

# Resilience Matters

*Strengthening Communities  
in an Era of Upheaval*

Edited by

Laurie Mazur



# 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, podcasts, educational courses, and our annual compilation journal *Resilience Matters*.

For more information, and to find out how you can get involved, visit [www.islandpress.org/URP](http://www.islandpress.org/URP)



# 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 THE KRESGE FOUNDATION

## AND ITS ENVIRONMENT PROGRAM

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 cities implement comprehensive climate-resilience approaches grounded in equity.

For Kresge, resilience is more than just withstanding shocks and 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 address climate change.

## ABOUT ISLAND PRESS

Since 1984, the nonprofit organization Island Press has been stimulating, shaping, and communicating ideas that are essential for solving environmental problems worldwide. With more than 1,000 titles in print and some 30 new releases each year, we are the nation's leading publisher on environmental issues. We identify innovative thinkers and emerging trends in the environmental field. We work with world-renowned experts and authors to develop cross-disciplinary solutions to environmental challenges.

Island Press designs and executes educational campaigns in conjunction with our authors to communicate their critical messages in print, in person, and online using the latest technologies, innovative programs, and the media. Our goal is to reach targeted audiences—scientists, policymakers, environmental advocates, urban planners, the media, and concerned citizens—with information that can be used to create the framework for long-term ecological health and human well-being.

Island Press gratefully acknowledges the support of The JPB Foundation and The Kresge Foundation, without whose partnership this journal would not be possible.



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*Edited by*

**Laurie Mazur**

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# INTRODUCTION

# *New Thinking for a New Year*

ELIZABETH SAWIN AND NATHANIEL SMITH

*Originally published December 31, 2018 in U.S. News & World Report*

The end of 2018 was full of grim climate news. There was the October Intergovernmental Panel on Climate Change report, which said we have a dozen years to cut carbon emissions in half to avoid catastrophic climate change. In November the U.S. National Climate Assessment showed that long-dreaded impacts of a warming world—monster storms, devastating droughts, rising seas—are now a current reality. Just recently we learned that carbon emissions are again headed in the wrong direction, after a few years of leveling off, and the U.N. climate talks closed in Poland without much progress toward reversing these trends.

But 2019 could be the year we turn this around. That will require a new approach to climate leadership, motivated by concern for health, justice and equity. And, importantly, it will require us to stop thinking that climate action pits the future against the present.

We will have to see climate change differently from the way the media typically presents it. As Charles Lane wrote recently in *The Washington Post*, “It’s not easy to persuade citizens of a democracy to accept real financial sacrifice in the here and now for the sake of a diffuse benefit in the future.” But this perspective misses the real and present danger of a changing climate—to our health, our economy and our personal safety. And it misses the benefits that climate action can bring to our cities right now.

2019 could be the year of the climate pivot, where we mobilize around the immediate dangers of a warming world and the immediate benefits of actions to limit climate pollution.

Consider this: When young people from low-wealth communities are hired to insulate homes in their neighborhoods, greenhouse gas emissions fall, people who have been excluded from economic opportunity

on the basis of race or ethnicity have opportunities to build wealth, and residents have their monthly utility bills reduced, stretching each paycheck further.

When cities are redesigned for biking and walking, fewer greenhouse gases are emitted from vehicles, small businesses on those walkable streets gain increased local spending, residents benefit from active lifestyles and the health system saves money as diseases associated with lack of physical activity decline. These effects can be huge: research reported in the *British Medical Journal* found that people who commuted to work by bicycle had a 52 percent lower risk of dying from cardiovascular disease.

When urban areas are greened, physical and mental health improves, air pollution is reduced, storm-water flood risks recede, and energy is saved, both for heating and cooling. A 2005 study of urban tree planting found that the value of these additional benefits ranged from \$31 to \$89 per dollar spent on planting trees. A Green New Deal could also be a darn good deal!

Indeed, those who say that the cost of climate action is too high probably aren't tallying the costs of the current system. A new report from the World Health Organization observes that "the health burden of polluting energy sources is now so high, that moving to cleaner and more sustainable choices for energy supply, transport and food systems effectively pays for itself."

We don't have to choose between the present and the future. The right investments in climate action can improve public health, create jobs and improve the quality of life in our cities today. But to capture these benefits, we'll need to think and act differently.

First, to get the most benefit from climate investments, resources and decision-making authority must flow to those who are at greatest risk in a warming world. These "frontline" communities, which have often been excluded from prior generations of infrastructure investment, deserve a first and final say in shaping their future. And in order to achieve climate targets, virtually every home, neighborhood and business will have to be upgraded and connected to new infrastructure. Empowered local leaders will be key to delivering that.



We need to guard against unintended consequences, such as the gentrification that often accompanies sustainability investments. New parks, public transit and clean energy make neighborhoods more desirable and rents more expensive. Policies and investments to prevent gentrification must be central to climate action, so that all residents of our communities can afford to live near new low-carbon, high-efficiency amenities.

And we must find new ways to integrate jurisdictional and budgetary silos. Currently it can be difficult to direct funding meant for health or jobs toward climate projects, even when those projects are designed to improve health and provide good local jobs. We'll need to find new ways of budgeting and build new and deeper partnerships between sectors.

At this moment of climate desperation, investments that link health, equity and human well-being with climate protection are our best hope. The need is urgent, so let's turn—with the turning of the year—in a bold direction, integrating the highest standards of equity and justice with the highest climate ambitions. Let's seize every opportunity to improve people's lives today in ways that protect the climate for the future.

SECTION I

**CLIMATE ADAPTATION,  
CLIMATE JUSTICE**

# *A Rising Tide of Climate Resilience*

LAURIE MAZUR

*Originally published July 2018 in The Kresge Foundation 2017 Annual Report*

**I**t was raining in New Orleans. Destiney Bell was keeping an eye on her roommate's toddler as she monitored the rain gauge in her yard.

The water was rising, and Bell knew what that meant: Her street would flood. Indeed, within an hour, the corner was submerged.

Bell used her phone to snap photos of her rain gauge and the flooded street. She then uploaded them to ISeeChange—a global online platform that allows anyone with a smartphone to document climate impacts on their daily life.

Bell's observations—together with those of her neighbors and others across the country—are painting an ever-more-detailed portrait of risk and resilience in the era of climate change. With Kresge Foundation support, The Trust for Public Land (TPL) and its partner ISeeChange are finding creative ways to marry big data with the experiences of urban residents. This approach results in fine-grained, real-time information that can target adaptation efforts where they are needed most. And it uses the principles of Creative Placemaking—the integration of arts, culture and community-engaged design—to identify and address the challenges of a warming world.

Climate challenges do not affect all people equally. House by house, block by block, there are huge differences in vulnerability based on geography, health status, income level and other factors. Such differences are not always visible to decision-makers. For example, when city officials assess flood risk, they typically look at average elevation and (increasingly unreliable) floodplain maps. They do not, generally, consider the view from Bell's window. That has begun to change.

## **Delivering Innovative Solutions**

In 2016, Kresge's Environment, Health and Arts & Culture programs teamed up to improve the way New Orleans and other vulnerable cities

respond to a changing climate. Together, they supported TPL's work to pilot a holistic approach to adaptation, Creative Placemaking and developing healthy places. The collaboration with ISeeChange helped TPL and Kresge find ways in which climate and Creative Placemaking approaches could combine to deliver innovative solutions.

By working across disciplines—both within the foundation and on the ground—the project is charting a climate plan that puts community needs front and center.

Earlier, TPL—a national leader in creating parks and protecting green spaces—provided data and analysis to help the City of New Orleans secure a \$141 million grant from the U.S. Department of Housing and Urban Development. The grant will be used to create a “resilience district” in the mixed-income Gentilly neighborhood, where Bell lives. It calls for a sizeable investment in green infrastructure—parks and green spaces that absorb stormwater, while providing places for neighbors to gather and play. These multitasking urban oases offer several climate benefits: Their shade helps cool the city and reduce energy use, while shoreline parks protect against rising seas and flooding. Trails and greenways connect residents to popular destinations and each other.

The city's first task was to decide where to build green infrastructure for maximum effect. To do this, TPL's ClimateSmart Cities Program gathered stakeholders who possess critical pieces of data but do not always talk to one another. These included New Orleans city officials, the sewer and water authority, health groups, local nonprofits and the parks department.

Together, they created a multilayered map that pinpoints vulnerable areas where poverty, aging infrastructure and high rates of disease intersect with climate-influencing factors like heat and flooding. Taken together, the data provide an extraordinarily detailed map of risk—and a blueprint for building resilience.

“You make better decisions when you consider all this information together,” says Sarah Olivier, TPL's New Orleans program director.

For example, the city was considering a site for a park near an elementary school and a large public housing project. The site was already a strong candidate, but when public health data was overlaid, Olivier

says the area “showed up bright red” as a hot spot for asthma and other diseases made worse by climate change—affirming the neighborhood’s urgent need for green space.

But the picture was still not complete. Missing were the voices of people like Bell—those with deep ties to the neighborhood’s history and with a stake in its future.

### **Engaging Multiple Voices**

To engage those voices, TPL forged a partnership with ISeeChange, a civic media enterprise that encourages people to document climate effects in their neighborhoods by using rain gauges and heat sensors. ISeeChange uses Creative Placemaking strategies to elicit residents’ observations and stories—and to enlist them in solving the challenges they identify. That is not always easy, especially when it means long days and nights at public meetings.

“Civic action is a luxury,” says ISeeChange founder (and Gentilly resident) Julia Kumari Drapkin. “Most people just don’t have the time, and given their experience, they don’t think they’ll be listened to.”

To counter that perception, Drapkin and her team got creative. To identify flood-prone areas that were not on the city’s radar, Drapkin’s team placed comment boxes inside laundromats, nail salons and restaurants. Within two weeks, the comments helped the city identify 150 previously uncharted flooding hot spots. Some of the people who submitted feedback began uploading information about those spots to the ISeeChange platform.

The ISeeChange team went door to door around those hot spots recruiting citizen scientists—including Bell—to provide an on-the-ground reality check for the city’s flood maps. Bell and her neighbors also contributed stories and reminiscences, creating an archive of collective memory.

As they learned more about flooding in the neighborhood, ISeeChange helped organize a “pop-up” block party with a local business owner. They decorated a board with images of flooding alongside headphones with recorded stories and an invitation to comment on the city’s green infrastructure plans.

There was more. A live storytelling event, co-hosted with a local public radio producer, brought residents and decision-makers together on equal footing. And public art projects raised awareness of climate challenges—including chalked street markings and ropes that graphically depicted flooding and rising sea levels.

Taken as a whole, these storytelling, visual and civic engagement efforts embody the goal of Creative Placemaking: engaging the people who are most affected by climate change to build civic dialogue and find solutions that work. Too often, says TPL's Matthew Clarke, "Creative Placemaking is treated as an afterthought—a mural that gets painted at the end of the project."

This is more foundational.

"It's a process that helps get nuanced, personal data from the community," he says, noting that at the same time, it "elevates the legitimacy of different kinds of information."

### **A 'People-Centric' Approach**

Social scientists have long understood the value of community-generated data, but its collection is frequently neglected.

"The process of working with residents is as important as the product," says Regina Smith, managing director of Kresge's Arts & Culture Program. "The process is a people-centric approach that puts beneficiaries at the center of decision-making."

"This approach is not just the new 'it' thing; it's becoming part of the DNA of how organizations work." While important in its own right, the process also yields a valuable product. The information amassed—both the multilayered map created by the Climate-Smart Cities Program and the personal stories, data and observations contributed—is shaping a more resilient New Orleans. Both are included in a city request for proposals that will guide the development of green infrastructure throughout New Orleans.

Because data collected by Bell and others can help better predict and prevent floods, the city will distribute another 300 gauges next year. And

spurred by this project's success, both TPL and ISeeChange are launching similar projects in flood-prone communities like Norfolk, Virginia; Philadelphia, Pennsylvania; and Richmond, California.

And in 2017, Kresge's Environment Program awarded new grants that will broaden the base of New Orleans residents who understand why urban water management is important.

“Our grantees are identifying a critical mass of people who are motivated to support green infrastructure projects in their neighborhood and engage in policy advocacy at the city level—all toward the goal of making their neighborhoods safer and enhancing their quality of life,” says Kresge Environment Program Managing Director Lois DeBacker. “It is essential to lift up the voices and life experiences of those on the front lines of a warming world.”

# *Climate Disasters Hurt the Poor the Most. Here's What We Can Do About It*

JOYCE COFFEE

*Originally published February 14, 2018 in Governing*

Last year, Americans endured an unrelenting series of climate calamities: hurricanes in Texas, Florida and the Caribbean; wildfires and mudslides in California; drought in the Dakotas; flooding in the Midwest. Those disasters caused more than 360 deaths and more than \$300 billion in losses.

And there is more where that came from. As the planet warms, climate-related disasters are becoming the new normal. Over the past five years, Americans experienced at least 10 major disasters a year—double the average number of such events since 1980.

News accounts sometimes portray disasters as great levelers, affecting rich and poor alike. But the reality is that it is the least fortunate who bear the greatest social, economic, health and environmental costs. Three months after Hurricane Maria struck Puerto Rico in September, for example, roughly half of the island's population remained without power. The flooding in Houston caused by Hurricane Harvey had a disproportionate impact on low-income communities and communities of color. And in fire-torn California communities, many poor and elderly residents were displaced and made homeless.

