argued that place-based community development can make low-income neighborhoods more resilient to climate crises. A commenter countered that my article undermined "income mobility" strategies—which essentially seek to move poor families out of struggling low-income neighborhoods.

This is not a contest: Both community development and income mobility strategies have merit. But, as climate change becomes an increasingly grim reality, we need to double down on community resilience. That means new attention to—and investments in—low-income communities of color.

Doubling down on community resilience is not an affront to fair housing. Rather, it is offered as an antidote to climate crises, which present a new and real challenge to the long-standing vulnerabilities of low-income communities. It recognizes the historic significance of resilience as an essential survival mechanism, especially for communities of color. It warns against its further erosion by both public and market forces. And it offers an important measure of the success—or failure—of fair housing efforts.

Clearly, fair housing is a key building block in a social and economic justice agenda. The historic battles against restrictive covenants, exclusionary zoning and mortgage redlining are matched by contemporary struggles against "poor doors" and other non-discriminatory affordable housing and mixed-income housing schemes.

In addition to tearing down these institutional barriers, it is critical to upend the personal prejudices and discriminatory practices of landlords who deny housing opportunities on the basis of race, gender, religion,

family status or other defining characteristics. This is part of the fight for American democracy.

Nothing drives this home for me more than my own personal experience. In the early 1970s, I moved to a largely all-white city in the Northwest to take advantage of an educational opportunity. Suffering the indignity and rage from being called a racial epithet and then being denied an apartment on the basis of my race was bad enough. What was worse was how alone I felt. The people around me, who did not share my lived experience, told me to "just forget it."

After one week I left. I moved back East to live among people who shared my sensibilities, in a community I could count on when things got bad. This is my backstory to community resilience. I submit it is a story shared by many others from communities of color.

Rather than negate the pursuit of the perfect union, it exposes the reality of living both the ideals and contradictions of American democracy. For African Americans, integration vs. segregation or self-determination as the pathway to economic and social mobility is a legacy battle. It defined the central philosophical differences between W.E.B. Dubois and Booker T. Washington, as well as between Martin Luther King and Malcolm X. And, for most African-American families, this same unresolved ideological debate surfaces every Thanksgiving holiday season and at other large family gatherings.

The fact is, contrary to the commentary, community resilience is not a fad nor is it a rejection of the ideals of integration. It is a lifestyle for many low-income families and/or people of color who are living in hostile environments. In addition, and especially for African Americans, it is a badge of honor; enduring—and often thriving—despite 350 years of oppression and discrimination.

Gentrification is a threat to community resilience that can lead to social, economic and political isolation of vulnerable groups. America's unfinished business includes the effect of dislocation and the destruction of resilient urban communities by racially motivated burnings, "urban renewal" policies, and divestment. Historically black communities including Pennsylvania Avenue in Baltimore; Saints Street in Frederick, Maryland; Beale Street Community in Memphis; Greenwood, Oklahoma;

or the Central Avenue community in Los Angeles were segregated. But they offered important cultural, economic and social capital and safety nets—providing jobs, credit, housing, mutual aid, and basic services for families at all income levels in the face of harsh deprivations.

Given that the climate crisis is real, we have a new imperative and opportunity to rebuild the resilience of communities across America. How do we survive hardships of extreme weather, power outages, or food and water shortages? Resilience requires an investment in place-making to facilitate the social cohesion and material supports—housing, economic opportunities, distributed power, transportation and health services— when there is nowhere else to turn. These challenges are universal. So are the opportunities to transform America with renewed values of sustainability, equity, and community.

Well, I guess I'm ready for this year's Thanksgiving dinner discourse. I can't wait.

Infrastructure and Transportation

Our Infrastructure's Crucial Need: Resiliency

Emil Frankil and Ann Kinzig

Although Washington remains stuck in partisan gridlock, there is one thing that Democrats and Republicans agree on: the need to reduce gridlock in the rest of the country by bringing America's infrastructure into the 21st century.

The basis for that rare consensus is painfully clear. The nation's infrastructure has earned a grade of D+ from the American Society of Civil Engineers, which estimates that it will cost $3.6 trillion to bring our systems to a state of good repair. Across the nation, aging and deteriorating bridges and water treatment plants pose a real threat to public health and safety and a drain on economic growth.

How and when Republicans and Democrats might find common ground to fix the problem remains to be seen. But when that does come to pass, here's another idea that should win support from both sides: Our next-generation of infrastructure must be *resilient*.

Today, we live in a world of heightened risk as we face down threats from weather-related disasters to terrorism. At the same time, we are witnessing unprecedented technological and social change. That means we must plan for a future we can barely imagine. We build highways for today's cars, but disruptive technologies—autonomous "driverless" cars, for example—could transform the way we get from place to place.

How can we build infrastructure to weather the shocks, advances and surprises of the future?

First, diversify. Resilient systems don't put all their eggs in one basket; they have lots of different ways to accomplish key functions. That's why

a farm that grows lots of different crops is less likely to be wiped out by crop failure and a city with a broad economic base is less vulnerable than a company town. Resilient systems also build in redundancies to make sure that if one part of the system goes down there are other ways to get the job done.

This lesson applies to infrastructure as well. A multimodal transportation system, which includes trains, buses, bike paths and ferries in addition to cars, will fare better in times of crisis and upheaval. We saw this in New York on 9/11, when a spontaneous flotilla of boats helped evacuate lower Manhattan and deliver supplies to first responders.

Second, resilient systems are flexible and modular; they are networked with larger systems but can also function independently. During Superstorm Sandy, New York University kept the lights on by disconnecting from the power grid and generating its own electricity. Such "distributed energy systems," which can rely on a wide range of conventional and renewable energy sources, are a lot more resilient than the centralized grids that power our cities today.

Third, remember that sometimes the most resilient infrastructure comes from nature. Sand dunes and mangrove swamps block storm surges; forests and wetlands help filter drinking water. In many cases, protecting or restoring these natural services is cheaper and more effective than trying to replace them with pipes and concrete. "Green infrastructure," such as parks and rain gardens, is now a widely accepted cost-effective alternative to traditional "gray infrastructure" for stormwater management and flood prevention.

And let's not forget that resilience also depends on *social* infrastructure. It's the connections between people and the institutions that support those connections that can mean the difference between life and death in a crisis.

That was the case during a 1995 Chicago heat wave that killed more than 700 people, mostly in that city's low-income African-American neighborhoods. But one such neighborhood, Auburn Gresham, came through relatively unscathed. How? With its lively streets and active civic associations, Auburn Gresham is a connected community where residents check on the elderly, sick and vulnerable. It is critical, then, to make sure that our physical infrastructure nurtures a robust social infrastructure.

Of course, resilience isn't free. The built-in redundancies that make a system more resilient during a crisis may be less efficient on a good day. But, while it might entail higher upfront costs, resilient infrastructure is likely to save money - and more importantly, lives—in the long run. As we invest in the next generation of infrastructure, we need to be clear-headed and honest about these trade-offs.

In this year's State of the Union speech, President Obama observed that "twenty-first-century businesses need twenty-first-century infrastructure— modern ports and stronger bridges, faster trains and the fastest Internet." He lamented that "Democrats and Republicans used to agree on this."

Democrats and Republicans can—and must—agree again to bolster the nation's infrastructure. But our 21st-century infrastructure must be not only the strongest, fastest and most modern. It also must be the most resilient.

Imagine Fewer Autos
(It's Easy if You Try)

Carlton Reid

In May, many of us will celebrate National Bike Month by leaving the car at home and cycling to work. It's often the fastest way across town, and it's a great way to get some exercise, reduce our carbon footprint and - importantly - remember that roads are not just for driving.

From behind the steering wheel, it is tempting to think that motorists own the road, that cyclists are interlopers on our God-given asphalt. That's why most drivers would be surprised to learn that it was cyclists, not motorists, who first pushed for high-quality, dust-free roads back in the late 19th century.

Before motoring came along, roads and streets were used for transport, of course, but they were also public spaces - open for commerce, meetings, and yes, dancing in the streets. Some cities recreate that space by periodically banning cars. In Bogotá, Colombia, for example, during *ciclovías*- or "open streets" events - highways are closed to motorized traffic, and people take over, on skateboards, on roller skates, on foot and on bicycles. Space normally dedicated to motors alone becomes a venue for pop-up cafes, leisurely chats, architectural tours and more.

Reclaiming the street from cars - if only for a day - frees us to imagine a world that is not wholly shaped by the automobile. Indeed, the reign of the auto is not inevitable, and it is likely not permanent. This kind of thinking may be difficult for anyone born in the US after, say, 1940. But it's helpful to remember that previous generations felt the same way about their dominant modes of transport. If you asked an 18th century American what form of transportation would prevail, he or she would have answered "canals." (The moribund C&O Canal project, a notorious

boondoggle, is testimony to how quickly that reality changed.) In the 19th century, and well into the 20th, the answer would have been "trains."