Why do the poor and marginalized take the brunt of climate impacts? There is, of course, discrimination against and indifference to the fate of communities that lack political power, as in Puerto Rico. And, as in Houston, low-income people and people of color are more likely to live in or near a floodplain, in industrial areas that spread pollution when they flood, and in neighborhoods with substandard infrastructure. In California and elsewhere, the poor are more likely to live in rental housing, may not be able to afford insurance, and often hold jobs that don't



tolerate unexpected absences from work. In short, the poor are less able to insulate themselves from harm.

This is true of not only of individuals but of communities at all scales. A study published last year in the journal *Science* documented that the poorest one-third of U.S. counties sustain greater economic hardship than their wealthier counterparts from hurricanes, rising seas and higher temperatures. By disproportionately affecting the poorest people and communities, climate disasters deepen poverty and widen inequality. How can we prevent that from happening? As we plan for a changing climate, equity must be a top priority. That is the goal of the “climate justice” movement, a diverse coalition of national, regional and grassroots organizations.

Climate justice holds that poor and marginalized people, who bear the least responsibility for contributing to the causes of climate change, should not bear the greatest burden from its impacts. Ensuring that climate risks do not disproportionately harm those who are already vulnerable demands a deep analysis of what puts some communities at risk, including racial and socioeconomic disparities. A useful resource for that analysis is the federal government’s Social Vulnerability Index, which looks at factors such as poverty and mobility to assess vulnerability at the census-tract level.

It is also essential to make sure that marginalized people have a voice and a seat at the table. A community group in New York City called WE ACT for Environmental Justice, for example, has initiated a climate resilience planning process led by neighborhood residents. In a series of public meetings over six months, the residents drew on their own knowledge and vision to produce the Northern Manhattan Climate Action Plan, which calls for community-controlled renewable energy, emergency preparedness, social hubs and participatory governance.

Other communities are effectively integrating equity into climate adaptation. In Baltimore, for example, the city’s Office of Sustainability has cultivated the art of engaging at-risk communities in disaster planning. City staff make it easy for residents to attend meetings by providing free transportation, food and child care. And at those meetings, staff do more listening than talking. Kristin Baja, Baltimore’s former climate and resilience planner, calls this approach “sharing power.” One outcome of this initiative is a network of “resilience hubs” throughout the city that

provide shelter, backup electricity and access to fresh water and food during emergencies.

As we brace for more frequent and devastating storms, wildfires and heat waves, it is also crucial to address the roots of the climate crisis. That means an all-hands-on-deck effort to slow the advance of climate change. If greenhouse gas emissions remain on their current trajectory, the earth could warm by up to 9 degrees Fahrenheit the end of this century, with sea-level rise of up to 8 feet. In that scenario, vulnerability will not be confined to those at society's margins; it will engulf all of us. Today, we have the power to bend the curve of that trajectory and move toward a sustainable, equitable future for all.

# *Three Myths About Climate Adaptation Work*

BETH GIBBONS

*Originally published April 16, 2018 in Meeting of the Minds*

In 2011 and 2012, derechos caused over half a billion dollars in damage to central Ohio. Rural North Carolina is still reeling after Hurricane Matthew did \$2.8 billion in damage there in 2016, not including an additional \$2 billion in economic losses. And yet, climate adaptation strategies remain increasingly focused on urban areas, which ignores the needs of rural communities feeling the effects of climate change. Across the United States, cities are taking the lead on adaptation while dwindling federal leadership and funding leaves smaller communities searching for other resources for adaptation.

We must recognize, celebrate, and leverage the leadership from these city centers. However, in order to move the needle on climate change, our efforts to identify leaders, test strategies, and broaden the adaptation community must look beyond big cities.

At the American Society of Adaptation Professionals, we connect and support those on the front lines of this effort in both urban and non-urban communities by supporting creative adaptation solutions to climate change impacts.

In order to widen the focus of climate adaptation, we need to dispel three myths about climate work outside of our biggest downtowns:

**Myth #1: Climate adaptation efforts should focus on cities because that's where the people are.**

80% of Americans live in urban areas, according to the 2010 Census. Shouldn't limited adaptation planning resources be spent on the majority of the population?

This misleading statistic reflects our narrow perception of urban areas. As Nate Berg explained in *CityLab*, the Census Bureau’s urban threshold is low. Eight in ten Americans live in what the Census terms an “urban cluster”, a town with more than 2,500 people, but hardly what we’d call a city. In fact, only 10 percent live in areas with a population greater than 50,000.

These urban areas include much of sprawling suburbia, including the outskirts of cities like Detroit, and Dallas. But, too often adaptation activities stop at the city line. Just as populations spill over borders, so does climate change vulnerability—and so, too, should support for adaptation planning and innovation.

**Myth #2: Climate adaptation strategies outside cities can be universal.** To city dwellers, non-urban places can be hard to distinguish from one another. Suburbs with generic thoroughfares lined with identical chain restaurants or rural areas with pastoral farmlands and forests seem to blend together.

As a rural-American, turned-urban-dweller, turned ex-urbanite, I tend to see the unique story in each of these places. It is fair to say it irks me when a well-meaning urbanite talks about “rural America” as if it were a homogenous Anytown. Growing up in rural central New York, we never thought of ourselves as kindred spirits to Kansans, and I’m sure they did not imagine their kith as fellow rural dwellers in New York

**Myth #3: Outside cities, no one believes in climate change.**

A close cousin of the first myth and sprung from the stereotypes of the second, peddlers of the third myth ask why they should bother to help solve a problem rural Americans don’t believe exists.

Perhaps you’ve heard that 69 percent of Americans believe in global warming—that’s no statistical trick. According to the Yale Program on Climate Communication, a majority in each of the 435 Congressional districts believe global warming is happening. In every single county nationwide, more than 50 percent believe climate change will harm future generations. Deniers may make more noise, but increasingly their conspiracy claims are falling on deaf ears in urban and non-urban areas throughout the country.

In fact, Americans living in rural communities are acutely aware of changes in our natural systems—primarily because they are so close to them. Non-urban areas are forced to develop adaptation strategies as the impacts of climate change directly disrupt their economic and cultural connections to agriculture, recreation, ranching, and fishing.

It's not just that non-urban areas agree that climate change is happening, in many ways they are leaders in adaptation. The Mississippi-Alabama (MSAL) Sea Grant Consortium engages with local communities to prepare for increased flooding for sea level rise and extreme storms, develop regional guidance on living shoreline restoration, and collaborates on the Gulf of Mexico Area Climate Community of Practice. In the rural Upper Peninsula of Michigan, the Superior Watershed Partnership and a coalition of partners measurably reduced run-off into Lake Superior, reducing e-coli levels, improving water quality, and benefiting health outcomes for coastal residents.

Urban areas are certainly important, but not exclusively so. Large swaths of population and economy reside in America's suburbs, exurbs, and rural communities—each of which faces unique challenges that require tailored approaches. Americans outside urban areas not only recognize the impacts of climate change, they are driving unique adaptation approaches.

The effects of climate change are felt by every part of our nation. Climate change strategies are most effective when they are coordinated regionally, across rural, exurban, suburban, and urban areas. Urban and non-urban Americans have a lot to learn from each other. The foremost lesson just might be that we're all in this, together.

# *Climate Activists May Have a Surprising Ally: France's Yellow Vests*

SAMANTHA HARVEY

*Originally published December 13, 2018 in Grist*

When tourists began their annual flock to Paris for *vin rouge* and holiday shopping last month, a rag-tag, politically unaffiliated group donning yellow safety vests showed up with different plans. A proposed fuel tax, seen as another blow against workers by a government in thrall to elites, set off a rampage in the most elegant streets of Paris. The “Yellow Vests” protests (*gilets jaunes*) continued for weeks and sparked solidarity marches across Europe, even after President Emmanuel Macron promised to halt the tax.

Thousands of miles above the demonstrations, world leaders flew to the U.N. climate talks known as COP 24 in Katowice, Poland to solidify the 2015 Paris Accord. President Trump jumped on the opportunity to scapegoat efforts to tackle climate change as the Yellow Vests’ motivation, tweeting, “Maybe it’s time to end the ridiculous and extremely expensive Paris Agreement. The Paris Agreement isn’t working out so well for Paris.”

The Yellow Vests, however, are concerned about the climate, despite their protest of a fuel tax, and their list of 42 demands calls for a fairer transition to a low-carbon economy for workers. Their issue is with how it’s done, while Trump’s view casts climate change as a preoccupation of the privileged, an either-or struggle between the environment and the economy.

The fact is, global climate justice activists push for both—a transition to a green economy that also demands fair pay, localized ownership and care for communities as integral parts of a cleaner world—all proposals in line with the Yellow Vests’ demands. A healthier planet requires an overhaul of our economic system, and workers collaborating with climate justice

movements would be doubly powerful. But the connections between them aren't widely known.

This could be due to the fact that the high-profile decision-makers meeting in Poland don't represent the entirety of the climate movement. Only weeks after the most alarming Intergovernmental Panel on Climate Change (IPCC) report yet (calling for emissions cuts of 45 percent below 2010 levels in the next 10 years), world leaders seemed unable to think beyond business-as-usual proposals that allow us to keep pumping carbon into the atmosphere, like carbon trading and geoengineering.

To climate justice activists, who draw from bottom-up solutions rooted in communities hardest hit by climate change, these proposals are non-starters, because they avoid addressing underlying causes of the crisis: Unfettered capitalism built on resource extraction and colonialism, and an addictive, globalized culture of consumption that supports the very leaders of government and business running the U.N. climate negotiations.

The large and growing movement for climate justice focuses on these root causes and pushes for worker-friendly, equitable solutions in climate negotiations worldwide. Take the Global Climate Action Summit last September in San Francisco. Just outside that summit was the parallel "People's Summit," held on a glorious day before ash from wildfires blanketed the state. Leaders from Climate Justice Alliance, Grassroots Global Justice, Indigenous Environmental Network and Right to the City Alliance shared stories of displacement as the result of multinational corporate land-grabs, of neighborhoods burdened by pollution from power plants, and of increasingly violent repercussions against those who try to protect their ancestral homelands.

But those at the top only benefit when populist groups like the Yellow Vests don't see just how aligned they are with climate justice. This is why it's still uncommon to hear the economy and the environment discussed as interconnected problems with interdependent solutions, and why high-level climate conferences continue to churn out lax commitments that maintain the status quo.

Can we imagine a green world in which workers make decisions for how they live? As income gaps increase, as jobs are lost to automation and oil and gas facilities are shut down, it seems obvious that governments and

communities should train and deploy legions of skilled workers to build a new, green infrastructure. This could be anything from emissions-free light rail lines that run across North America to local microgrids and urban agriculture. Breaking up the monolithic global corporations that control our fuel and food would change the system; a transition to a new economy would put power back into the hands of the people.

These ideas have been alive in the Just Transition movement in the United States for decades, and they're making headway thanks to the Green New Deal recently proposed by Representative-elect Alexandria Ocasio-Cortez from New York. This just transition would cut greenhouse gases while bringing jobs, security and autonomy back to communities, ensuring everyone has access to a good education, clean water, healthy food and safe living conditions.

At the time of this writing, the Yellow Vests are splintering, with protests spreading across Europe and more radical factions acting out with violence. We've seen rising populism all over the world devolve into outlets for rage, often taking dangerous racist and nationalist tones. To stop that destructive cycle, Yellow Vests and climate justice activists must make common cause.

Corporate interests may dwarf them now, but imagine if these two movements came together. They'd be unstoppable.



# *Is Washington, D.C. Prepared for Storms Like Hurricane Florence?*

AJ EARL

*Originally published September 19, 2018 in Greater Greater Washington*

**H**urricane Florence is finally spinning away from the Carolinas, leaving a destructive wake that includes at least 32 people dead. The threat had governments in the Washington region engaging their emergency management plans and assessing how they would act in the case of a direct hit.

An old hurricane plan for the DC Metro area dated to 1963 lists a lot of the same risks the city faces today, like tidal flooding related to the storm surge, though climate change has made them more acute. At the time, the Army Corps of Engineers advocated for flood control plans, and while local governments have been making efforts to prepare for dangerous weather in the decades since, gaps still remain.

## **Jurisdictions are trying to plan for destructive weather**

Regular flooding in places like Ellicott City, in Old Town Alexandria, in Rock Creek Park, and elsewhere around the region are a constant reminder of how vulnerable the region is to hurricanes and other storms.

When destructive weather is anticipated, governments may engage their emergency management plans. These set out a basic timeline and instructions on how to execute a safe and orderly evacuation from dangerous areas, and shelter management for those who cannot leave. They also cover preparation for emergencies, technical communications, search and rescue, incident command and interagency coordination, as well as recovery efforts like debris removal and getting businesses back up and running.

Most area governments coordinate under plans prompted by various rounds of congressional oversight and inquiry. Most base their plans

on the Department of Homeland Security (DHS) National Response Framework, which covers topics from “large-scale terrorist attacks or catastrophic natural disasters” and is updated every three years. (The most recent one is from 2016.)

Local governments also use the National Incident Management System and Incident Command System, established by FEMA, as the basis for their local plans. They may also reference the 2006 Nationwide Plan Review Phase 1 and Phase 2 reports from the DHS created in coordination with the US Department of Transportation.

However, local governments have been working on this since well before 2006. Funding under a state program begun in 1976 assists in creating and managing flood control measures, and Ellicott City implemented a flood warning system in the same year. In a 1990 Maryland Hurricane Evacuation Study, the Army Corps of Engineers wrote that “[to] reduce the potential for large scale loss of life and damage to property, there is critical need for policies, programs, and plans” that, among other things, “evacuate people when hazards are expected to occur.”