Then, as now, few people could imagine what was (literally) coming down the pike. The dominant mode of transport captures our imagination and resources, sometimes blinding us to better alternatives.

So, what are those alternatives - and what *will* the future of transportation look like?

It probably won't look like the car-centric present. As we face the existential challenge of climate change - not to mention the daily struggles of traffic jams and parking - some believe we have reached the age of Peak Car. Millennials, who are too busy peering at their smartphones to drive safely anyway, are increasingly disenchanted with auto culture.

And change is in the air. That motor-car use ought to be restrained is becoming less of a minority position as the social, environmental, health and economic benefits of the "livable city" are better understood. Cities that put quality of life for all before amenities for motorists alone are finding that one of the first steps toward civic "attractiveness" is to rip out much of the ugly infrastructure that motorists are deemed to require. Some of this motor-centric infrastructure - roundabouts, crash barriers, sweeping corners with long sight-lines - encourages motorists to travel faster, making urban areas sterile, unpleasant and dangerous to those on foot or bike.

The future of transportation could hinge on some unforeseen technological game-changer. Or it might feature an idea that's already in development - driverless cars, for example. While they might be good for those distracted millennials, driverless cars are fundamentally a dystopian vision of the future; a doubling-down on the automotive infrastructure that wreaks havoc on our climate, our cities and our health. Imagine if the affluent purchase driverless cars for each member of their family - whole fleets of cars robotically shuttling each kid off to school or soccer practice. And you think traffic is bad now!

Alternatively - if we are lucky - the future of urban transportation will look something like the past. Yes, it will probably include cars, for the foreseeable future - though those cars will be much more efficient and

less polluting. It will certainly include ubiquitous public transit: light rail, bus rapid transit and streetcars. And, increasingly, cars will share the road with cyclists, pedestrians and many forms of vibrant civic life.

Bicycles are especially well-suited to the realities of a future in which two-thirds of the world's people will live in cities by 2050, and most journeys are less than three miles. Our bike-centric city could have some high-tech elements, as well, such as "bike lifts," similar to ski lifts, helping cyclists up steep hills. The tension between motorists and cyclists would abate, Netherlands-style, as motorists realize that more bikes mean fewer cars - and less congestion.

If this vision sounds too good to be true, consider this: Elements of it are already a reality in cities as diverse as Amsterdam, where half of all journeys are made by bike, and Curitiba, Brazil, a city whose efficient bus system has inspired copycats the world over.

The future of transit - the future of anything - remains inscrutable to us mortals. Still, during Bike-to-Work week, I will zip through town on my bicycle - and allow myself to dream.

For US Cities, Every Week is "Infrastructure Week"

Cathleen Kelly

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It's Infrastructure Week in Washington, D.C., and thousands of leaders from business, labor and government have converged on the city. They've come to ask Congress to invest in the unglamorous but essential systems of modern life—including transportation, clean water and the electric grid.

Their mission is critical: Our nation's infrastructure earned a grade of D+ from the American Society of Civil Engineers in 2013. Across the country, crumbling bridges and failing water treatment plants pose a real threat to public health and safety and a drain on economic growth.

And that's on a good day. As climate change unfolds, our nation's infrastructure must also withstand increasingly frequent extreme weather events. A recent analysis by the Center for American Progress found that, over the last four years, 42 of the most costly weather events triggered $227 billion in economic losses across 44 states.

That's why President Obama made community preparedness a key pillar of his Climate Action Plan. In March, the President requested some $90 billion for FY 2016 to reduce disaster costs by strengthening community and infrastructure resilience.

If Congress fails to appropriate these funds, the economic and human costs of disasters will continue to rise. And, while no communities will be completely spared, history shows that the greatest cost will be paid by those who can least afford it.

From urban centers to rural and tribal lands, low-income communities are extraordinarily vulnerable to extreme weather. They are often located

in low-lying areas, where failing infrastructure and poor-quality housing are readily destroyed by storms. Toxic waste sites, landfills and coal-fired power plants, which pose added threats when disaster strikes, are often located in or near those same communities. Where people live paycheck to paycheck, lost work days can push families into destitution.

But, by making the right investments, we can strengthen our infrastructure to withstand climate change *and* share burdens and opportunities more fairly. For example, governments can:

- Expand **public transportation**, and make sure it is accessible to low-income communities. Public transportation increases access to good jobs, and helps people out of harm's way before a disaster. (Bonus: Public transportation also reduces carbon emissions, which can mitigate the threat of climate change.)

- Invest in **quality affordable housing** that keeps families safe during extreme heat and storms.

- Design **community resilience plans** that protect the most vulnerable, and give low-income communities and people of color a seat at the planning table.

Across the country, forward-thinking local governments are working to reduce extreme weather risks in low-income communities. Seattle has made equity a core principle in its climate preparedness plans. By building relationships with community-based organizations, city officials are engaging residents in the planning process. Similar efforts are underway in New York City, Portland, Oakland and Berkeley.

These local efforts are vitally important. At the same time, federal investments in infrastructure offer an opportunity to bring this work to a national scale—to build climate resilience and equity into the bedrock of our communities for decades to come.

So, here's something for members of Congress to think about during Infrastructure Week. Yes, we must repair our failing infrastructure by investing in state-of-the-art transportation, water and power systems. But—to meet the challenges of the 21st century—those systems must also withstand the extremes of a changing climate.

Tackling the "Wicked Problem" of Urban Street Planning

Ben Plowden

For urban transport planners like me, these are interesting times. As our cities expand to accommodate new residents, traffic steadily worsens, along with attendant problems of congestion, pollution and accidents. Our challenge is to keep traffic moving without sweeping away the neighborhoods and amenities that draw people to cities in the first place.

Most people assume that city street planning is a technical issue, involving prosaic concerns like road widths, demand modeling, traffic signal control and highway capacity. In fact, street planning is what social scientists call a "wicked" problem: an issue involving many stakeholders with competing interests; no single right answer; competing versions of value; and zero-sum outcomes. If one user group "wins"—for example, by securing a new pedestrian crossing outside a local school—another group may "lose," as nearby stores contend with slower delivery times.

To solve this conundrum, we must understand city streets—and how they generate value for urban communities and the wider society.

At their most basic, streets are a set of physical assets: pavement, traffic signals, bridges, railings, benches, streetlights and all the complex technology that makes them work. The value of a city's streets is often defined by the cost of replacing these assets. But their actual value far exceeds their asset value. Streets are valuable because of the services that they provide for the economy and society. Those services fall into two main categories: *moving* and *living*.

A city's streets are arteries or channels for the flow of people and goods—in cars, buses and taxis, on foot or by bicycle, in vans and trucks. This *moving* function is vital, and it has dominated post-war urban street planning. But in many cities, the dominance of the moving function has resulted in what Danish architect Jan Gehl calls the "60kph environment"—elevated freeways, highways bisecting communities, looming road signs designed to be read at speed.

Too often, this infrastructure has crowded out the other crucial function of urban streets: *living*.

Successful cities are where people stop, says Gehl, not where they keep moving. City streets are also public spaces in which civic life is played out. They are where people live and shop, where they sit in sidewalk cafes and watch passersby, the site of public gatherings and chance encounters. In London, where I serve as the director of surface transport, roads and streets account for about 80 percent of public spaces—way more than the city's parks, gardens and riverside walks.

As cities seek to attract new businesses, they are also recognizing that global professionals think of safe, accessible and attractive streets as must-haves. At the same time, cities need to acknowledge the equity issues surrounding infrastructure. Freeways, intersections and depots are typically relegated to lower-income communities. So, while the affluent enjoy sidewalk cafes, low-income city-dwellers must cope with pollution, noise and diminished quality of life.

There is a growing recognition that the social and economic health of a city depends on streets that allow moving *and* living, efficiently and equitably, for all citizens. In London, we are working to make that vision a reality.

The challenges are steep. Traffic is set to grow in coming decades as our economy and population continue to expand. Congestion—particularly in the central area—could rise significantly as a result. And there is growing competition among different users: Cycling advocates will celebrate protected bike lanes, while bus companies express concern over changing traffic patterns.

To help meet these challenges, in 2012, Mayor Boris Johnson and Transport for London (TfL) set up a Roads Task Force that brought together all the key street user interests. Their challenge was to see if they could agree on some principles for how the street network should be funded, designed, managed and operated.

The Task Force was a success. Its report in July 2013 set out the challenges facing London's streets over the next few decades. It made clear that the Mayor and TfL would need to use all the tools in the planning and operational toolbox to meet these challenges, including possible development of new ways of charging for road use. And it endorsed the notion that the value of London's streets lies in both their moving *and* living functions.

This last conclusion is very significant. It gives rise to a way of classifying the city's streets according to whether they are important for their moving role, their living role—or both. This classification will underpin highway and public realm design standards; decisions about what speed limit should apply to particular roads; and what priority should be given to cars, buses, taxis, walking, cycling and sitting around drinking coffee.

Crucially, it moves the debate on street planning in London away from the idea that there should be a single "user hierarchy" across the network. There is no "one size fits all" solution to competing priorities on a city's streets. Some streets are primarily about moving goods and people. Others are mainly places for human interaction and discourse. And many require designing and managing to fulfill both roles. TfL is now working with the local councils in London to classify every street in London according to its relative importance on the "living" and "moving" scales. We have classified nearly 10,000 miles so far, from a total of 11,500 miles. This marks a new way of planning a city's streets.

The Roads Task Force hasn't managed to take all the politics out of the management of London's streets—far from it. City street management remains an inherently political issue. But it has provided everyone involved a common way to think about who and what should take priority on the city's crowded streets.

In Defense of Density: Rethinking Jane Jacobs in the Era of Climate Change

Alec Appelbaum

What makes a strong community? If you've read Jane Jacobs, an image immediately comes to mind: side-by-side row houses, corner stores, parks you can see across. But the experience of life with climate change—in its early innings, anyway—suggests that this classic model may need an overhaul. A resilient neighborhood, that is, may not look very pretty.

Take my corner of Manhattan's Lower East Side. It generally lacks awnings and stoops, and provides a view of boxy towers and empty lots for five city blocks. These features bear the legacy of top-down planning, the kind that Jane Jacobs vilified in her classic *The Death and Life of Great American Cities*. But my experience after Superstorm Sandy suggests density can support the formation of urban community.

Superstorm Sandy left lower Manhattan without heat or power. My cluster of brick towers, set back from the street and hulking in a manner that would make Jacobs spit, fairly glowed with civic spirit. Men in their sixties made it their business to climb stairs in the dark, checking on older neighbors. Once we had all swung back into daily life, young families organized donation runs to flooded neighborhoods in Queens.

What about the design fostered civic spirit? I'd offer three overlapping categories: pathways, networks, and scale. Gracefulness had nothing to do with it – not outwardly, at least.

High-rise developments like mine have a limited number of pathways through them. People knew each other's routine paths, so they happened to see each other coming and going. This made it easy to keep track of

who was waiting out the power failure, who had access to supplies, and who needed a check-in.

Pathways became lifelines during the crisis. A much-used community room became a relief station with big jugs of water. A sidewalk became a phone-charging outpost. The two-way street that bisects our complex became headquarters for updates.

Density can support extensive networks—virtual and otherwise. People created digital communities on Facebook and other platforms so they could organize relief runs and share updates across the city. During the outage, this entailed a certain amount of complaining, but it also prompted a trove of donations to truly devastated communities near the ocean, which neighbors delivered for weeks after power returned.

The last benefit of density is scale. For example, our apartment complex employs a large staff, made economical by a sizable tenant population. During Sandy, that meant many hands were available to coordinate volunteers and tend to emergencies. And there can be safety in numbers: Crudely, going where more people have already chosen to go often means you'll be safer.

Of course, density has downsides, as well. One is visual. Jacobs' ideal championed narrow streets with small buildings against Robert Moses' vision of burly highways-spanning broad skyscrapers. She held, courageously and eloquently, that cities' character flowed from their randomness. Make a city into a maze of spires, she insisted, and you make it a sterile pod for the elite.

She was right, if the enemy was a boundless zeal for shopping malls and superhighways. But, as America reckons with the true cost of fossil fuels, urban density becomes more defensible—even desirable, as my friend Andrew Blum pointed out years before Sandy.

Policymakers and designers must take care to craft that density in a way that protects everyone, not just the highest bidders. Today, the cost of fortifying my neighborhood against storm damage begins at $335 million and will only climb. Philanthropy and government have unveiled creative, phased ways to fund the cost of including all residents in the planning. But as costs and danger mount, I can't promise

the lucky folks uphill, where it's drier, will voluntarily share the till to protect everyone.

Danger also lies in designing big swaths of cities to depend on cloud-stored apps and automatic elevators. These dangers become clear in a power failure. When mechanical systems fail, a high-rise cluster must include ramps, rescue crews, and backup on-site power for seniors who can't easily manage staircases or darkness (or both).

Human contact becomes more important in cities as climate change advances and sea walls and cooling centers proliferate. That may seem a romantic notion in today's world, in which much of our contact with others takes place online. Jacobs' street sweeper might work several neighborhoods via an app today, and her full-time parent might be inside tapping on a screen. But in dense urban developments, you have to work pretty hard to miss noticing your neighbors.

Life in a hulking high-rise might not be the graceful "sidewalk ballet" Jane Jacobs extolled. But in an era defined by climate change, density might hold our neighborhoods together.

New York May Not Be a Great Place for Bikers, but It's a Great Place to Bike

Alec Appelbaum

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"It'll be hard to go back to bike commuting in New York after being here," said the guy in the Boulder bike shop. He meant it as a welcome to his town, but I think he might do well to visit mine. It's not relaxing to be a bike commuter in New York, but the challenges I meet while slicing through the boroughs bind me to the city's problems, and strengthen my resolve to surmount them.

Now, my family and I grooved on the bike network in Boulder. The Colorado university town provides (I heard more than once) 300 miles of car-free paths, including a showcase that follows Boulder Creek from an upscale mall through the heart of town into the canyon beyond. But after a few days coursing past ducks, waterfalls and undergrads rolling inner-tubes, I confess I felt a rush when I saw construction workers laying orange cones on my ramp up the Manhattan Bridge.

Boulder's bike network puts cyclists and pedestrians on equal footing with drivers, while New York's network puts cyclists on a collision course with Medi-Vans, double-parked refrigerated trucks, double-wide potholes and doubletalk advertising.

(To be fair, New York riders are not warned by signs to "climb to safety" in the event of flood or to think through a puma attack, like their counterparts in Boulder. Though I have swerved to avoid late-night rats on Montgomery Street.)

New York has drawn attention in the past five years for striping more lanes for bikes and adding a bike-share network amid the clatter of its

streets. However, it largely lacks Boulder's off-road access to nature and the associated ease of traveling from home to work without bumping against a car. You can manage this if your commute logically takes you along a river or through a flagship park, but even then— as with most "escapes" in Gotham—you'll find yourself elbow-width from many others with the same good luck. And New York's dedicated bike lanes often have to share space with delivery trucks heading to Chinatown or SUVsters inching to the Williamsburg Bridge to take folks to the airport.

Cyclists in New York get to see the city up close and personal: its cacophony and diversity; its dizzying extremes of poverty and wealth. We are intimately familiar with the urban heat island effect, which grows stronger with the warming planet. Through it all, we wriggle, tilt, reconsider and—on our sharper days—smile at the drivers we pass. We're all just trying to get where we're going.

In Boulder, by contrast, cyclists can seem to live in a parallel universe. They roll along the creek, past the student reaching for her Econ textbook from her hammock, alongside the library and up to the mountains. The problems of 21st century cities—affordable housing, inequality, climate change— feel seductively easy to defeat.

Maybe I've just lived here too long, but I can't help thinking that New York riders' daily forced negotiation with traffic ends up stitching each carbon-free commute into the rider's idea of urban fabric. Committing to bikes where bikes must stay on the margin builds skillful steering, and maybe builds the case for peaceful co-existence with drivers, too. In this way, cycling can become part of our shared vision for a resilient, equitable urban future.

Turns out, New York Mayor Bill De Blasio, a social liberal of the sort popular in Boulder bumper stickers, shares that vision. As part of a strategy for reducing social vulnerability, the De Blasio administration has proposed doubling of the number of cyclists in the city by 2020s.

Do I miss Boulder Creek? Sure. I miss it acutely when I'm skeetering through an intersection ahead of a turning van, or slipping past a pedestrian staring at her phone while crossing against the light. But I pedal on, knowing I'm sending a message each time I brake at a red light or offer a peace sign to a driver who comes within a finger's length from hitting my frame.

The excitement I feel comes from believing our urban failures can shrink—and that more cyclists and walkers can by fiat bring about new ways to reconcile trucks, parking spaces, and storefronts to the carbon-free future. Staying friendly through potholes and tie-ups, and getting home on time— that's resilient. So is building a bike network where there's hardly any roadway to spare.

I smiled at the guy in the bike shop as he praised his city's 300 miles of carbon-free commuting. It would be easy to bike commute again in New York, I told him, because there's something stirring about showing that it's possible. He nodded deeply, his fringy beard going up and down and his eyes serious. "I had never thought of it that way," he said.