Today, Maryland counties are deploying a variety of strategies to mitigate the impacts of storms. In Frederick, a flood control system on Carroll Creek keeps water at bay. Montgomery County is implementing a variety of stormwater management strategies, though some residents aren’t so keen on the rain gardens.

The District has been making an effort too, especially in regards to dealing with stormwater. Its \$2.6 billion Clean Rivers project has been going on since 1990, and the newest tunnel is already keeping billions of gallons of sewage out of the Anacostia.

Still, many local jurisdictions aren’t fully prepared even after decades of such reports, as the regular flooding illustrates. Plus, these top-down efforts only work if both the government and its citizens are prepared, and some residents have more resources to navigate natural disasters than others.

### **Not all residents are equally prepared to deal with storms**

Lower-income communities tend to be affected most harshly by destructive weather, but good two-way communication between residents and

governments can help more people stay safe. That communication is also vital for creating plans that are useful to all communities.

For example, during 2005’s Hurricane Katrina, black residents and residents without a diploma or GED were less likely to evacuate and were more likely to lack the ability to do so, Substance Abuse and Mental Health Services Administration (SAMHSA) research shows.

Maryland’s Emergency Management Agency has a “Know Your Zone!” tool with maps that identify proximity to potential inundation during a storm. It has a three-tiered letter-based system for identifying flood-prone areas. These maps provide a useful, albeit sobering, look into the risks communities face, as well as a look into the socioeconomic impacts an evacuation can have on various parts of the region.

Bladensburg, for example, is largely within the map’s evacuation zone B and is adjacent to other small communities, meaning there is a heightened risk of inundation. That area is over 75% Black, Asian, and Latino like the rest of Prince George’s.

Even though most Bladensburg residents are listed by the Census Bureau as Latino, materials on the county’s emergency preparedness website are not readily available in Spanish and visitors must use a Google Translate feature embedded into the website.

### **Good transit is an important factor in disaster-preparedness**

One major option to improve outcomes for marginalized communities during disasters and evacuations is better access to transportation, SAMHSA notes, pointing to a paper looking at New Orleans by Michel Masozera, Melissa Bailey, and Charles Kerchner. Since many residents in New Orleans (and also in our region) don’t own cars, investment in transit—including buses and light rail—is vital.

The need for transit systems to be more prepared is so acute that the Institute of Transportation Engineers (ITE) released a report in 2008 saying that a proper response to emergencies like hurricanes must include transit. Transit in many regions remains a major missing link in the larger overall picture of social equity in emergency response. It’s clear that transit is an untapped resource in the Washington region.

The ITE report identifies WMATA's absence from the city's emergency evacuation plan as a major equity gap. WMATA is listed as a responder and coordinator under the District's response plan, and the city's preparedness capability report identifies numerous areas in which it is engaging with WMATA (such as quarterly discussions about shutdown procedures and emergency response and evacuation plans).

However, under the Hurricane Response Plan and the District of Columbia Hurricane Response & Recovery Checklist, WMATA is not a participant, except as an information partner.

Under the DC Healthcare Facility Evacuation Plan, WMATA is listed as a partner that is tasked with providing transportation for vulnerable populations. WMATA is also a major component in the fairly novel all-city walkout evacuation plan prepared for DDOT that theorizes the impacts of an on-foot evacuation. Buses under this plan would assist those who have difficulty walking as part of a total evacuation by picking them up and dropping them at several locations outside city boundaries.

Similarly, Montgomery County's emergency management plan has multiple levels of government coordinate to keep the Maryland Department of Transportation and WMATA working together to provide transportation for residents.

In Prince George's County, at least 10% of residents in the Bladensburg area (Census tracts 8040.02, 8046, and 8063) ride transit. As *GGWash* has previously reported, Prince George's bus system, TheBus, needs a little work—certainly not something you want to hear during an emergency, if you can hear anything from them at all.

Regardless, while emergency plans help, there is more we can do to protect vulnerable communities if and when the next big natural disaster strikes.

### **What you should do in a dangerous weather situation**

With different plans of action across the region, figuring out what to do when a massive storm is bearing down can be daunting. What should residents and visitors do?

First, finding information about your current locality is the most important thing. Whether you're at work, home, school, or anywhere

else, the emergency management service for that locale is the relevant clearinghouse for information.

Second, for general tips on preparing for storms, the federal government's Ready.gov website is a great resource.

Finally, remain connected to public information. Ensure you have access to not only classic means of news such as TV and radio, but also verified digital sources, such as the official social media feeds of weather networks, local news stations, and professional meteorologists. In the DC Metro area, the *Post's* Capital Weather Gang provides warning and analysis of current threats.

Be alert, be prepared, and be safe.

# *Making the “Miami Forever Bond” a Model for Equitable Climate Adaptation*

ZELALEM ADEFERIS

*Originally published October 18, 2018 on [AdaptationProfessionals.org](http://AdaptationProfessionals.org)*

**Y**ou could say that Miami, Florida, is ground zero for climate change. As the American city most vulnerable to sea-level rise, Miami faces existential threats from flooding, storm surge and saltwater intrusion in the city’s drinking water. And growing inequity places Miami’s low-income and marginalized communities at extraordinary risk from climate impacts.

But—thanks to the Miami Climate Alliance, a coalition of citizens’ groups—this coastal city could also be at the forefront of equitable climate adaptation.

Last year, under the leadership of its outgoing Republican Mayor, Tomás Regalado, Miami’s voters passed a \$400 million “Miami Forever Bond.” The measure authorized the city government to borrow money on the municipal bond market to address sea-level rise and the city’s affordable housing crisis, levying a new property tax to repay the debt. The Miami Climate Alliance is working to ensure that the bond benefits those who need it most.

How did a famously tax-averse city with a conservative Republican mayor find itself in the vanguard of climate adaptation? The answer lies, in part, with Regalado’s conversion from climate skepticism. When he was elected in 2009, Regalado thought that sea level rise was “a very distant future possibility,” he later told *The New York Times*. But, during a series of 4:30 am chats over Cuban coffee, Regalado’s son, Jose, convinced him of the urgency of the problem.

That urgency has become increasingly difficult to ignore. Over the last 10 years, the Miami region has seen floods increase in frequency by 400 percent; fish now swim the flooded streets even on rainless, sunny days. The ocean that laps at the region's famed beaches has risen nearly a foot since preindustrial times, and could swell by six feet or more by the end of this century. Rising seas will combine with supercharged storms to inundate the Miami region, which is home to nearly three million people.

Of course, not all people are affected equally by climate threats. That was evident when Hurricane Andrew tore through Miami in 1992; the hardest-hit areas included the impoverished municipality of Florida City, south of downtown Miami. While neighboring areas quickly bounced back after the storm, Florida City suffered from plummeting property values and rising poverty.

And, despite the city's booming tourist trade and glittering seaside real estate, many City of Miami residents are struggling to get by. Nearly 60 percent of Miami-Dade County households are considered financially unstable; one in five live in poverty. Poverty is most prevalent among African-American and Hispanic communities, which together make up 85 percent of Miami-Dade's population.

As climate impacts became a daily reality for the people of the City of Miami, Mayor Regalado gathered support for the bond initiative. He got an assist from the First Street Foundation, whose Seawall Coalition (a 501(c)(4) organization) spent \$350,000 to educate the city's voters about sea-level rise. Ultimately, about 55 percent of Miami's electorate voted in favor of the Miami Forever Bond.

Miami is not the first U.S. city to raise money to gird against climate change. In 2012, Seattle voters overwhelmingly approved a \$290 million debt measure to rebuild a seawall that protects the downtown waterfront. And in 2016, San Francisco Bay area residents approved a tax to fund a \$500 million restoration of tidal marshes, which act as a buffer against storm surges.

In Miami, city officials have set broad outlines for how the bond funds will be spent: they have earmarked \$192 million for storm drain upgrades, flood pumps and seawalls to curb flooding; \$100 million for affordable housing and economic development; \$78 million for parks

and cultural facilities; \$23 million for road improvements; and \$7 million for public safety.

But the devil, as always, is in the details. Which neighborhoods will see the greatest benefit from bond funding? And who decides how the money will be spent? The stakes are high: if spending bypasses Miami's most vulnerable communities, current inequities will only deepen in the decades to come.

That's why the Miami Climate Alliance is working to make sure the Miami Forever Bond benefits all the city's people—especially those in underserved communities.

The Alliance was convened in 2015 by a diverse group of some 100 Miami-area residents (including community leaders, students, over 80 community organizations, social justice advocates, environmentalists, scientists, teachers, and climate activists) to organize the Miami People's Climate March. While organizing the March, Alliance members were surprised to learn that there was no mention of climate change—or funding for climate action—in Miami-Dade County's \$6.8 million FY 2015-16 budget. So the Alliance mobilized residents to speak up during the budget hearings, which led to the creation of the County's Office of Resilience and its first-ever Chief Resilience Officer.

Since then, the Alliance and its member organizations have pushed Miami to take the lead on equitable climate action. For example, after the Trump administration withdrew from the Paris Climate Accord, the Alliance won commitments from several local municipalities to support the Accord targets on renewable energy. And, when the City appointed a new Sea Level Rise Committee, the Alliance fought hard to make sure that Committee reflects the city's diversity.

“If you include black and brown people, people from the community, you'll change the dynamic,” Trenise Bryant, an Alliance activist, told the Miami Herald earlier this year.

Now the Alliance is working to make sure that communities have a real say in how the Miami Forever Bond funds are spent. To that end, the Miami Climate Alliance and Catalyst Miami organized a series of



town halls, which drew dozens of community members. There, residents agreed on a set of criteria to apply to Bond-funded projects. The Alliance will work to make sure those criteria are used by a citizen oversight board that makes recommendations on Bond spending to the City Commission.

The Alliance also helped shape the citizen oversight board, making sure it reflects the City's racial, gender and age diversity—while excluding those with overt conflicts of interest. And the Alliance helped ensure that the board includes not only those with expertise in hydrology, architecture, and engineering, but also those with knowledge of community leadership and an equity perspective. All of these asks were incorporated into the oversight board ordinance by the City Commission and Mayor Francis Suarez.

It's a slow-moving process: nearly a year after the bond's approval, the city's oversight board has still not met. However, the Miami Climate Alliance will be there every step of the way, amplifying the voices of those at greatest risk from climate impacts. If this effort succeeds, Miami could be a model of climate adaptation that is both farsighted and just.

# *The Climate is Changing; Colleges and Universities Must Adapt*

RUBY WOODSIDE

*Originally published December 3, 2018 in Age of Awareness*

The long-predicted impacts of climate change are now a daily reality. Today, we're seeing record-smashing heat; unprecedented storms; and a "fire season" that burns year-round. And worse is yet to come. The impacts we've experienced so far reflect a modest global temperature increase of 1.8 degrees Fahrenheit. But current emissions and accelerated warming trends point to a much hotter, wilder climate in the years ahead.

Like every other institution in our society, colleges and universities are affected by the changing climate. They face new threats to campus infrastructure, and to the safety of students, faculty and staff. But while colleges and universities grapple with these problems, they can also be part of the solution. That's the conclusion of a pilot project—Climate Resilience in Urban Campuses + Communities (CRUX)—designed to boost the resilience of higher education institutions and the communities they inhabit.

The lessons learned from the project have informed and inspired efforts by a larger group of colleges and universities, which spent the past year assessing their campus and community resilience to climate change. Their efforts have identified several key resilience-building strategies:

## **Work with the community to assess and address the challenges**

A campus is not an island; its risk and resilience is tied to that of its surrounding community. It makes sense, then, to work with community members to assess challenges and brainstorm solutions. Colleges and universities have much to bring to the table, including research and technical capacity, and the stature to convene a diverse group of interested parties.

In some places—such as Fayetteville, Arkansas—universities are starting the conversation about climate resilience. Faculty and students from

the University of Arkansas convened community leaders responsible for pieces of the resilience puzzle—including human health, the natural environment, and emergency response—who rarely sat at a table together. Together, they reviewed likely climate impacts, tallied community assets, and developed an action plan to reduce vulnerability.

Elsewhere, the conversation begins with a climate-related crisis. That’s what happened in Aurora, New York, home to Wells College. Despite a history of strained town-gown relations, the college and town came together in the summer of 2017 to deal with harmful algal blooms (HABs) in neighboring Cayuga Lake that threatened their shared drinking water supply. The college and town worked together to explore short-term solutions, and—because HABs are a known climate change impact—this crisis lent urgency to broader resilience planning.

### **Build community resilience—especially for the most vulnerable**

Climate disasters hit marginalized people first and worst. Many colleges and universities have connections to vulnerable communities, through direct service programs or ties to local community organizations. Those connections can be leveraged to build the resilience of those communities, ensure their inclusion in adaptation planning, and provide help in an emergency.

For example, the University of Illinois Chicago is a major provider of health care to underserved communities through its nine health-related colleges, outpatient clinics and hospital. The University is currently devising plans to coordinate emergency preparedness, notification and response through its health care network, in partnership with the Illinois Medical District.

And, as “anchor institutions” in their communities, colleges and universities can lend their facilities to the cause of preparing for—and recovering from—climate impacts. For example, a university can designate a space on campus as a resilience hub, which offers community relationship-building as well as cooling centers and emergency shelters.

### **Become a resilience innovation lab**

Research and innovation are the twin superpowers of higher education institutions—and they can be deployed to address the challenge of climate resilience. Faculty can design curricula on climate impacts and

solutions, and support students in research, outreach, and implementation of projects.

Innovation begins with deep understanding of the challenge at hand. That's why Portland State University partnered with city agencies to develop the online mapping tool. The interactive tool shows the detailed distribution of heat islands, traffic-related air quality, and social vulnerability in the Portland Metro area. This enables community members and planners to see where climate impacts are hitting the community hardest, and where those being affected have the least capacity to respond to and withstand these effects.

Higher education institutions can tap one of their greatest resources, students, to help solve the climate challenge. At California State University, Northridge (CSUN), a class of urban planning graduate students led a resilience assessment for CSUN and the community of Northridge. The project culminated in a plan to increase resilience for both the campus and community.

### **Improve campus infrastructure**

Universities can improve the resilience of campus infrastructure, which may also benefit surrounding neighborhoods. And, because universities face many of the same challenges as the larger community, they can model actions and pilot initiatives on a smaller scale.

Many colleges and universities are initiating efforts to conserve energy use and develop responsible storm water management. For example, the University of Illinois Chicago has developed a green infrastructure plan that would re-landscape UIC's 240-acre downtown campus to capture and retain storm water. This will help keep runoff out of the city's combined storm water-sewer systems, which contaminate local streams, rivers, and Lake Michigan—Chicago's drinking water source. Storm water management is especially impactful as climate change triggers more intense precipitation events.

Colleges and universities can also implement smaller infrastructure improvements, which serve as demonstration projects while incrementally increasing campus resilience. For example, Phoenix, Arizona is facing extreme heat. This led South Mountain Community College to prioritize the installation of a new water bottle filling station in one

of the hottest locations on campus, to mitigate heat-related illness. Many schools identified visible projects and “easy wins” as important components of a broader strategy to improve resilience.

### **Address food insecurity**

Hunger is a problem for many communities and campuses, and climate change can make the problem worse. Droughts and storms can ruin crops and boost food prices; disasters can sever food supply chains. Colleges and universities can help address food insecurity and promote greater local self-sufficiency by, for example, supporting urban agriculture initiatives and expanding access to food assistance programs.

To help ensure food security among its students, California State University Northridge (CSUN) maintains a food pantry, food garden, fruit trees, and a food system that works to find and help students who are food insecure. CSUN also promotes the use of CalFresh EBT cards (a state food aid program) at campus farmers markets for those who need it. Similarly, Chatham University in Pittsburgh works with the local Food Policy Council to improve access to healthy foods in public schools and low-income communities. And Chatham’s food service sources food from local farms—including one on campus—leveraging its purchasing power to build a vibrant local food movement.

Climate change poses unprecedented challenges to our communities, colleges and universities included. As we work to address these challenges, institutions of higher learning have much to contribute. Through innovation, infrastructure, and our greatest asset—engaged, committed, smart students—we can lead the way to a climate-resilient future.

# *After Hurricane Florence, Carolinians Know the Climate is Changing; Now We Must Act*

SUSANNAH TUTTLE

*Originally published November 1, 2018 on Resilience.org*

**A**cross the Carolinas, the floodwaters have receded and rebuilding is under way. But the epic 2018 hurricane season has left a mark, like a ghostly high-water stain on the wall of a flooded building. Today, Carolina residents increasingly accept the reality of climate change, and want to prepare for its ravages.

The urgent need to adapt to a hotter, wilder world presents extraordinary challenges. But it also offers a chance to rethink who we are, and how we live.

The challenges are real: our long coastline is vulnerable to sea-level rise and supercharged storms; our essential crops face withering heat and erratic rainfall. From hog farms to chemical plants and coal-ash ponds, our industries harbor toxic threats when flooded. And, as Matthew and Florence made clear, climate disasters hit low-income communities and communities of color first and worst.

There is growing awareness of the threats we face. An Elon University survey taken earlier this month showed that more than eight in 10 North Carolinians now believe climate change is “very” or “somewhat” likely to negatively impact the state’s coastal communities. The most notable shift is among Republicans, 37 percent of whom now believe global warming is “very likely” to have a negative impact—nearly triple the percentage who felt that way in 2017.

In fact, even before Florence hit, the Carolinas were reckoning with climate change by assessing the threats, preparing for the worst, and

protecting the most vulnerable. For years, North and South Carolinians have been seeing climate changes firsthand, and finding ways to adapt. For example, North Carolina's Land Loss Prevention Project—originally founded to prevent black farmers from losing their land to foreclosure—is identifying farm communities that are vulnerable to climate impacts and helping them move to safer land.

And, along the Low Country that stretches from the Carolinas to Florida, the Gullah/Geechee Nation—descendants of enslaved Africans with a distinct and vibrant culture—are facing existential threats to the land they call home. The Gullah/Geechee are responding with activism, not fatalism, by changing traditional agricultural practices in an effort to preserve their rich culinary heritage.

Across the Carolinas, people of faith are shaping the response to climate change. My organization, NC Interfaith Power and Light, recently convened a group of church leaders in Morehead City, NC. The church leaders in that coastal town were well aware of their vulnerability: they introduced themselves by name and by their homes' elevation above sea level. In that meeting, they hatched a plan to pair less-vulnerable families with more-vulnerable ones. Forging those relationships before a crisis ensures that those at risk will be cared for in difficult times.

There is more where that came from. Earlier this week, people from Hilton Head to Winston-Salem gathered at the Carolinas Climate Resilience Conference (CCRC) in Columbia, SC to discuss the specific challenges we face, and to celebrate—and learn from—innovative, local efforts to meet those challenges.

Ironically, the CCRC was originally scheduled for late September, but was derailed by Hurricane Florence. Given that stark reminder of our new reality, conference organizers added lessons learned from Hurricane Florence to the agenda of real-world solutions to climate adaptation in the Carolinas.

Climate adaptation is not about “sustainability,” in the language of the mainstream environmental movement. Sustainability implies a steady state, a commitment to the status quo. But there is so much about the way we live that should not be sustained: our disregard for Creation; our unequal society that places the poor and marginalized at greatest risk.

To build a resilient future for the Carolinas and the world as a whole, we must reckon with the fact that profound change is now inevitable. But that change is a beginning as well as an end—an opportunity to hit the “reset” button on how we live. It asks us what we most want to preserve—including our traditions, our recipes, and the ties of culture and faith that bind us together. And it calls us to recommit to the values—justice, charity, and concern for the least among us—that will guide us through the difficult times ahead.



# *Leave No Worker Behind*

SAMANTHA HARVEY

*Originally published June 14, 2018 in Earth Island Journal*

“There is a right way to do ‘just transition.’”

The statement echoes through the humid halls of the historic Stringer Grand Lodge Masonic Temple in Jackson, Mississippi, on an unseasonably scorching day in late February, 2018. Mingling with the ghosts of Medgar Evers, Fannie Lou Hamer, and Dr. Martin Luther King, Jr., 150 labor leaders, environmental justice activists, philanthropists, and national environmental organization staffers move from one side of the room to the other—far right for “strongly agree,” and far left for “strongly disagree.”

The group has come together to find alignment around the concept of just transition, so laughter erupts at the almost 50-50 split. But the mood soon settles. With the backdrop of a president who has filled his cabinet with oil executives, brutishly dismissed climate change, and denounced the Paris Accord, it’s hard to shake off what’s happening outside for too long: Puerto Ricans are fleeing the devastating effects of Hurricane Maria with no end in sight, #MeToo is a household term, and activists are railing against the assault on unions in the historic Supreme Court case *Janus v. AFSCME*. Those in the temple are steeped in these threats and more. But they also understand that while climate change, racism, patriarchy, and plutocracy are terrifying, they are not impenetrable, and dismantling one may lead to the unraveling of others.

Global activists share this systemic view, and around the world, locally based, integrated models are being built to support people working and living together in community. This decarbonized vision connects jobs and environment rather than pitting them against one another; breaks down patriarchy and systems of oppression; honors caring, culture, and community leadership; and reshuffles the paradigm that hails profit as the sole pinnacle of goodness. They call it “*buen vivir*” (good living) in

South America, “commons” and “degrowth” in Europe, “agroecology,” “ecofeminisms,” and “rights of Mother Earth” in Indigenous communities, and in the United States, incorporating principles of all these concepts, “just transition.”

After much debate across the temple, a woman raises her hand from a spot dead center between the two poles. “Just transition will look different in different places, because it’s place-based,” she says. “But the principles behind it have to be the same. So there is a right way, but the right way is many ways.” She doesn’t mention that some “right ways” are more “right” than others. All seem to agree just transition fundamentally requires a shift off of fossil fuels, and in a radically climate-changing world, nothing could be more urgent. But grassroots movements also demand economic, racial, and gender justice underpin that shift. In fact, they assert decarbonizing simply cannot happen exclusive of justice.

This approach has been threatened since “just transition” hit the big time, so to speak: when it appeared in the preamble of the Paris Accord in late 2015. Movement leaders fear its public adoption on a global platform threatens to dilute the concept, undermine it, co-opt it. They believe policymakers and large philanthropies are too wedded to the capitalist economy to be able to imagine anything outside of it, and the consolidation of wealth, spurred by white supremacy and patriarchy, is the foundation of a capitalist system whose growth-at-all-costs philosophy is killing the planet. To these leaders, tackling climate change without justice is a zero-sum game, a way for the wealthy to delay the catastrophic effects of fossil fuel use on themselves, perhaps, but certainly not a way to dig out the roots of the underlying systems that created resource grabs and climate change in the first place.

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And so it is that José Bravo, executive director and founder of the Just Transition Alliance, finds himself in Jackson, doing his best to protect the roots of this radical alternative framework. He is inside the temple’s main room as much as he is out in the hall in off-the-cuff meetings, throwing an avuncular arm around the shoulders of passersby, and then patiently building the case for solidarity with workers and communities. He is as comfortable cracking jokes as he is debating high-level policy, a disarming quality that has served him well through decades of movement building.

Bravo was there at the beginning of the just transition movement, a participant in the first People of Color Environmental Leadership Summit in 1991, and five years later, a co-writer of the seminal “Jemez Principles for Democratic Organizing.” The Jemez principles would later ground principles of the Just Transition Alliance, the Indigenous Environmental Network, and the Climate Justice Alliance. In today’s parlance, Bravo qualifies as a movement O.G., so in the current rush to define “just transition,” he gets asked a lot why the Just Transition Alliance never copyrighted the term.

“Because we don’t believe in that,” he says. “We believe just transition is as open-source now as it’s ever been. But we do want people to know it didn’t start today.”

The origins of this movement trace back to the early ‘90s, when Tony Mazzocchi, a labor leader and top official of the Oil, Chemical, and Atomic Workers International Union (OCAW), saw the inevitability of a labor transition away from toxic fuels and chemicals.

As Bravo remembers it, “Here you had workers who depended on 100 percent of the most vile things on the planet. The chemicals, the fuels, the artillery, the weapons . . . And they said, *You know what? The stuff we produce, and many of the things we put together in these plants, probably shouldn’t be put together on the face of this planet.*” But stopping production would mean job losses.

In 1993, writing for the *EcoSocialist Review*—in a piece shortly thereafter excerpted by *Earth Island Journal*—Mazzocchi proposed a “superfund for workers” to assist those working in an era of environmental cleanup to transition to new, cleaner jobs, replete with training programs, full wages, and benefits for those who found themselves unemployed.

“We are not asking that environmentalists change their agenda,” he wrote. “However, we urge consideration of the economic impact upon workers.”

Mazzocchi started collaborating with national environmental organizations, but their prime motivation at the time was shutting down the plants, not necessarily assisting workers facing unemployment. “They kept doing actions, rappelling off smokestacks, pissing off workers,” Bravo remembers of the NGO activists. So the OCAW instead approached

the environmental justice (EJ) movement, brand new at the time. The working class and communities of color represented by the movement lived in toxic neighborhoods on the fencelines of the plants, and were uniquely able to connect their own struggles to those of the workers.

The new OCAW-EJ partnership identified five sites throughout the country. From Richmond, California to Ponka City, Oklahoma, the sites shared two qualities: labor disputes requiring resolution, and strong relationships between EJ leadership and vulnerable fenceline communities. Bravo's job was to talk to both residents and workers at these sites, connect them through shared challenges and needs, and train the now mixed groups on this developing concept of just transition—a move away from toxic production that also valued justice, transparency, and protection for both workers and communities.

For a while they were off and running, but outside those five communities were about 90,000 workers in the OCAW, which in 2005 merged with the United Steelworkers Union. With a newly ballooned, conservative-leaning membership of 800,000, what began as a groundbreaking partnership became a David and Goliath proposition.

Joe Uehlein, former secretary-treasurer of the AFL-CIO's Industrial Union Department and founding president of the Labor Network for Sustainability, has some insight on what went wrong. "American labor is a microcosm of America," Uehlein says, "and America has a conservative streak. Here, we not only allow, but we engineer fear into the workers' kitchen tables. Fear for how they're going to provide for healthcare, pension, benefits, education, vacation . . . and that's a big part of why we're so resistant to change and to the just transition framework."

Organized labor saw any shift from business-as-usual as a threat, and backed away, but the concept of systemic change beyond green jobs continued to develop over the decades within EJ and movement support groups throughout the US. At the same time, in the global policy realm, the International Labour Organization built its own platform around just transition, and in November 2015 released guidelines for transitioning to a low-carbon economy while simultaneously protecting workers.

Then on December 11, 2015, flanked by a floor-to-ceiling mural of nineteenth-century Frenchmen harpooning a dolphin, a group of the

world's most influential philanthropic presidents and program officers gathered at the Institut Océanographique de Paris to celebrate the signing of the Paris Climate Accord. Filing out of the drafty lecture hall, they “high-fived” to mark not only the landmark accord to stem global warming, but also the inclusion of “just transition” in its preamble. But even as they clinked glasses, some funders surreptitiously Googled this new phrase and wondered how they would write it into foundation programs back home.