I had never thought it possible to build a city around biking until I visited Boulder, and I'm glad to know of it. I'm gladder, though, that every day teaches me new paths to co-existence and new problems to ponder as I pedal. The hard return to New York bike commuting means doubling down on the idea that any city can become a low-carbon city, on terms that work for everyone.

Resilience and Social Justice

We Can't Have Resilience Without Justice

Denise Fairchild

Michael Brown. Eric Garner. Tamir Rice. John Crawford III. Levar Jones.

Their deaths—and those of too many others—illuminate the ghastly toll of racism and impunity. It's a toll we can measure in lives lost, and in communities seared by violence.

But here's a casualty you might have missed: *trust*. When people feel unfairly targeted by the police, when good cops fear reprisal from angry communities, trust—the invisible thread that holds livable communities together—unravels.

If we are going to get real about resilience in an age of climate change and other large-scale disruptions, trust looms large.

Think about it. If people don't trust the authorities, will they pay attention when it's time to evacuate? Will first responders venture into communities of color to rescue the most vulnerable? Will people from different backgrounds and neighborhoods join hands to rebuild?

It's not just about climate-related disaster, either. If an epidemic is raging, will sick people remain quarantined, or will they flee and infect others? (That's what has happened during the Ebola epidemic in West Africa, where people's reasons to distrust the authorities could fill an encyclopedia.)

Here in the U.S., it's easy to trace the roots of distrust—from the original sin of slavery to the structural racism that endures.

But what about the roots of resilience? How can we repair trust, and build communities that can survive and thrive in a disaster-prone world?

I'd say it's about rights, respect, and responsibility for planet, places, and people. It's about building a society that not only protects and improves our environment, but also engages its citizens through a truly just democratic process.

Fairness is key. In a resilient society, both opportunity and risk are shared by all.

Rather than a winner-take-all economy, where the rich get richer and the rest are just getting by (or not), a resilient economy invests in education and opportunity for *everyone*.

For example, in New Orleans, where more than half of African-American men are out of work, the Emerald Cities Collaborative is working with the mayor's office to employ disadvantaged residents in efforts to build a stronger, more sustainable city. (Bonus: The city's investment is greening and strengthening its water, sewer, and other public infrastructure to be resilient against extreme weather). A fundamental, unanticipated task, however, is rebuilding residents' trust that this public commitment and community engagement process are authentic and will make a difference in their lives. Building a resilient city requires rebuilding trust, especially in communities that have suffered from broken promises and lives.

And, in a resilient society, the burden of risk is shared equally, whether you live in the Lower Ninth Ward or the Upper East Side. That's not the case in the U.S. today, where low-income people and people of color face disproportionate risks from every kind of environmental problem—from extreme weather events to health impacts from pollution, like asthma. That's a huge problem for frontline communities. But it's also a problem for Americans as a whole, because a society that dumps risks on marginalized people is more likely to ignore those risks—until it's too late. As Naomi Klein has observed, "once decision-makers start rationalizing the sacrificing of some lives, it's awfully hard to stop."

There are lots of ways to reduce risk in vulnerable communities. We can, for example, invest in urban infrastructure and high-quality affordable housing. We can patch holes in the social safety net, and improve public

health. And we can make sure that low-income people and people of color are fully engaged in decision-making at all levels.

Trust is key to resilience in a volatile world. For trust to thrive, we need to know that the police and the courts have our backs. We need to feel like we are all in this together, that we all have a chance to make good, and that when things go wrong, we will face it together. But trust isn't something that can be airlifted in to communities in crisis. It has to be built from the ground up.

Where there is no justice, there is no trust. And where there is no trust, we will not be resilient to the shocks and surprises of the future.

An Inclusive Climate Movement Starts to Rise in the Southeast

Keya Chatterjee, Seandra Pope and Danielle Hilton

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It's no secret that the climate movement, despite some recent successes, has its problems. Spoken by mostly white voices, our messages are sometimes out of touch with the priorities of frontline communities: the ethnic minorities and low-income people who unfairly absorb the health and economic costs of climate change and environmental pollution. We are becoming more diverse, but we're not there yet. And we focus most of our attention on the corporations and politicians that we perceive to have all the power, rather than building power from the ground up, in the communities that are right now dealing with the consequences of climate change and fossil fuel extraction.

Here's good news, though: Last week, all of those problems dissolved (at least for a couple of days) at a breakthrough meeting in Atlanta. The occasion was a convening of advocates associated with the Advancing Equity and Opportunity Collaborative and the U.S. Climate Action Network's Southeast Climate and Energy Network. The convening drew 30 activists and policy advocates working on climate change and equity—including many from frontline communities in the South.

Why Atlanta? Everyone knows the Southeastern U.S. has a long history of racism, voter suppression, and poverty. But this region also has a history of hospitality, resistance, solidarity, and victory for civil rights. And the South has good reason to push for a shift to a cleaner economy. Many of its communities bear a heavy burden of impacts from dirty energy industries—from toxic-laden Uniontown, Ala., to the blasted-off mountaintops of Appalachian coal country to the oil-fouled waters of the Gulf of Mexico. And—as hurricanes Katrina, Rita, and others have made clear—the region's low-lying coastal areas are profoundly vulnerable to climate-related disaster.

The Advancing Equity and Opportunity Collaborative and the Southeast Climate and Energy Network are working to make sure that this region is not a sacrifice zone, but rather a source of leadership and inspiration for the climate change movement. The challenge is to lead the climate movement in ways we have not been led before—with cultural competence and environmental justice as key *directives* as opposed to *electives*.

So far, so good: After a year of organizing separately, these two groups came together and, within 48 hours, came up with three key areas in which to advance equity and opportunity while addressing climate change:

- **Re-democratize rural electric cooperatives:** Millions of Southerners get their power from rural electric cooperatives, but many of those co-ops have drifted from their New Deal, "power-to-the people" origins. Ratepayer organizing can re-democratize electric co-ops, and push them to support money-saving energy-efficiency upgrades and renewable energy options for their customers.

- **Support the Clean Power Plan:** The EPA's Clean Power Plan will work with states to dramatically cut carbon emissions from power plants. The most polluting plants are located in the Southeast, and the most impacted people are (you guessed it!) in low-income communities and communities of color. Now is the time to organize and make sure that those impacted communities realize the benefits (jobs, for example) of carbon-reduction efforts.

- **Foster resistance and recovery:** Activists in the South must fight back against the fossil fuel extraction that takes such a heavy toll on citizens, and simultaneously help communities rebuild after they're hit by climate-related disasters. But each of these challenges present great opportunities as well: the chance to create a new energy system that is both sustainable and equitable, and to build power at the community level as citizens work toward this just transition.

Most importantly, in just two days, we created a sense of fellowship and trust around the vital importance of keeping equity at the forefront

of our work. Inequality and climate change must be fought hand in hand. Equity is not just a destination for our work; it's a journey—a way of working together that must permeate all parts of the movement.

And this is just the beginning. On Aug. 29, 2015, the Advancing Equity and Opportunity Collaborative and the Southeast Climate and Energy Network will join with Gulf South Rising to commemorate the 10th anniversary of Hurricane Katrina in New Orleans—a place where the impacts of inequality and climate change are still on full display.

We ask you to join the movement in New Orleans and make the most of this opportunity to converge, to organize, to lift up our voices together in solidarity. Just as we proclaimed for the first People's Climate March in New York last September, "To change everything, we need everyone." So, buy your train ticket, plan your carpool—do what you need to do to stand with us and make history. Stay tuned.

NYC Mayor's Green Plan Fights Poverty and Pollution at the Same Time

Matt Ryan

When New York City Mayor Bill de Blasio (D) unveiled his ambitious environmental agenda last week, he did not choose City Hall or the green meadows of Central Park as his backdrop. Instead, he announced the plan from the headquarters of The Point, an environmental justice organization in Hunt's Point, the South Bronx.

It was a telling choice.

Hunt's Point, which is in the nation's poorest congressional district, carries a heavy burden of environmental hazards, including *nine* truck-based waste transfer stations. Speaking from this embattled community, surrounded by advocates who helped shape his plan, de Blasio made it clear that he understands something his predecessors have not: You cannot separate poverty and inequality from environmental issues.

In New York City, we know that low-income and working communities disproportionately bear the brunt of polluting facilities, and those communities are also typically located in flood-prone, climate-vulnerable areas. This injustice is further compounded by a lack of access to quality workforce training, good jobs, and affordable housing.

De Blasio's plan, OneNYC, offers a chance to turn this situation around by harnessing climate sustainability initiatives as engines (clean energy–powered) of greater economic equality. The plan seeks to lift 800,000 New Yorkers out of poverty over the next decade, and significantly reduce racial and ethnic disparities in premature mortality. This is not your father's environmental plan.