Eight metro stops away at the *Zone d'Action Climat*, global activists were sewing the final threads into a banner that read “COP 21 = +3°C,” which they would set ablaze at a mass mobilization the following day on the lawn of the Eiffel Tower. They saw the recognition of “just transition” on the mainstream policy stage as oxymoronic. They worried that once taken over by philanthropies and governments entrenched in a corporate model, the principles that birthed the term—principles of bottom-up community leadership, cultural inclusion, food sovereignty, and localized economies—would be lost forever.



Kandi Mosset, lead organizer for the Indigenous Environmental Network's (IEN) Extreme Energy and Just Transition Campaign, traveled to Bonn in November 2017 for the United Nations Framework Convention on Climate Change's COP 23, even though she saw little utility.

“This is the 23rd one,” she says. “If they haven't figured it out by now, are they ever going to?”

Mosset hails from Fort Berthold, North Dakota, near the “head of the snake,” the now infamous Dakota Access Pipeline, which in 2016 inspired the largest convening of Native peoples in generations at the Standing Rock Sioux Reservation. She certainly has enough to occupy her at home. But there were two solid reasons to represent in Bonn—first, she says, to call out leaders for promoting greenwashed tactics that hurt communities.

“If we're not there they'll just make a bunch of decisions about false solutions,” Mosset says, referring to schemes like cap and trade, carbon capture and sequestration, and geoengineering, all viewed by environmental justice advocates as ways for corporations to rationalize polluting in low income communities, Indigenous communities, and communities of

color. Or, in the case of geoengineering, to create untested and potentially destructive “fixes” so they can continue business as usual.

The second reason Mosset gave for traveling to Bonn was community. “When I was in Bonn,” she says, “we were talking about just transition from an Indigenous perspective, but we were also there with La Via Campesina, the peasant farmworkers. We were there with people from African communities who were talking about agroecology, people from Puerto Rico, and so what I saw were a lot of similarities, actually, which was encouraging.”

This centering of community shows up in IEN’s Just Transition Principles, which assert, “We will . . . address the root causes of climate change by changing the system, first within ourselves, our families, our clans, our community, our Native Nations and then radiate this power out to the world.”

But if carbon taxes and geoengineering are false solutions, what are the true ones? In addition to strong community, what does a just transition look like in practice?

For activists like Mosset, just transition could take any number of forms. As one example, she mentions Lakota Solar Enterprises, a local business in South Dakota that’s part solar equipment manufacturer and part skills school. It’s also part of the burgeoning new economy, through which proprietor Henry Red Cloud hopes his tribe, the Oglala Sioux, can break free from fossil fuels and develop a sustainable, community-focused future.

“The grid system in the US is aging; it’s a Goliath,” Mosset says. “To make changes to that takes a really long time. Whereas at a local scale, things can change more quickly and more efficiently.” That’s exactly what Red Cloud is doing. Acting at the local level, Lakota Solar has produced thousands of solar units and graduated hundreds of students from its training program. Red Cloud has also sold solar products to other tribes, assisting them in their own transition towards energy independence.

Another example emerging some 1,500 miles away is Cooperation Jackson, host of the just transition meeting in Mississippi and a groundbreaking worker cooperative with an expansive mission to build what they call a solidarity economy. Cooperation Jackson connects civic education

with People's Assemblies, the construction of eco villages, and food sovereignty by way of urban farms. Members insist on incorporating everything from visual and performing arts to a cooperative financial institution into the community's work.

brandon king, who says with the hint of a smile that he spells his name in lowercase because he doesn't believe in capitalism, is an anchor of Freedom Farms, the co-op's agricultural arm. He also works to ensure Cooperation Jackson's vision pervades all the work they do. "To be completely 100, all this stuff we're doing? We're learning while doing. . . . It's being the example and showing the alternative—I think when people see it, and they see how much fun we're having, that draws folks to it."

king adds that a vast economic and environmental transition requires cultural transformation. "It takes us taking steps away from the TV screen and actually seeing each other, being with each other, being in community with each other," he says. "And this is something we have to relearn."

But he's confident people in Jackson are primed for change. Jackson's population is more than 80 percent African-American, and king explains the appetite for radical politics in a Republican Southern state like so: "The Black people in Mississippi are the Black people who stayed during Jim Crow," he says, "so there's a level of resilience and there's a level of understanding around communities that stick together and help each other."

There's likely also a level of resolve that comes from simply unplugging from a historically oppressive system.

king also stresses the enduring power of small-scale farmers, who, with access to just a quarter of the world's farmlands, manage to feed more than 70 percent of the population. Putting food back into the hands of communities fosters cultural shifts and freedom from the global industrial agriculture system, which by some estimates spews more than half the world's greenhouse gas emissions via the use of nitrogen-based fertilizers, processing, packaging, transport and more. So, in his work with Freedom Farms, king seeks to learn from the success of small farmers, and to make food more accessible to those with limited resources.

“In the current economic system we live under . . . it’s highly improbable for farmers, especially small-scale farmers, to make a living,” he explains. “And that’s by design. So, when we’re thinking about growing food and growing food locally, we’re thinking about exchange value and trying to shift that exchange value from the monetary system we’re currently under. And we’re using time banking, using sweat equity, as ways for people to have access to the food, and for there not to be a barrier based on whether you’ve got a dollar bill or not.”

And it’s not just small farmers who have a role in the just transition movement. Ed Whitfield is co-managing director of the Fund for Democratic Communities, a private foundation whose leadership is spending down capital faster than it can be replenished—essentially putting themselves out of business over time—as a way of democratizing finance, putting financial resources directly back into communities.

“The assets of foundations have ultimately come from working class people and working class communities around the world,” Whitfield says, “and they belong back there, not in the control of people who are able to control money, but with people who are within communities working to meet community needs and elevate quality of life.”



For grassroots activists struggling to transform environment, culture, and economy, there is no room for compromise. And because of that, the adoption of “just transition” in the international policy realm feels more like co-option than progress. They fear its propagation in bureaucratic policy-making circles will not only dilute the vision, but undermine it. They worry frontline communities and local labor will lose their voice in a movement meant to be driven from the ground up. And perhaps most of all, they believe a just transition requires an overhaul of business-as-usual policies—it should not be perceived or embraced as an add-on to an extractive, growth-at-all-costs economic model.

“The capitalist system makes this assumption that there’s never-ending, continual growth for ever and ever and ever,” Mosset says. “That never was and never will be sustainable. They create this false sense of, well, that’s just the way it is. Just transition would be teaching people that that’s just not the case.”



But not everyone agrees a hard, anti-capitalist line is realistic. Indeed, Samantha (Sam) Smith, director of the Just Transition Centre at the International Trade Union Confederation, believes popularization on a global scale leaves more room for a diversity of approaches.

“We’ve gone from the COP in Paris where just transition was in there, and many big governments were thinking, *What is this?* And now we have three governments right around the time of the COP [in Bonn] saying *We’re going to have a just transition commission*. And they have climate targets that back it up,” she says. Smith is referencing New Zealand, Canada, and Scotland, which each announced task forces pledging to reduce emissions without harming their economies.

As part of her work, Smith gathers concrete examples of labor-friendly shifts toward a low carbon economy and shares them widely, through convenings, videos, case studies, reports, and more. The idea is to take a concept that’s previously been aspirational and experimental, and disseminate it as a reality that trade unions worldwide can get behind.

In some cases, the dissonance between just transition at an international policy level and in grassroots movements lies not within what is said, but what is *not* said. While the Indigenous Environmental Network and its ally the Climate Justice Alliance directly call out nuclear energy as a “false solution,” and while they clearly name capitalism as a system that must be dismantled as part of a decarbonized economy, the International Labour Organization and International Trade Union Confederation do no such thing.

“I would never try to tell people what these words should mean, what kind of work you should do,” says Smith. Some union members do in fact support a system change away from capitalism, while others just want a capitalist system that’s less exploitative and extractive.

“We all want to fight corporate power and inequality and extractive systems,” Smith adds. “But at some point, the 183 million people in the International Trade Union Confederation would not all have that interest. They would still like to have companies and employers.”

In other instances, the critique of grassroots just transition principles focuses on issues of practicality. Can small-scale, local enterprises truly

power, feed, and shelter the world? While local examples are still emerging across the globe, communities like Mosser's and King's are writing a new narrative, asserting that just transition is possible when matched with a culture shift around consumption and community power.

As Ed Whitfield says, "We will have to basically conceive of and engage in business in a different kind of way, with a different purpose. Because right now the purpose of it does tend to be growth, as opposed to the purpose of it being meeting people's needs and elevating the quality of life."

At the UN level, with endless cycles of receptions, meetings, and maxed-out hotels, unplugging from global systems as an answer to global problems may seem absurd. But it's possible the new world just can't be conceived using the same terms as the old. It's possible our collective vision in the dawn of the twenty-first century isn't quite making it, and the full flourishing of a justly transitioned system will look unlike anything we've ever imagined. It is also possible the full manifestation of this new world is a process rather than a product, that it's steadfastly building all around us, but we just can't quite see it. Perhaps we'll all wake up one day and realize we've reached a tipping point, and the world has changed for the better.

SECTION II

**RESILIENT AND EQUITABLE SYSTEMS:  
ENERGY, WATER, HEALTH, FOOD**

# *Energy Democracy: People Power for a Cleaner Planet*

DENISE FAIRCHILD

*Originally published January 11, 2018 in Colorlines*

There's a power grab underway in Washington—a reverse Robin Hood strategy that transfers resources from working people to corporations and the 1 percent. It's also reversing the global movement to replace dirty energy with renewables, in spite of the health and environmental impacts. Beneficiaries include the fossil fuel industry and multinational enterprises.

Energy democracy is a strategy to take some of those resources back, by putting power—literally—in the hands of the people. It has potentially game-changing benefits for low-income people and communities of color. To understand the promise of energy democracy, we need to consider the problems with our current systems of power, both the political variety and the kind that recharges your iPhone. (Spoiler: they are very closely connected.)

Today, our lives and economy are powered by fossil fuels: coal, oil and gas. There are some notable downsides to this arrangement. First, burning fossil fuel pollutes our air and water, while wrapping Earth's atmosphere in a blanket of heat-trapping carbon dioxide that is rapidly changing the climate. As a result, we are suffering ever-more deadly heat waves, crop failures, supercharged storms and catastrophic wildfires.

While no one can completely escape the effects of climate change, it won't surprise you to learn that low-income people and people of color take the brunt of it. Those communities are least able to afford the rising price of food and other necessities, often lack access to health services, live in neighborhoods that are most vulnerable to floods and heat waves, and lack financial resources to bounce back after disasters. For example, according to a recent study by the NAACP, low-income, African-American women suffered the highest rates of injury and mortality in Hurricane

Katrina. And because power plants and refineries are more likely to be sited in low-income communities of color, those communities have much higher rates of asthma, cancer and premature death.

At the same time, our fossil-fuel powered energy system has insidious effects on democracy and civic life. That massive, centralized system produces huge profits for the handful of corporations that control it. And, as wealth is increasingly concentrated in the hands of the few, their political power has grown. (Consider, for example, the outsized influence of the Koch brothers.) The concentration of power, literal and otherwise, distorts public priorities and undermines democracy. That's why the Trump Administration chose to withdraw the United States from the Paris Climate Accord, though seven out of 10 Americans wanted to stay in. It also explains the astonishing \$5.3 trillion in subsidies and other benefits that the world's governments bestow upon the oil industry every year. In the U.S. alone, fossil fuel production receives \$20 billion in subsidies each year.

So what's the answer? A rapid transition to solar, wind and other clean-energy technologies are one part. But renewables alone can't address the corrosive concentration of power in our society. Instead, we need an energy democracy movement that wrests control and ownership out of the hands of corporate interests, reclaiming it as a vital resource for advancing the environmental, economic and social-justice needs of our communities.

That movement is already under way. It seeks to bring energy resources under public or community control. It confronts the racial and other injustices at the heart of our current energy system, and prioritizes the needs and concerns of working families and communities of color in the struggle to define a new energy future.

While no community has energy democracy completely figured out, there are works in progress across the country that give us a glimpse of what's possible. In Mississippi, for example, a group called One Voice is fighting to restore democratic control of the state's rural electric cooperatives. During the Great Depression, those co-ops were founded to bring electricity to the state's poorest, returning profits to their ratepayer members. But over the generations, electric cooperatives came instead to resemble their profit-making counterparts. Most enjoy monopolies in their

service areas, and are heavily reliant on coal power. Co-op members—who are entitled to influence policy by voting for the board of directors—are not engaged in the planning, design and decision-making processes.

Perhaps as a result, Mississippi's 26 electric co-ops sit on assets of \$5.2 billion, while their impoverished, largely African-American customers pay as much as 42 percent of their income on electricity. And only 6 percent of the co-ops' board members are Black, in a state that is 37 percent Black. To tackle these problems, One Voice is educating ratepayers about the rights and responsibilities of board members, the structure of co-ops, and the changing dynamics of the energy sector. Importantly, it offers guidance on how to effectively engage in membership meetings, and cultivates community leaders to serve on co-op boards.

And there's more. From Oakland, California to New York State, local and state governments are experimenting with "Community Choice" programs that could ideally give communities control over where their electricity comes from and how their ratepayer dollars are spent. In the South Bronx, a public housing resident council called Mothers on the Move is leveraging the New York City Housing Authority's investments in energy efficiency to conduct education and training in energy conservation and careers. And, across the Northeastern U.S. a consumer-owned energy cooperative called Co-Op Power is nurturing community-owned energy enterprises, including a biodiesel plant in Greenfield, Massachusetts, that produces fuel from recycled cooking oil, an energy-efficiency company called Energia in western Massachusetts that trains and employs young people of color, and a community-based solar development company, Resonant Energy, that uses innovative financing strategies to bring rooftop solar to low-income households in Boston.

These energy democracy initiatives are as diverse as the communities that launched them, but they have some things in common. They all go beyond simple "techno-fixes" to address power dynamics. And fundamentally, they recognize that energy—both fossil fuels and renewables—is not simply a commodity to be bought and sold; it is part of the commons—a precious global resource that must be respected, conserved and equitably shared.

That recognition poses a direct threat to the 1 percenters who now control our energy and political power. We should not expect them to give it up without a fight. (Neither did the slave-owners who enjoyed a

similar lock on power in the antebellum South.) Energy democracy is a powerful way to fight back, by empowering people and communities to build a society worth living in.

# *Jumpstart: What Can Philanthropy Do to Advance Clean Energy with Battery Storage?*

LAURIE MAZUR

*Originally published April 24, 2018 in Inside Philanthropy*

Foundations rarely have the chance to shape an energy technology market as it emerges. Today, battery storage presents just such an opportunity—and a new report by the Clean Energy Group shows funders how to seize it.

Batteries, of course, have been around since Thomas Edison began tinkering with ways to store energy back in 1879. And the familiar palm-sized cylinders have powered flashlights and toys for decades. But only recently have batteries achieved the high capacity and low cost needed to play a supporting role in our nation's energy system.

The potential is enormous. Battery storage has been called the “holy grail” of clean energy, because it solves the problem of intermittent production faced by many renewable energy technologies. Batteries can store energy to be released on demand when the sun doesn't shine and the wind doesn't blow.

That is why the world's leading technology consultant, McKinsey + Company, now says battery storage is the “next disruptive technology in the power sector.” U.S. battery installations were up 27 percent in 2017—and that growth will likely more than double in 2018.

If widely adopted, battery storage could hasten the transition from fossil fuels to clean, renewable energy. It can reduce peak demand and cut energy costs. And battery storage holds the promise of making energy systems more resilient in the face of disaster: When the larger grid goes down, renewable systems with storage can create islands of reliable power.



But there are plenty of obstacles on the path to widespread adoption of battery storage, according to the Clean Energy Group (CEG), a Vermont-based nonprofit that promotes renewable energy. CEG's new report, "Jump-Start: How Activists and Foundations Can Champion Battery Storage to Recharge the Clean Energy Transition," shows how philanthropy can help overcome those obstacles.

For example, funders can remove barriers to access for low-income ratepayers. Usually, it is the affluent who are the earliest adopters of innovative technologies (think Tesla owners). So far, that's true of battery storage as well: The economic benefits of storage are now realized primarily by corporations and other commercial interests.

That shortchanges low-income customers, who have much to gain from increased resilience and cost savings. For example, the poor are disproportionately affected by disasters, often living in vulnerable areas and lacking the savings and insurance needed to recover from disruptive weather events. So low-income people could see major benefits from battery storage technologies that can keep them in their homes with the lights on.

Battery storage can lower energy costs for owners and residents of affordable housing by avoiding utility demand charges—fees that utilities charge commercial customers based on their highest peak power use. Such fees can make up half of the electric bill for some apartment buildings. By drawing power from batteries, rather than the grid, building owners can reduce demand charges and pass the savings on to tenants.

And battery storage can reduce the need for "peaker plants," notoriously polluting facilities that provide backup power at times of high demand. Peaker plants are disproportionately located in low-income neighborhoods, contributing to poor air quality and high levels of respiratory disease. Many of these plants could be replaced by renewables and battery storage.

The CEG report shows how foundations can help advocates push for battery storage as a means to create a cleaner, cheaper and more resilient community power system. For example, foundations can:

- Underwrite a "resilient power" campaign in communities across the country, promoting battery storage in critical community

facilities such as senior centers, housing, police and fire stations and health care facilities.

- Fund research to determine which affordable housing and community facilities are paying high demand charges that can be reduced with battery storage. That information is not made public by utilities, and few low-income groups have the resources to conduct such analyses.
- Support efforts to push for state and utility programs to subsidize the costs of storage in low-income communities.
- Pool foundation investment portfolios and use the equity to provide loan guarantees that reduce financial risks in bringing storage projects to low-income communities.
- Support campaigns to retire hundreds of dirty peaker plants across the country, replacing them with cheaper, cleaner renewable energy with battery storage.
- Help advocates bring renewable power plus battery storage to public charging stations for electric vehicles.

According to CEG president Lewis Milford, the takeaway is this: “Battery storage is a technological breakthrough that can make our energy system fairer, cleaner and more resilient.” By making strategic investments today, funders can make sure that potential is realized.

# *Developing the Energy Efficiency Workforce: A Collaborative Approach*

JADA MOSLEY

*Originally published August 27, 2018 in Energy Central*

**M**aria Garcia Alvarez was working in construction when the Great Recession hit, and she lost her job. So she enrolled in a program at Laney College in Oakland, California, where she learned how to install and maintain energy-efficient HVAC systems. “I felt this program actually would provide a recession-proof job,” says Garcia. Her intuition proved correct: after graduating, Garcia joined the Energy Management team at UC Berkeley, and was later promoted to Asset Manager.

Garcia is not alone. Many are finding “recession-proof” jobs in the fast-growing field of energy efficiency. The sector now employs 2.2 million Americans, mostly in small businesses that construct and install energy-efficient systems. Along with providing good jobs, the sector is helping to reduce the carbon footprint of the built environment, which is essential to fighting climate change.

But there’s a challenge: the field is growing so fast that it’s hard to find enough qualified workers to fill the growing number of jobs. More than 80 percent of employers in the energy efficiency sector report at least some difficulty finding qualified job applicants, and over 40 percent say it is very difficult. However, a recent report by the American Council for an Energy Efficient Economy (ACEEE) shows that government, higher education, nonprofits and industry can all work together to meet this challenge and create the energy efficiency workforce of the future.

The program Garcia attended, at the Build Efficiency for a Sustainable Tomorrow (BEST) Center, is an excellent example of this collaborative approach. The BEST Center supports publicly-funded two- and four-year colleges with programs in energy-efficient building systems. Sponsored by the National Science Foundation, this national collaborative trains

students with up-to-date research and data, matching industry needs to cutting-edge curriculums. It also establishes open communications between industry and educational institutions, so that the next generation of employees reflect industry expertise, needs, and innovation.

Not all successful partnerships begin at the federal level. Local governments across the United States are enacting policies to drive energy savings, and the success of these activities is inextricably linked to a strong, capable energy efficiency workforce. To ensure that trained workers are available to capitalize on efficiency investments, local governments can set workforce development goals and coordinate training programs.

Local governments can also create a self-sustaining cycle of demand and supply within the energy-efficiency industry. The first step is to enforce or even promote existing energy efficiency initiatives. This could be as simple as encouraging residents and business owners to take advantage of energy efficiency tax incentives, local grant programs or energy savings programs offered through the local utility. Outreach to community organizations can help inform local residents who might not know about these money-saving opportunities.

And, importantly, local governments can institute equity-focused workforce development programs and targets to recruit new workers from underserved communities. According to the Department of Energy, the energy efficiency sector is less diverse than the American workforce as a whole. Women make up only 24% of the energy efficiency workforce; African Americans account for 8%, and Latinos represent 15%—all less than their representation in the U.S. population. Moreover, 17% of energy efficiency workers are over the age of 55. As they retire, it is imperative to fill those jobs with workers who represent the increasingly diverse face of our nation.

Initiatives like the Emerald Cities E-Contractors Academy show how it can be done. The Academy provides training for small minority-, women-, or veteran-owned energy-efficiency retrofitting contractors in California and Ohio. This workforce development program connects these companies to apprentice pipelines within their states' union networks. The Academy expands opportunity for employees at these companies, and their prosperity has positive economic effects for local businesses and the community at large.

The demand for skilled workers with experience and training in the energy-efficiency industry will only grow. Collaborative efforts among governments, community organizations, and vocational training programs can meet this future need.

Collaborations of this nature require investments in time and resources, but the long-term benefits are worth it. Those benefits include savings for homeowners, opportunities for underserved workers, revitalized local economies and a cooler planet. By building the energy-efficiency workforce, we can build a better future for all.

# *We Must Fix the Broken Water Cycle Before it Dooms Civilization—Again*

SANDRA POSTEL

*Originally published January 23, 2018 in Quartz*

**M**anaging water—making sure there’s enough while keeping inundation at bay—is a central function of civilization. History is littered with impressive cultures that didn’t get it right, sealing their doom—from the Sumerians of ancient Mesopotamia to the Hohokam of the American Southwest.

It might seem that such lessons don’t apply to modern-day Americans, with our reservoirs and dams and water treatment plants. Certainly, our water-management systems are a marvel. They re-route rivers and make the desert bloom; they enable most of us to shower, flush, eat and drink while barely giving water a thought.

But, increasingly, these systems are failing to deliver. Just ask farmers in the western United States whose wells have run dry. Or fishermen whose livelihoods depend on coastal waters degraded by toxic algal blooms. Or ask refugees from recent floods in Puerto Rico or Texas.

The massive water systems that undergird our civilization involve a Faustian bargain: They allow us to control water to suit our needs, but in doing so they break the water cycle—the natural storage, cleansing and flow of water in healthy forests, rivers, soils, wetlands, and aquifers. Dams and reservoirs store water so we can use it when needed, but they also block fish migrations, destroy habitats, and trap sediment that replenishes deltas, which then leaves coastal residents vulnerable to storms and flooding. The draining of wetlands has opened up vast areas for crop production, but has left rivers and streams vulnerable to pollution that creates massive “dead zones” in coastal areas. Large-scale pumping of groundwater has led to a boom in agricultural production, but is now rapidly depleting aquifers that have stored water for thousands of years.

And our water challenges are only getting harder. The changing climate has thrown hydrologic cycles out of whack, making it difficult to ensure continuous supply and protect against floods. It's little wonder that in 2016 the World Economic Forum declared water crises to be the top global threat to society over the next decade.

So what do we do? One lesson is key: We can't keep doing what we've always done and expect a different result. More and more, water security is going to depend on working with nature, rather than against it.

Take the risks to our drinking water from wildfires and the land erosion and flooding that often follows them. Fire is essential to a healthy forest, but during much of the twentieth century, foresters snuffed fires out quickly to protect timber resources and nearby communities. As a result, many forests have become dense and overgrown, so when fires do break out they burn hotter and faster, especially in times of drought. On average, fires in the United States now consume twice as much area per year as three decades ago.

In the western US, where about two-thirds of the water supply comes from forested land, that trend spells trouble. In New Mexico, where the three biggest wildfires in the state's recorded history have occurred since 2000, The Nature Conservancy spearheaded the Rio Grande Water Fund to restore the watershed and protect downstream drinking water supplies. To date, the fund has acquired \$33.6 million in public and private contributions and restored some 70,000 acres of watershed lands.

Pioneering cities are also turning to nature to mitigate urban flooding. As metropolises from Houston, Texas, to Copenhagen, Denmark have seen, intense storms can overwhelm drainage systems, flood streets and homes, and rack up damages in the tens or hundreds of billions of dollars. With rising temperatures boosting storm intensity, urban flooding is bound to worsen.

In response, urban designers are mimicking nature and encouraging rain to do what it did before concrete and asphalt covered the landscape: Soak into the earth, replenish groundwater, and flow gradually back to rivers and streams. After experiencing two 100-year floods within six years, Copenhagen decided that instead of upgrading its drainage pipes and other "gray" infrastructure, it would strategically expand and redesign parks and

other public spaces to capture and store more rainwater. Overall, the city's \$1.3 billion investment in such "green infrastructure" is estimated to cost half as much as a more conventional gray-infrastructure approach, while beautifying the city.

One of the biggest threats to water security is literally out of sight and out of mind: The depletion of groundwater. Farmers are draining aquifers in many of the world's most productive food-producing regions, from the north plain of China to the Central Valley of California. Just as a bank account shrinks when withdrawals exceed deposits, so does a groundwater account. Today at least 10% of the world's food depends on the unsustainable use of groundwater. In effect we are consuming tomorrow's water to grow today's food, which begs the question: What about tomorrow?

One answer comes from California, where a new law and severe drought have compelled innovation. Farmers are partnering with scientists and conservationists to recharge groundwater by inundating farm fields with wintertime floodwater, which then seeps through the soil to the aquifer below. Such groundwater recharge could slow depletion in the eastern San Joaquin Valley by 12-20%. Moreover, it could expand water storage for dramatically less than the cost of a proposed dam on the upper San Joaquin River.

Another neglected water source can be found right below our feet. The world's soils can hold eight times more water than all rivers combined, yet agricultural practices deplete soils, causing that critical water reservoir to shrink. But this can be fixed by rebuilding soil health. By eliminating tillage and planting cover crops, farmers can build the soil's carbon content and enable it to store more water. Even a one percentage-point increase in soil organic carbon can increase water-holding capacity by some 18,000 gallons per acre. Yet farmers plant cover crops on less than 3% of US farmland and practice conservation agriculture on only about seven percent of cropland worldwide.

Scaling up those practices could slow climate change by keeping more carbon in the soil, while curbing the nitrogen and phosphorus pollution that fuels algal growth and the creation of low-oxygen "dead zones" in lakes and estuaries around the world. Even a modest shift in taxpayer-funded farm subsidies could help spread these practices.