Importantly, the plan reflects the priorities of labor, community, and environmental justice groups and other members of the Climate Works for All coalition that grew out of last year's People's Climate March.

For example, OneNYC will:

• Leverage investments in green infrastructure and energy efficiency to create jobs and training opportunities for disadvantaged New Yorkers.

• Establish a new model for "triple bottom line" planning that incorporates economic, environmental, and social indicators in capital planning.

• Retrofit every city building with energy-efficiency measures by 2025, install 100 megawatts of solar on public buildings, and consider mandates for energy retrofits of private buildings.

• Provide $30 million for stormwater management and other neighborhood resiliency projects in vulnerable neighborhoods.

• Reduce commercial waste 90 percent by 2030 and create a Zero Waste challenge program for large commercial waste generators.

• Conduct a comprehensive study of commercial waste collection zones that could reduce inefficiencies and create other benefits, such as improved worker conditions and wages.

Some environmental advocates have worried quietly that the plan's emphasis on equity will diminish the focus on traditional "green" issues. But de Blasio's plan reflects a sea change that is underway in the environmental movement. It underscores how a much broader coalition of allies—across the social and economic spectrum—are uniting for planet and people. Together, we can face the existential threat of climate change in an era of extreme—and growing—economic inequality. These problems are linked, and they must be addressed head on, together.

As de Blasio said at last week's press conference, "Environmental sustainability and economic sustainability have to walk hand in hand. Some of my brothers and sisters in the environmental movement don't get that

yet." He added, "A beautifully sustainable city that is the playground of the rich doesn't work for us."

Of course, as with any political process, the devil is in the details—and most of the details of OneNYC are yet to be determined. A key metric of success will be if OneNYC can deliver on creating good, green jobs that lift up disadvantaged communities. The good news is that the advocates who helped inspire the plan are at the table, rolling up our sleeves to help make New York City a national model of sustainability with equity.

Can We Talk? Here's the Conversation African-Americans Need to Have About Climate Change

Seandra Pope and Danielle Hilton

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Last year, the African-American author and commentator Charles D. Ellison asked, "Where's the Black political conversation on climate change?"

Now that conversation is happening, but it's not the one we need.

Case in point: Charles Steele, Jr., president of the Southern Christian Leadership Conference, recently weighed in against Obama's Clean Power Plan. The Clean Power Plan will hasten the phaseout of coal-fired power plants—reducing air pollution today and limiting the long-term impact of climate change.

But Steele—along with some other African-American leaders—expresses concern that the Clean Power Plan will eliminate "cheap coal," raising energy costs and hurting low-income families. It's a view that has been widely promulgated by the utility industry and its supporters. Indeed, some have speculated that generous donations from utilities to civil rights groups have shaped the views of Black leaders on this issue. Steele himself has close ties to utilities and related interests, and has testified on their behalf.

Let's not go there, for now. Instead, let's take Steele at his word and assume he shares our concern for low-income people of color, who would be most impacted by rising costs. The fact is, those are the folks who have the *most* to gain from the Clean Power Plan.

Low-income people of color bear the heaviest burden from the burning of coal and other fossil fuels. The dirtiest coal-fired power plants are disproportionately located in our communities—which is one reason our rates of asthma are 35 percent higher than among Caucasians. And, from the Lower Ninth Ward to the Rockaways, our communities are on the front lines of a changing climate.

When you consider its health effects and contribution to climate change, there really is no such thing as "cheap coal" (or "clean coal," for that matter). A study published in the *Journal of Environmental Studies and Sciences* found that it's cheaper to get power from renewable sources than from coal plants if all the social costs of coal burning are considered.

Who pays these costs? We do. We pay in days of missed work and nights spent in the emergency room. We pay in doctors' visits and rising insurance premiums. We pay in worry. And some pay with their lives: One recent study found that air pollution from power plants causes more than 50,000 premature deaths each year in the U.S.

So, low-income communities of color have much to gain by losing those dirty coal-fired power plants. And we have even more to gain by embracing the new clean-energy economy.

Clean energy is no longer an environmentalist's pipe dream. The cost of solar and other renewable energy sources is plummeting, to the point where they can compete with fossil fuels. And the transition from fossil fuels to renewables is generating thousands of good, local jobs and entrepreneurial opportunities. Today, there are twice as many Americans working in the solar industry as in coal mines. Renewables are the fuels of the future. Why would we want to double down on the dirty and disastrous fuel of the past?

Charles Steele and other Black leaders have started a conversation about critical energy and climate issues. But so far, the conversation is too narrow and one-sided. Yes, we need to consider the impact of Obama's Clean Power Plan on low-income ratepayers. But we also need to consider the larger issues affecting our communities, including health disparities, climate impacts, and jobs.

That's the conversation we need to have about climate change—starting now.

Racial Equity, Poverty and the Promise of Clean Power

Cornell William Brooks, Denise Fairchild, Mark Magaña, and Miya Yoshitani

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Very influential people are starting to connect the dots among climate change, racial equity and poverty. The United Nations' new sustainable-development goals explicitly link these issues, and in his historic address to Congress last month Pope Francis called for an "integrated approach" to the climate, requiring inclusive dialogue and a focus on fighting poverty. More concretely, the U.S. Environmental Protection Agency recently unveiled the Clean Power Plan, a regulation that acknowledges the injustice of climate change.

Communities of color and low-income communities have been plagued with high rates of cancer, asthma and other pollution-related illnesses well above the national average. The Clean Power Plan (CPP) finally places limits on the deadly emissions of coal-fired power plants. This action can literally bring a breath of fresh air to these communities—but only if those most directly impacted by climate change have a voice in how the plan takes shape at the state level.

With 68 percent of African-Americans and 40 percent of Latinos living within 30 miles of a pollution-spewing, coal-fired power plant and over 50 percent of Asian-Americans living in counties with unhealthy air quality, the negative health consequences of poverty and segregated neighborhoods are well documented. The EPA says that in 2010:

- African-American children were twice as likely to be hospitalized with an asthma attack and four times as likely to die from the disease as white children.

- Hispanics were 60 percent more likely than non-Hispanic whites to visit the hospital for asthma.

- The asthma rate among children living in poverty was 12.2 percent, compared to 8.2 percent for children living above the poverty line.

By cutting the pollutants in soot and smog that contribute to illnesses by 25 percent, the CPP can help turn around such health disparities, and it also has the potential to provide an economic lift to front-line communities. States can meet their carbon-reduction goals (ultimately leading to a 30 percent cut nationwide) with increased deployment of energy efficiency and renewable energy, and the growing clean-energy economy can reduce energy bills for U.S. consumers, businesses and governments while delivering jobs and new business opportunities to low-income communities of color. A recent report from the University of Maryland and Industrial Economics assessing the CPP's employment potential estimates a net increase of 74,000 jobs in 2020 and creation of 196,000 more between 2025 and 2040.

We're excited that the CPP acknowledges climate change as an environmental-justice issue: The plan states that "low-income communities and communities of color already overburdened with pollution are likely to be disproportionately affected by, and less resilient to, the impacts of climate change." The plan requires states to tell EPA how they are engaging "meaningfully" with low-income communities during the CPP planning process and how their plans will address those communities' needs for reduced carbon emissions.

The CPP also outlines a Clean Energy Incentive Program, or CEIP, under which EPA will award extra credits toward compliance for "early" renewable energy and low-income energy-efficiency initiatives taken in 2020 and 2021. In addition, the CEIP encourages utilities to continue energy-efficiency and renewable-energy incentive programs, including measures such as demand-side energy efficiency, that will lower utility bills in low-income communities. The EPA says steps like these will spread the CPP's benefits "broadly across society," including avoiding as many as 6,600 premature deaths and 150,000 child asthma attacks.

But as significant and far-reaching as the Clean Power Plan can be for front-line communities, the plan's promise is not certain. Without input from residents and community organizations in low-income communities and communities of color, states could easily implement the CPP in a

way that leaves these communities behind in "energy ghettos" without access to clean, affordable energy.

To avoid this, federal, state and local decisionmakers—including utilities—must consult front-line communities as they craft state CPP implementation plans, both to comply with EPA's mandates and to garner the local input and expertise needed to bring the CPP's equity components to life.

In the wake of the pope's inspiring remarks here in the United States—and his particular focus on our throwaway culture with its negative economic and environmental impacts—we urge public and private decision-makers to set up an inclusive CPP process. We stand ready, along with other national and local community organizations, to work collaboratively on state carbon-reduction plans that improve the health, economy and overall well-being of all of our communities.