Perhaps the most visible sign of our broken water cycle is when rivers, diverted for agriculture, simply dry up. But here, too, innovative collaborations are getting rivers flowing again. In the Verde Valley of Arizona, conservationists and farmers have partnered to modernize nineteenth-century ditch systems, testing new approaches that enable irrigators to take only the water they need while leaving the rest for the river. In places, the Verde—a lifeline for birds and wildlife in the American Southwest—now has twice the summertime flow it had before.

The benefits of such smarter water management ripple out: farmers get an upgraded irrigation system; birds and wildlife get critical habitat; residents and visitors get more boating and recreational opportunities; and local businesses get more revenue. This is good business as well as good stewardship: In the Colorado River Basin, of which the Verde is a part, economic activity that generates some \$25.6 billion a year depends on water staying *in* rivers rather than taking it out of them.

We can choose to fix our broken water cycle. To be sure, it will take more investment, incentives, and shifts in policy to transform our relationship with water from one of command-and-control to a working partnership. But the payoffs will be big and enduring, as this style of water management restores rather than degrades the natural world.

If the 20th century was the age of dams, diversions and depletion, the 21st can be the age of replenishment, the time when we apply our ingenuity to living in balance with nature and building resilience to the climatic changes under way. In so doing, we might avoid the fate of the Sumerians and Hohokam—and leave a healthy water cycle for future generations.

# *Red Tides: An Unwelcome Reminder That Water Quality Matters*

JAMES D. GIATTINA

*Originally published November 14, 2018 in Sun Sentinel*

Florida has some of the most beautiful beaches in the world, attracting tourists from near and far. Yet Floridians and those who visit have been coping with a red tide for months and it is now spreading from the west coast of Florida to its eastern coast, leaving countless dead fish, sea turtles, dolphins, and manatees in its wake.

This is just the latest incident to serve as an unwelcome reminder that our efforts to restore our nation's waters to a healthy condition are long from complete, even as the Trump Administration seeks to weaken federal protections guaranteed under the Clean Water Act by narrowly defining "waters of the United States".

Human-caused pollution does not cause a red tide. However, the scientific consensus is that pollution, especially the excessive nutrients draining from our streets, lawns, farms and wastewater treatment facilities into our coastal waters, can feed the blooms as they approach shore and allow them to persist for longer periods of time.

While red tides occur in coastal waters, they are but one type of menace among a much broader category known as harmful algal blooms. These can occur in our freshwater lakes and rivers, as well as in our coastal waters from the northeast to the northwest and from the Great Lakes to the Gulf of Mexico.

These unwelcome events can cause illness in people and their pets, close shellfish waters, threaten livestock, and impact local businesses. In many of these cases excessive nutrient runoff is an important factor contributing to the presence or persistence of the bloom.

Yet the Administration is considering changes to federal law that would remove many wetlands and small streams from protection—the very waters that play an important role in filtering nutrient pollution and protecting downstream waters.

With the economic recovery that began in 2009 still going strong, it is critical that the U.S. increase its investment in water pollution prevention and mitigation strategies. Foremost among these must be redoubling local, state and federal efforts to reduce nutrient pollution.

This will require innovative technologies and investment strategies to manage farm and street runoff and to improve our water treatment systems.

In addition, a strong federal Clean Water Act with a comprehensive, scientifically-supported definition of what constitutes “waters of the U.S.” is essential to supporting state and local efforts to improve water quality.

This is personal for me. That’s because I worked on water protection issues at the EPA for three decades, and also because the Florida coast has been an important place of relaxation and spiritual renewal for my family and me ever since my father and his big band (Joe Giattina and the Bama Cardinals) played at the “Casino” on Pensacola Beach during summers in the early 1930’s.

It was on one family trip to Pensacola about 12 years ago that my wife and I experienced the effects of a red tide bloom. Walking the beach, my wife and I soon experienced a persistent throat irritation and cough. We were unable to go near the beach for several days.

When a harmful algal bloom strikes, what often goes unnoticed are the day-to-day impacts on the quality of life for people. The need to change long-planned vacations. The inability to have a family reunion at a favorite beach location. A trip to the emergency room because an aging parent suffers from a respiratory illness. It is oftentimes difficult to measure the costs to our quality of life, but we know that the costs are real.

Strong federal protections are essential if we are to have healthy waters for our children and grandchildren. We all depend on safe and healthy waters, so we must pay attention when the Administration rolls out its new water rules.

It's up to every American to urge the EPA and the Army Corps of Engineers to ensure protection of our streams, wetlands and coastal waters. Our children deserve nothing less.

# *Beware the Privatization of Your Town's Water*

KAREN KNUDSEN

*Originally published March 22, 2018 in High Country News*

President Donald Trump has unveiled a \$1.5 trillion plan to rebuild our nation's crumbling infrastructure, including the pipes and treatment plants that keep clean water flowing from our taps. But if you read the fine print, his plan offers just \$200 billion in federal funds; the remaining \$1.3 *trillion* is expected to come from other sources, including private investors.

Private investment in water systems might look like a good deal to those who want to limit federal spending; it certainly appeals to cash-strapped cities and towns. And the need is great: The American Society of Civil Engineers gives our nation's drinking water facilities a "D" grade, and says \$1 trillion will be needed to fix them over the next 25 years.

But private investment comes at a cost. Fundamentally, it means handing over our most essential resource to those who put profits before the public interest. That's what we learned here in Missoula, Montana, where we recently wrested control of our water system away from a multinational corporation.

Missoula is unusual in that our water system was privately owned since the town's founding in the 1870s. Our first water entrepreneur was "One-Eyed Riley," whose delivery method involved a yoke and two buckets. Since then, the system passed through many hands, but was never well managed. Compared to neighboring towns with public utilities, Missoulians endured high rates and poor service. Necessary capital improvements were not made, and the system steadily deteriorated.

When the Carlyle Group purchased our water system in 2011, we hoped the situation would improve. But we soon realized the fundamental

tension that lay between Carlyle's goal of generating a short-term profit and Missoulians' need for safe, clean water over the long haul. After a four-year court battle, we purchased our water system from Carlyle for \$84 million. Now, for the first time in our town's history, ownership of our water system—its pipes, pumps, wells, water rights, wilderness lakes and dams—has landed where it belongs, in the hands of the people, where it can be managed for the public good, for all time.

Unfortunately, other cities seem headed the other way, seeking private financing as the answer to their water woes. Many will be disappointed: Private investors require high rates of return, so they are unlikely to support projects that won't pay off sufficiently.

If there is money to be made from water, look out. Population, pollution and climate change are squeezing global drinking water supplies, so investors—including commercial bottling plants—are rushing in. There are disturbing accounts of bottling plants targeting a town's good water source, only to deplete local water wells, dry up wetlands and drain streams.

Some people assume that private management means greater efficiency and lower rates. Yet the reverse is often true. *The New York Times* analyzed three communities where private equity firms manage water or sewer services. In all three places—Bayonne, New Jersey, and Rialto and Santa Paula in California—rates rose more quickly than in comparable towns. In Bayonne, the price of water skyrocketed by nearly 28 percent after the private equity giant Kohlberg Kravis Roberts took charge of the city's system.

That's why some cities that had gone private—from Ojai, California to Fort Wayne, Indiana—have seized their water systems back from private ownership.

While the price tag can be daunting, public investment is the better option. State and local governments already provide the lion's share of money for water infrastructure, and federal funding is available through the Clean Water and Drinking Water State Revolving Funds (though those funds are flat-lined in the president's proposed 2019 budget). There are also collateral benefits from public investment. The Economic Policy Institute found that spending \$188.4 billion on water infrastructure would yield \$265 billion in economic activity and create 1.9 million jobs.

In Missoula, we are reaping the benefits from public ownership of our priceless water assets. Decisions about our water are made right here in town, not in a distant boardroom. Instead of short-term profits, our priority is long-term water security, a critical concern in the era of climate change. We don't have to worry about rates going up to fatten investors' wallets, and there are less tangible benefits, including a more intimate connection to the resource on which all life depends.

So here's our advice: If your community hopes Trump's infrastructure bill will fix your water system, be sure to read the fine print. And if you're lucky enough to control your own water, never give it up without a fight.

# *Got Water? Thank (and Save) a Forest*

MAGGIE HART STEBBINS AND PAUL SUMMERFELT

*Originally published March 14, 2018 in Water Online*

“When the well’s dry,” Benjamin Franklin once said, “we know the worth of water.” Today, our freshwater supplies face serious threats—including drought, wildfire, and other impacts of a warming climate. From California to Cape Town, the worth of water has become crystal clear.

We come from cities in the west (Albuquerque, NM, and Flagstaff, AZ) where the worth of water was never in question. But, in recent years, both of our cities received wake-up calls that the well could, in fact, run dry. Our cities mobilized to prevent that from happening—with a surprisingly simple, cost-effective strategy.

For Albuquerque, the wake-up call was the 2011 Las Conchas fire, which incinerated 156,000 acres of forest in the nearby Jemez Mountains, at one point consuming an acre every second. When the flames were finally doused, monsoon rains followed. With no trees or vegetation to hold the soil in place, tidal waves of mud and ash-blackened water roared down canyons into the Middle Rio Grande River, which supplies much of the drinking water for Albuquerque’s half-million residents. The local water utility was forced to shut down its intake from the river because the mud and ash were more than its filtration system could handle. For 30 days, the utility was forced to draw down its limited supply of groundwater to keep the taps flowing.

In Flagstaff, the call came with the deadly Schultz fire in 2010. After the fire destroyed 15,000 acres in the neighboring Coconino National Forest, unusually heavy rains drenched the charred hillsides with 30 million gallons of water. The resulting floods inundated homes and damaged a water pipeline, cutting off 20 percent of the city’s supply.

These wake-up calls did not go unheeded: they helped raise awareness about the inextricable connection between forests and water.



In Albuquerque and Flagstaff—as in much of the U.S.—the water that flows from our taps begins its journey in a forest. From their canopies to their roots, healthy forests absorb and filter rain and snow, gradually releasing clean water into streams and rivers. And trees anchor the soil, preventing floods and erosion. That’s why wildfires are often followed by massive mudslides like the one that killed 21 people in Southern California last month.

Unfortunately, we can expect more fire, floods, and mudslides. Decades of misguided forest management suppressed all fires, leaving woodlands overgrown and highly combustible. Combined with insect infestations, and the hotter summers and more-severe droughts of a changing climate, we have a recipe for truly catastrophic conflagrations. Indeed, that is what we are seeing: the fires that raged across the west last year were without precedent in size and impact. And if our forests are in danger, so is our drinking water.

In response, Albuquerque, Flagstaff, and other cities are working to restore our forested watersheds. In 2012, voters in Flagstaff approved a \$10 million bond for forest preservation and management—a public investment that has since leveraged nearly \$5 million from other sources. And last year, the Albuquerque Bernalillo County Water Utility Authority made a \$1 million investment in the northern New Mexico watershed, which will be pooled with millions of private and public dollars raised by the Rio Grande Water Fund. In both regions, the funds will be used for forest rehabilitation, including thinning to reduce the risk of catastrophic fires. We were deeply involved in these watershed restoration efforts, and here’s what we learned:

- **Plan for the long haul.** Sometimes local government leaders have a hard time planning beyond the next election cycle. But the management of critical resources—and the viability of our cities—demands a longer view. We need to consider supply-side issues, such as climate projections that call for higher temperatures, reduced snowpack, and severe droughts. And we need to anticipate changes in demand from population growth and development. In Central New Mexico, these factors formed the basis of the water authority’s 100-year water management strategy plan.
- **Do the math.** When considering the cost of watershed protection, weigh that expenditure against the cost of doing nothing. For example, an analysis by the Rio Grande Water Fund found that thinning overgrown forests costs \$700 an acre, compared to \$2,150

per acre for firefighting costs and damages if the forest burns. Last year's western wildfires cost a staggering \$80 billion, according to the National Oceanic and Atmospheric Administration (NOAA). In that light, it is better to think of watershed protection as an investment—or as insurance—rather than as a cost. We can be proactive and pay a small sum now, or we can wait until disaster strikes and pay much more.

- **Build broad support.** No one wants their water bills to go up or their taxes to rise. But people will invest in protecting critical resources when they understand what's at stake. In our communities, we worked to educate and build partnerships among a diverse group of stakeholders: residents, businesses, private foundations, water utilities, landowners, and forest managers. In Flagstaff, that broad support helped win 74 percent voter approval for our \$10 million bond.
- **Start right now.** If you wait for a disaster, you're already behind. So, if you've got clean, abundant water, thank a forest—and do what you can to protect it. Don't wait for the well, or the taps, to run dry.

# *Trump's Water Plan Will Hurt the Most Vulnerable*

NICOLE SILK

*Originally published December 20, 2018 in The Progressive*

**B**ack in the early 1970s, two-thirds of the nation's lakes, rivers and coastal waters were considered unsafe for fishing or swimming. Untreated sewage and industrial waste were routinely dumped into waterways, and oil-fouled rivers occasionally burst into flames.

Fast-forward to 2018. Today, thanks to the Clean Water Act, our waters have become safer for swimming, fishing and drinking. But not every American experiences these benefits equally. Too many people—especially in low-income rural and urban communities and communities of color—still live without clean water, a basic human need.

From the industrial Midwest to remote farming communities in Alabama, some 63 million Americans—one in five—have been exposed to unsafe drinking water in the last decade. We have more work to do.