Here's What Frontline Communities are Pushing for at the Paris Climate Talks

Jacqueline Patterson

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This post is adapted from remarks I delivered at a recent U.S. Climate Action Network press conference responding to President Obama's speech at the opening session of the U. N. Framework Convention on Climate Change Conference of Parties 21.

As representatives of communities of color on the frontlines of climate change, we appreciate the sentiments of hope, ambition, accountability, and commitment in President Obama's remarks at the Paris climate talks. We also appreciate the president's current and proposed actions: increasing energy efficiency; keeping fossil fuels in the ground; transitioning to clean energy; eradicating poverty; and preserving the planet for future generations.

However, in this case, the devil is most certainly in the details. As we move through the negotiations over these two weeks and return home to implement our commitments, we need to focus on definitions, processes, urgency, ambition, and stringency.

For us, this is personal. Here at the COP, we have NAACP delegates who face impacts from both the causes and effects of climate change. One comes from Indiana, where there are more than a dozen toxic coal plants. Another is from California, which is experiencing record drought, record wildfires, and the threat of sea level rise. From Mississippi we have a delegate who is a Katrina survivor who had to flee for her life with her family. Our delegates come from New York, where they are still in post–Superstorm Sandy recovery mode and are threatened with more such disasters as sea levels rise. And, finally, we have a representative

from Houston, Texas, where they face a double threat: pollution from an unregulated petrochemical corridor and this year's record flooding.

Personally, I come from Chicago, where record heat killed hundreds some years ago and where we hosted four of the most lethal coal plants in our city limits. Those plants have been blamed for 40 asthma deaths and 1,000 hospitalizations per year.

Here in Paris, we are linking arms with comrades, including the Indigenous Environmental Network, Gulf South Rising, the It Takes Roots Delegation representing frontline communities in the U.S., and with our global south comrades including the Pan African Climate Justice Alliance, the Third World Network, and others.

We stand here to speak in solidarity with people who can't be here. We are here for the 1,800-plus people who died in Hurricane Katrina and their families, the four people who died in flooding in South Carolina, and the 76,000 coal miners who have died of black lung disease since 1976. We are here for all of the other people who are impacted by the causes and effects of climate change. And we are here for the communities who stayed home to continue to work on solutions while we are here carrying forth their stories with honor and reverence.

As President Obama stated, the climate is changing faster than our efforts to address it. As such, we need to work harder and we need to work smarter.

On behalf of the communities living next to the nuclear reactors spewing radiation, the biomass facilities spewing carcinogens and other toxins, and the residents who are being shaken by earthquakes or whose water supplies are being contaminated by fracking for natural gas, we need stringent definitions of clean energy that focus on solar, wind, geothermal, and ocean energy.

On behalf of communities in the shadow of coal plants, oil refineries, and other polluting industries, we need to ensure that trading that will make pollution hotspots even hotter is eliminated from our carbon reduction plan.

On behalf of the frontline communities experiencing loss and damage in the U.S. and abroad—communities ravaged by storms, threatened with displacement from sea level rise, facing hunger due to shifts in agricultural needs—we need aggressive action on emissions reduction. We need commitments to the Green Climate Fund, which helps developing countries reduce emissions and adapt to climate change. And we need domestic mechanisms to ensure that countries and communities have the resources to invest in climate-smart development and disaster risk reduction.

President Obama stated that the biggest enemy here is cynicism. I would add corporate greed to that list, as it is reckless development without regard for people and the planet that got us where we are today, with record loss of life and degraded ecosystems.

What it will take to turn this around is new leadership of frontline communities and global south nations whose voices are too often suppressed and whose power is often stripped by the very corporations that are polluting the planet. As frontline groups, we are already leading—on building resilience, establishing energy efficiency and clean energy projects, local food, recycling, storm water management, and more.

Now we are pushing to ensure that our governments make the transition to 100 percent clean energy, with economic justice measures to ensure shared wealth building. We are pushing for a much more aggressive timetable for emissions reduction. And, finally, we are pushing the U.S.—which has just 4 percent of the global population but is responsible for 25 percent of climate-changing emissions—to contribute $5 billion to the Green Climate Fund.

Energy and Conservation

The Making of an Energy Ghetto

Denise Fairchild

The clean-energy revolution is underway, and so is the war against it. As with every other major economic transition, this battle will have winners and losers. For low-income communities of color, the stakes are especially high: Will they reap the benefits of the emerging clean-energy economy or will they be locked into energy ghettos?

Here's the context. Renewable energy—solar and wind—is quickly replacing fossil fuels as the preferred energy source. It is now cheaper than coal and most other fossil fuels. Innovative financing mechanisms have eliminated out-of-pocket costs for installing these technologies, enabling homeowners to save and even earn money from energy production. For example, "net metering" lets solar-powered households sell their surplus energy back to the grid for a profit—sending their electric meters spinning counterclockwise.

The utility sector is not happy with these developments, and it is fighting back. A recent *Washington Post* article cites utilities' efforts to influence legislators, state public service commissions and—of particular concern— minority organizations. They want to eliminate net metering and assess households with solar-power systems a monthly surcharge to offset the utilities' sunk capital investments and maintenance costs. And they have convinced some minority organizations that, without the surcharge, the poor will pay more through rate hikes as clean-energy and net-metering schemes benefit only well-to-do families.

This is a specious argument with potentially dangerous and unfortunate consequences, particularly for low-income residents. Eliminating net metering or placing a surcharge on households that migrate off the grid would foster a two-tiered energy society. These steps would render solar power unaffordable for low-income households, locking in historical racial and class hierarchies. The problems are analogous to the forces that created and sustained central-city ghettos.

Specifically, the surcharges are a form of redlining that limits or otherwise makes community infrastructure investments prohibitively expensive and fosters infrastructure obsolescence. This is similar to the benign neglect and the discriminatory practices that created urban ghettos of the mid-20th century.

The deterioration and blight that afflicts ghettos results principally from the lack of public and private investments needed to maintain, modernize and develop basic infrastructure, such as houses, roads, water and sewer lines. Our energy infrastructure—the "grid"—remains similarly neglected. National investments in local distribution peaked in 2006 and have declined to levels not seen since1991, according to a 2013 report by the American Association of Civil Engineers.

While the utility industry suggests that the surcharge it is seeking would prevent grid disinvestment, the reality is that revenue from such a fee would amount to but a trickle of what's needed to build a modern, resilient energy infrastructure. Public-housing residents in New York City know about resilient energy infrastructure—or, rather, the lack of it. After Superstorm Sandy, some of the city's most vulnerable people were off the grid for weeks with no alternative source of power.

Net metering surcharges are also akin to restrictive covenants, which legally prohibited certain races from the benefits of living in American suburbs, locking African-Americans and other ethnic groups into urban ghettos. Surcharges similarly lock the poor and people of color out of the emerging clean-energy future, including not only cleaner, cheaper and newer energy options but also the "green" jobs that these new industries are creating.

Finally, imposing surcharges or eliminating net metering would solidify and accelerate wealth disparities. Net-metering policies generate wealth by turning property owners and communities into energy producers, offering a rare opportunity for residents of low-income communities to build personal wealth. Surcharges will only block poor families from owning their own energy assets.

We need to rethink grid investments, but not at the expense of a clean-energy future. The clean-energy transition is as profound and disruptive to the status quo as the changes in the music and telecommunications

industries. And it's exciting: It can strengthen our energy, economic and health security. That's a vision that minority communities fully support—and our leaders should too.

The Myth That Coal is Cheap

Gary Cohen

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In May, Republican U.S. Sen. Shelley Moore Capito of West Virginia introduced legislation to roll back President Obama's Clean Power Plan. Proposed by the Environmental Protection Agency in 2014, the plan would require states to reduce air pollution and carbon dioxide emissions and would likely speed the retirement of older, inefficient coal-fired power plants.

Capito, Senate Majority Leader Mitch McConnell of Kentucky and other lawmakers from coal country view the Clean Power Plan as an existential threat to their states' economies. They contend that phasing out coal would remove a cheap source of energy, leading to higher costs for utility ratepayers.

Here's the problem with that argument: Coal is only cheap if you choose to ignore its staggering costs to human health and the environment.

Just last month, a report from the International Monetary Fund (hardly a radical outfit) found that the environmental, health and other costs of burning fossil fuels reach $5.3 trillion a year—$10 million every minute. Coal—the dirtiest fuel in terms of air pollution and climate-warming carbon emissions—accounts for just over half that total. By shouldering these costs, we are, in effect, granting a massive public subsidy to coal and other fossil-fuel companies.

Health costs from air pollution account for nearly half of that $5.3 trillion subsidy. Those costs include the burden of care for cancer and respiratory and heart disease as well as lost wages due to disability and death. Those costs are paid by each and every one of us, in days of missed work and nights spent in the emergency room, in higher tax rates and in soaring insurance premiums. Some pay the ultimate price: A recent study by researchers at the Massachusetts Institute of Technology found

that air pollution from U.S. coal-power plants causes more than 50,000 premature deaths each year. Most of those deaths are in the east-central U.S. and in the Midwest, where power plants burn high-sulfur coal.

Worse, the health costs of coal fall most heavily on those who can least afford them. The dirtiest coal plants are disproportionately located in low-income communities of color, which is one reason that African Americans' rates of asthma are 35 percent higher than among Caucasians.

And then there are the steep and growing costs of adapting to a changing climate. The societal costs of climate change—droughts, flooding, wildfires and superstorms—have reached $1.27 trillion a year, according to the International Monetary Fund report. Coal produces more than its share of climate-changing carbon emissions: While coal-fired plants supply just 40 percent of the nation's electricity, they account for more than three quarters of carbon-dioxide emissions from power generation. Again, when you consider the mounting costs of climate change, the greatest burden is borne by the most vulnerable people.

Coal, then, is anything but cheap, despite what you might hear from industry executives and their friends in Congress.

Of course, we expect industries to defend their interests. A generation ago, the tobacco industry and congressional delegations from tobacco-growing states denied the health impacts of smoking and fought to protect public farm subsidies for tobacco growers. But eventually the societal cost of smoking became too great to bear and the subsidies were revoked.

It's time to do the same for coal. Just as we refused to subsidize tobacco, we can stop propping up the coal industry. The Clean Power Plan is a good start; a carbon tax that captured the full health and environmental costs of fossil fuels would be even better.

Market forces have sealed coal's fate in the long term. Coal-fired power plants are already being made obsolete by renewables such as wind and solar. In 2014, there were more jobs created in the renewable sector than in fossil fuels. By removing public subsidies for coal, we can speed the transition to a clean- energy future rather than doubling down on the dirty and costly fuel of the past.

On the Nature of Cities—and the Future of Conservation

Rob McDonald

More than 25 years ago, author and activist Bill McKibben famously declared the end of nature. Defining "nature" as wild places essentially untouched by people, McKibben argued that our collective environmental impact—especially our alteration of the planet's climate—has left nothing on Earth in pristine condition.

By this definition, McKibben was right: Nature is dead. And, in the last quarter-century, our domination and destruction of the Earth has only grown. The climate change McKibben warned about is unfolding around us. We have crossed other boundaries that have fundamentally altered the chemistry and function of the planet. And we are farther from nature than ever, as more than half of humanity now lives in cities.

The cities we call home are, in many ways, the opposite of McKibben's vision of nature. They are almost entirely human-made spaces, designed to suit our needs and desires. Yet those cities have launched a new wave of environmental activism. Urban environmentalism has caused considerable soul-searching among conservationists—but it may also herald a new chapter in the relationship between human beings and the natural systems that sustain us.

Today, cities are embracing nature—albeit an engineered version of it. New York City, for all its famous skyscrapers, has generated buzz about a pop-up forest in Times Square and its High Line park, built on a repurposed railroad spur. Meanwhile, ecologists and economists have quantified the value of nature in cities, showing its contributions to everything from stormwater management to air quality to improved health.

And, while the international fight against climate change seems moribund, hundreds of cities are taking significant actions to decrease their greenhouse gas emissions, working together in groups such as C40 and ICLEI.

As part of this surge of activism, many environmental and conservation groups are launching new programs in urban areas. My own organization, The Nature Conservancy, just started such a program. The World Wide Fund for Nature is focusing on the urban environment, as is the World Bank and the International Union for the Conservation of Nature. Major philanthropic organizations in the U.S., including The Kresge Foundation and The Rockefeller Foundation, have launched programs to make cities more resilient in the face of climate change and other shocks.

Some urban environmental programs focus on restoring "natural infrastructure." Others promote the idea that islands of urban nature—even just street trees–can make city dwellers happier, healthier and more productive.

Hard to argue with, right? And yet there is a deep and bitter debate within the conservation movement about whether these urban programs are really about protecting nature at all. Is it protecting nature if we save a forest that surrounds a drinking-water reservoir? Most conservationists would say yes, even if that forest has been logged or otherwise altered by people. But what about an artificial wetland, or some stubbly grasses growing on a green roof? Many conservationists feel there is nothing at all natural about these novel assemblages of plants that humans have thrown together for our own purposes.

This raises larger questions. Is conservation just about protecting nature *from* people–by safeguarding biodiversity and the few remaining mostly wild places? Or is it also about maintaining nature *for* people, by saving— or even creating—natural spaces? Old-school conservationists view the idea of nature for people as offensive, a sell-out of Mother Earth. As legendary naturalist E.O. Wilson said to author Emma Marris a few years back, "Where do you plant that white flag you're carrying?"

The problem with the old-school vision of conservation is this: If we believe that we are now 25 years past the end of nature, then conservation itself is now at an end. By 2050, two thirds of humanity will live in cities.

If conservation has nothing to offer them, then it is largely irrelevant. On the other hand, if conservation is, at least in part, about people, then making our urban world more green and humane is an essential part of a conservationist's job.

The latter view points to a new kind of relationship with the Earth. The microbiologist Rene Dubos once wrote about the "wooing of the Earth." Rather than living as masters of the Earth, bending it to our will, Dubos envisioned human beings as lovers of the Earth, making decisions about nature with love and respect in our heart. Nature is not something apart from humanity, but something that we should love and interact with, something that we will change as it changes us.

In our ever more urbanized world, we could mourn the death of nature as McKibben once defined it. Or we could broaden our view of nature and to include beautiful, green, humane cities. That is not the end of nature, but a new beginning.

The Pope's Green Message is About a Lot More Than Climate Change

Ann Kinzig and Laurie Mazur

This week, Pope Francis is making his first visit ever to the U.S., and there is plenty of speculation about what he will say. But the pope has already delivered a powerful challenge to Americans in the form of his recent encyclical, *Laudato Si: On Care for Our Common Home*.

While many in the media have claimed this encyclical is about climate change, that is like saying the Bill of Rights is about the quartering of soldiers. Both are mentioned in their respective documents; neither is privileged. This is not an encyclical about climate change—it is instead a stunning piece that lays out a vision of a meaningful human life. It also declares that our current institutions and approaches are inadequate to the challenge of allowing this meaningful life for the vast majority of people.

For Pope Francis, much of what is required for a meaningful life obviously (and understandably) centers on spirituality and serving God. But he has powerful additional messages for believers and nonbelievers alike—that meaning in life derives from how we treat each other, and how we care for nature. "Everything is connected" is an oft-repeated phrase in this encyclical. In Pope Francis's cosmology, we are each *individually responsible* for all other living creatures on the planet.

However, the institutions that structure our world—our globalized, market-driven economies and the technologies they employ—are not designed to serve those ends. That is not to say these institutions are without merit—they give us access to life-saving and life-enhancing goods, and help create and disperse knowledge globally. But no sensible economist would suggest that free markets do anything other than allocate scarce resources efficiently. They cannot guarantee access to food or water for the

poor, cannot guarantee meaningful employment for all who want to work, cannot protect public goods like environmental resources without other regulations in place to do so. Likewise, we all know that technological innovation has potential to do harm as well as good.

This is what Pope Francis notes in his encyclical—that the markets and technologies that have achieved such a place of supremacy in our world have failed to secure a decent life for most of humanity. This should not surprise us—they were not designed to do so. We place too much faith in them, and ignore too many of the other compacts and contracts needed to nurture each other and the planet.

"The exploitation of the planet has already exceeded acceptable limits," writes Francis, "and we still have not solved the problem of poverty." The appalling gap between rich and poor continues to widen:

> *We fail to see that some are mired in desperate*
> *and degrading poverty, with no way out, while*
> *others have not the faintest idea of what to*
> *do with their possessions, vainly showing off*
> *their supposed superiority and leaving behind*
> *them so much waste which, if it were the*
> *case everywhere, would destroy the planet.*

At the same time, our economic and technological systems have created a homogenized global culture that dazzles and distracts us, while leaving us spiritually impoverished. Francis derides the prevailing culture's "constant noise, interminable and nerve-wracking distractions … [and] cult of appearances," not to mention the "rapidification" of modern life—the ever-intensifying pace of life and work.

And what's it all for? It seems that the imperatives of the marketplace (profit) and of technology (innovation and efficiency) have supplanted most other objectives for human activity.

To see where this gets us, have a look at the recent *New York Times* exposé on life at Amazon, the internet retail behemoth. In the article, Amazon—an institution that practically embodies the fusion of marketplace and technology—is described as a toxic place to work. Former and current Amazon employees speak of an environment where anyone who

can't keep up an 80-hour week—workers with children, for example, or cancer patients—are given the slip. It's an environment where grown men and women routinely cry at their desks. And the article shows what success looks like at Amazon: an executive rapturously reports that the company was able to deliver an Elsa doll to a customer in 23 minutes flat. In what sensible world is this touted as a picture of success?

Of course, there's nothing inherently wrong with turning a profit. And innovation and efficiency can certainly improve human well-being (imagine if we could deliver anti-malaria drugs in 23 minutes). But when the internal logic of the marketplace and technology solely shape our purpose, we lose our moral bearings. And the costs—to human beings and the planet—are just too high.

The African-American writer James Baldwin once said, "The world changes according to the way people see it, and if you alter, even by a millimeter, the way people look at reality, then you can change it."

Pope Francis sees reality differently than most elites in the U.S. and globally. After decades spent ministering to the poor in a Buenos Aires shantytown, poverty is not an abstraction to him. Francis witnessed first-hand how multinational corporations suction resources from developing countries, leaving environmental and social devastation in their wake. And during Argentina's 2001 economic crisis, he saw half of Argentines plunged into poverty, thanks in part to crushing austerity policies that grew out of the Washington Consensus.

Now, Francis asks us—especially those of us in the U.S. and other affluent countries—to alter the way we look at reality. With a small shift in perspective, we can see our problems, and our possibilities, differently. We can see that the Earth and its living things were not simply given us to plunder. We can see the costs of the prevailing system: a ravaged planet; a growing gulf between rich and poor; a restless unease even among the affluent.

And we can see that "free markets" and technological innovation are not ends in themselves, but means to achieve specific goals. It's time to ask ourselves what our goals should be, and what are the best mechanisms to achieve them.

Most importantly, Francis helps us see that (contrary to Margaret Thatcher's famous assertion) there are alternatives to the way we live now. Our economy, our politics, our technologies—these are not God-given verities, but human choices. It's up to us to make different ones.

How Solar Power Can Make Affordable Housing More Resilient

Laurie Mazur

When you think of residential solar power, you might envision an upscale home in Marin County, or a compound in rural Idaho. You probably *don't* think of low-income apartment buildings in the outer boroughs of New York City. But that's exactly where new solar technologies can do the most good.

Remember Superstorm Sandy? Three years ago, when Sandy slammed New York, thousands of low-income apartment-dwellers found themselves in high-rise hell. Many lost power and heat—in some cases, for weeks or months. Lacking functional elevators, the elderly and disabled were stranded without food, water, and medicine.

Solar power with battery backup storage systems (solar + storage) would have been a lifeline in that crisis—and it could prevent the next one. That's the conclusion of a new report by the Clean Energy Group, a national nonprofit that works to increase access to clean energy technologies.

The report, "Resilience for Free: How Solar + Storage Could Protect Multifamily Affordable Housing from Power Outages at Little or No Net Cost," looked at data for buildings in New York, Chicago, and Washington, D.C. to examine the financial case for installing solar + storage systems in multifamily affordable housing. It found that—given the plummeting cost of solar power and the introduction of game-changing backup batteries—the time is now for solar + storage in affordable housing.

"This analysis shows us something we didn't expect—these new resilient power technologies can make economic sense for building owners to install now, not years from now," said coauthor Lewis Milford, president of the Clean Energy Group and a senior fellow at the Brookings Institution.

Milford and his colleagues ran the numbers and determined that solar + storage can reduce operating costs in affordable housing, and even generate revenue where markets permit. And, with payback periods as short as a few years, solar + storage can be implemented at *no net cost* over the lifetime of a project. You got that right: It's basically free.

For those who live in, own, or manage affordable housing, the potential benefits are substantial. Solar + storage can provide crisis-proof power for essential services like water booster pumps (so people on upper floors can drink and flush), lighting, fire alarms, elevators, and heating and cooling. That can allow people to "shelter in place" during an emergency—reducing the human and financial costs of a disaster. And (bonus!) by reducing carbon emissions, solar power helps mitigate climate change, reducing the likelihood of future climate disasters.

Crucially, solar + storage can increase the resilience of those most at risk. Low-income, vulnerable populations—those requiring supportive services—have the most to lose in a disaster: They often lack the income, savings, insurance, and access to information needed to recover from the adverse impacts of disruptive weather events. These vulnerable residents have the most to gain, then, from technologies that can keep them in their homes with the lights on.

And yet, to date, "big solar" companies like SolarCity and Tesla have focused primarily on large-scale, private, commercial customers who want to reduce their utility bills. The challenge now is to make sure that the huge benefits of solar with battery storage flow where they are needed most.

"Policymakers should implement more targeted incentive programs to encourage solar + storage deployment in low-income communities now, so we don't wait another decade for the benefits of these technologies to trickle down to the those in need, as happened with stand-alone solar," said Seth Mullendore, a project manager at Clean Energy Group and coauthor of the report.

As the authors of "Resilience for Free" conclude, "There is now no economic or technical excuse to leave low-income and vulnerable people at risk."

Hold the Keystone Bubbly: Our Fossil Fuel Addiction is as Strong as Ever

Alec Appelbaum

Originally published November 13, 2015 in Salon

Did you hear that Keystone XL—the long-planned pipeline from the Canadian tar sands to refineries on the Gulf Coast—got canceled? That President Obama nixed it because it would contribute to climate change?

Did you, as a reader of sites like this, exhale? Did you grin? Did you even guffaw? You may well have done all this and danced a jig besides. But, while environmentalists cheer, let me play that guy who steps away from the Champagne-dunking to remind you that we face a series of much tougher challenges ahead.

Don't get me wrong: We needed to win on Keystone; I'm questioning only how we capitalize on that win. A green light for Keystone would have plunged climate activists into gloom, for good reason. If the pipeline was built, after years of pinpoint opposition, it would have entrenched the power of the fossil-fuel lobby to sway lawmakers. It would have potentially suppressed oil price increases, while hiding the social and environmental costs of carbon pollution. Those costs were real: burning tar-sands oil emits about a fifth more carbon than conventional petroleum.

And it would have been a symbolic loss: Keystone XL made a heckuva villain. It was big. It was divisive (literally, cleaving the continent from western Canada to a port in Texas). It spanned nations. It shared its name with the actor in an ecosystem who can throw every other species into a tailspin by changing its behavior.

Still, while the Keystone defeat edges us toward a post-fossil fuel economy, we remain on the edge of dangerous carbon imbalances. I found out about Keystone on an energy-sucking screen, in an office space with inefficient overhead lights. We all live, work and play in places that are wholly reliant on abundant fossil fuels. So, even as we celebrate, we in the fact-based community should take care to resist declaring victory.

For one thing, a Keystone pipeline is already up and running. The proposal that Obama nixed would merely have added an extension to it. And TransCanada, the pipeline owner, is looking for other ways to get tar-sands oil to market. Oil remains a smart investment, if you strip away the true cost of burning it.

Too much of daily American life hides that cost. In fact, laws and codes still favor houses that eat too much fuel, companies that plunder too many resources, and conventions that keep us dependent on too many juiced-up devices.

Defeating Keystone XL might reduce the *supply* of artificially cheap oil; we still need to reduce t he *demand* for it.

So, let's build on the momentum from this win by reducing our carbon dependence. Let's use the clarity we brought to stopping one big offense to nurture thousands of little gains. Across America, citizens and policymakers can promote carbon-reducing garden plots, alley homes, bike lanes, walks to school and locally owned retail.

Even more important, we can reinforce the ties that bind us together; nurturing democratic (small d) communities where neighbors look out for one another. Strong communities could strengthen our collective conviction to tackle climate change. They will also make it easier to withstand when floods, droughts and diseases crash our party.

Keystone XL would have moved our nation faster in a dangerous direction, and that course would have been difficult and costly to correct. But even without Keystone, daily life in America feeds fossil fuel addiction in all kinds of ways. As the shadow of the big pipeline recedes, it's time to take a closer look at our towns and neighborhoods—and set our course for a fossil-free future.

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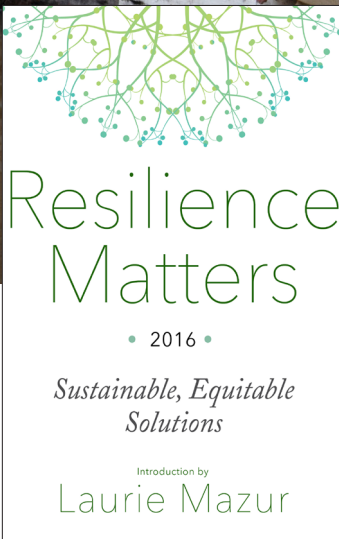Edward Thomas is President of the Natural Hazard Mitigation Association.

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Introduction by Laurie Mazur

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