Yet instead of stepping up efforts to safeguard water, the Trump administration recently proposed limiting the reach of Clean Water Act protections. This would allow additional pollution to threaten our fresh-water streams and rivers, which provide drinking water to one in three Americans.

President Donald Trump's proposal would slash protections for head-water streams and wetlands that supply and filter the water that eventually finds its way to your tap.

The quality of our drinking water will suffer, requiring more treatment for human consumption. More treatment means water bills will likely

increase in cost, an expense that will hurt low-income families that are already struggling to pay their bills.

At issue is a dispute over a definition. The Clean Water Act made it illegal to destroy or discharge pollution into “waters of the United States” without a permit. But the definition of “waters of the United States” has been debated for nearly half a century, including three inconclusive rulings from the U.S. Supreme Court.

So, at the request of many stakeholders, the Obama administration promulgated the Clean Water Rule in 2015 to clarify which waters deserve protection. The rule was based on extensive scientific study, hundreds of public meetings, and more than a million comments.

It takes a comprehensive approach to ensuring clean water, by protecting tributaries that flow into larger rivers and bays. After all, as *The Washington Post* has observed, “large bodies of water are only as good as the water that feeds them.”

This approach has proven popular: A 2015 poll found that 80 percent of American voters supported the Clean Water Rule.

In contrast, the proposal advanced by the Trump administration is based on an extremely narrow interpretation of the act’s jurisdiction. Trump’s rule excludes many bodies of water—including ephemeral streams and so called isolated wetlands—from protection. Safeguards for these upstream water sources are critical if we want to continue to improve the health of our nation’s rivers and waterways.

The choice is clear. We can protect and build on the success of the Clean Water Act, and finally deliver on its promise to provide clean, safe, affordable water to all Americans. Or we can turn back the clock to a time when all Americans drank, swam and fished at their own risk. Let’s take a stand for our most precious resource: clean water.

# *Going Local: How a Resilient Approach to Wastewater Could Help Communities Prosper*

REBECCA WODDER

*Originally published July 5, 2018 in Earth Island Journal*

In the late spring of 2014, Charity Hicks awoke to find workmen turning off water to her home. Her fierce protests drove them away, but only as far as her neighbor's house, where the water shutoffs continued. Her efforts to warn others led to a physical confrontation with the workmen in which Hicks was injured, and police were called. Astonishingly, they arrested Hicks and held her overnight for protesting the loss of her community's water services. She was never charged.

The shutoffs were part of a larger effort by Detroit's water and sewer utility (DWSD) to solve its financial problems by squeezing the city's poorest citizens. In 2014 alone, water shutoffs left 30,000 homes without drinking water or sanitation. Many more homes have faced shutoffs since, creating a fast-moving catastrophe that threatens health, welfare, and quality of life, and can quickly lead to children being removed by social services due to the "child abuse" of not having running water.

To many Detroiters, Charity Hicks is the "Rosa Parks" of Detroit's water shutoff struggle. Although Charity was killed in a hit-and-run accident in New York City just weeks after the incident, others in her community were inspired to step up, including Monica Lewis-Patrick, co-founder of a local citizen empowerment organization, We the People of Detroit (WPD). Lewis-Patrick, who was shaken to the core by Hicks's experience, says, "I didn't find water. Water found me."

For Lewis-Patrick, water shutoffs amount to the "weaponization" of water. To survive, her community needs secure water services at affordable rates. So she is exploring a small-scale, neighborhood-based wastewater

resource recovery system that, through the sale of recycled resources, brings down the costs of wastewater treatment, thus reducing household water bills.

Lewis-Patrick arrived in Detroit in 2008 from Tennessee. Her previous work in education and mental health, and her experience in organizing and running a crisis center and hotline service, were a good fit with the needs of her neighbors. Responding quickly to the city's aggressive water shutoff schedule, WPD conducted a door-to-door survey and mobilized a hotline for water access. Water stations were set up across the city and a volunteer corps of "Water Droppers" delivered water to those in need but lacking transportation.

In the four years since the city's water shutoff campaign began, Lewis-Patrick has seen her neighbors lose water service, and then their health, jobs, homes, and children. She is determined to defend the human right to water and sanitation, believing that "the simple act of drinking a glass of water symbolizes our shared humanity." Furthermore, Lewis-Patrick and her allies suspect that shutting off water to whole blocks is less about collecting on past-due accounts and more about clearing out poor neighborhoods to make room for Detroit's much-touted urban renaissance. As the *Guardian* reported in 2015, Detroit is "a city both collapsing and gentrifying at the same time."

A chance encounter with Bob Zimmerman, executive director of the Charles River Watershed Association (CRWA) in Boston, suggested a potential solution to Lewis-Patrick's quest for affordable and secure water services. Zimmerman's organization has developed and modeled a neighborhood-scale wastewater treatment plant, known as a CWERC (community water and energy resource center), that recycles wastewater to produce energy, reclaimed water, and fertilizers. Selling these valuable products is profitable, generating income to defray the plant's operating costs. This means that wastewater fees, often the most expensive part of a household's water bill, can be substantially reduced, making water services more affordable for low-income families. Net income can be used to fund emergency water bill assistance to families in crisis, improving water security.

Lewis-Patrick quickly grasped the many ways in which a distributed network of CWERCs could benefit vulnerable communities—not only

by providing affordable and secure water (and power) services, but also local jobs and economic opportunities for small businesses, improved health and safety, and environmental benefits. The small-scale and local nature of this approach could also improve equity by giving residents a meaningful role in managing their community water services. Of most immediate importance, Lewis-Patrick says, Zimmerman’s model “gives us another level of hope for resolving our water problems because, right now, we are stuck just trying to deliver bottled water.”

### **What Is a CWERC?**

Conventional urban wastewater services are provided by huge centralized systems that expend energy to collect, treat, and dispose of wastewater. By contrast, according to the Charles River Watershed Association, a CWERC is a “small-scale water and energy recovery plant designed to fit into an urban or suburban setting and serve as part of a distributed network of water and energy management facilities.” One facility can treat up to five million gallons of wastewater daily (mgd), the amount created by 50,000 people, as well as food wastes from nearby restaurants, schools, hospitals, and hotels. Estimates of recoverable resources from a mid-sized plant include more than two mgd of non-potable water, 150,000 MMBTU/year of thermal energy (enough to heat and cool about 350 homes each year), 700 MW/year of electric energy (enough to power 200 homes each year), plus 10,000 pounds of compost, and 60,000 pounds of nitrogen. The technology used by CWERCs is well-established—the concept’s novelty comes from combining various waste-to-resource recovery methods under one roof and building it at a neighborhood scale.

The requirements for constructing and operating a CWERC include a two-acre building site, adequate amounts of wastewater and food wastes as inputs to the resource recovery process, and adjacent demand for the outputs of thermal and electric energy, reclaimed water, fertilizer, and compost. Estimated construction costs for a mid-sized CWERC are approximately \$50 million, with annual operating costs of \$5–7 million and annual income estimated at \$7–10 million.

For the past 10 years, Bob Zimmerman has pursued and promoted this concept, having come to the inescapable conclusion that taking water from one place, using it in a second, and throwing it away in a third—as is done at most conventional treatment facilities—is a losing proposition. Added to that, the failing condition and vulnerability of

existing water systems, their myriad social and environmental impacts and the poor economics of repairing and replacing centralized water infrastructure convinced Zimmerman that finding a fiscally responsible alternative is essential.

### **Urban America's Failing and Unaffordable Water Services**

America's water infrastructure is an antiquated and brittle legacy of the nineteenth and twentieth centuries. Cities struggle to maintain pipes that leak constantly and sometimes fail spectacularly. In communities with combined sanitary and storm sewers, even small rainstorms cause frequent combined sewer overflows that dump 860 billion gallons of raw sewage into waterways annually. The American Society of Civil Engineers (ASCE) gives America's wastewater infrastructure a grade of D. As a nation, we face a \$3 trillion tab over the next decade to repair and replace outdated drinking water and wastewater treatment plants and pipes, and to expand storm water collection systems.

When assessing the resilience of these aging and overburdened systems to future challenges, the picture gets even worse. Besides being extremely expensive to build and operate, these gigantic, centralized water systems are inflexible (unable to adapt to changing climate conditions), unsustainable (in their use of water and energy), inequitable (unresponsive to the needs of poor customers), and vulnerable (to extreme weather, rising seas, and terrorism). Wastewater collection systems use gravity to get sewage to treatment plants, making the plants especially vulnerable to flooding and sea-level rise because they are typically sited at the lowest point in the watershed.

Most urban water utilities carry an enormous debt burden on their existing assets, not to mention the pressing costs of repairing and replacing their failing systems of pipes and plants. Decades of delivering underpriced water and underinvesting in system maintenance are driving up water rates, which, in the face of stagnant household incomes, means that too many customers cannot afford to pay their water bills. In the absence of a statutory human right to water and sanitation or regulations tying water rates to household income, unpaid water bills lead to water shutoffs. Unpaid water bills can be added as a lien to property taxes which can lead to home foreclosures, which lead to loss of customers—which begins to look a lot like a death spiral.



Detroit is a prime example of what isn't working in America's water services sector. Poor maintenance of century-old pipes and aging water plants built for a city that was once more than twice as big as it currently is has led to some of the highest water rates in the nation because far fewer people are paying for repair and replacement of crumbling infrastructure. This for a city that has the highest poverty level (40 percent) of the nation's 25 largest metropolitan areas.

To make matters worse, Detroit filed for bankruptcy in July 2013, the largest American city ever to do so. A major contributor to the bankruptcy was the debt of the city's water system, which was leased to a new regional entity, the Great Lakes Water Authority (GLWA), as part of a "grand bargain" decreed by the bankruptcy court. The GLWA will pay \$2 billion over the 40-year lease for repairs and replacements to the water infrastructure. But this is far short of the \$5 billion needed to fix the problems that are driving high water rates and system failures.

Detroit is a harbinger of nationwide trends. Nearly 14 million US households face unaffordable water bills, and that number is projected to rise nearly three-fold over the next five years, as utilities raise water rates to cover the costs of infrastructure repair and replacement, as well as the impacts of climate change.

In the nearly four years since Detroit's current water shutoff campaign began, more than 90,000 homes have had their water shut off due to unpaid bills. Another 17,000 households are at risk in 2018. For a family of four living at the poverty line, paying the water bill forces untenable choices between essential needs. As Gary Brown, Detroit Water & Sewerage Director, sees it, "the problem is poverty." But as Monica Lewis-Patrick sees it, poverty is only one piece of the problem. The other elements are unaffordable water rates and lack of protections against shutoffs.

### **A Better Way**

Bob Zimmerman laments that "urban America is heavily invested in single-purpose, gigantic, centralized water systems, making potable water on one end and throwing away massive volumes of treated wastewater on the other." He implores water managers, "before we repair and replace these systems with more of the same, let's ask ourselves if there is a better way to provide affordable, secure and equitable water services in America in the twenty-first century." Zimmerman and Lewis-Patrick believe that there

is a better way and they are determined to demonstrate this by building a CWERC to serve the needs of Detroit's most vulnerable neighborhoods.

Utilizing CWERCs to reduce the cost of wastewater services and generate a profit on the sale of recycled resources could substantially reduce overall water bills and avoid water shutoffs. In addition, a local CWERC can improve neighborhood economics. Operating a CWERC creates dozens of skilled jobs. It offers small business opportunities for enterprises ranging from transporting food waste to marketing and delivering CWERC products. Non-potable water and energy can be sold locally at more affordable prices, contributing to better profit margins for local businesses. And a CWERC can also boost the availability of healthy, affordable food. Many low-income Detroit residents have difficulty procuring nutritious produce and could benefit from urban farms that are blossoming in the city's numerous vacant lots. The fertilizer, compost, and low-cost reclaimed water from a local CWERC could contribute significantly to the financial viability of those farms.

The scale and neighborhood location of a CWERC favors local influence and, depending on CWERC ownership, even control over decisions that impact secure access to affordable water services. Community empowerment from a successful wastewater project could increase capacity for collective action on other issues that confront Detroit's low-income neighborhoods. A recent report published by the Center for American Progress finds that “promoting social cohesion—in which a society's members cooperate to achieve shared well-being—in communities is an additional and overlooked tool for strengthening climate resilience, with particularly good outcomes in low-income communities.”

In the event of a natural or manmade disaster, a distributed system of wastewater recycling centers producing water and energy is far more robust than one large, centralized plant. Zimmerman observes that, “CWERCs build resilience by providing local supplies of both energy and reclaimed water, the key utilities necessary to recover quickly from catastrophic events.”

A CWERC can further contribute to climate resilience by using reclaimed water to restore streams and wetlands, thus repairing ecological services that reduce the potential for devastating floods or droughts. Other

environmental benefits include energy and water savings from recycled wastewater resources and decreased transportation of food wastes, thus reducing carbon pollution and providing a supply of water for neighborhood gardens and parks.

### **What Stands in the Way?**

With so many economic, social, and environmental advantages, one might expect to see CWERCs sprouting up everywhere. Or, at a minimum, that civic-minded foundations and social impact investors would want to see the concept piloted in places of extreme and immediate need, like Detroit.

Of course, it's more complicated than that. Arranging low-cost financing for the construction of a CWERC in Detroit is not easy and Lewis-Patrick is looking for help from innovative funders. Even larger obstacles loom, including the likelihood of strong opposition from water and power utilities who control the wastewater pipes and electricity grid. Many utilities are overbuilt and would be reluctant to give up wastewater flows that sustain their treatment plants. For CWERCs to operate profitably, they must reach a financially and politically viable deal with the water utility to tap their sewage pipes to obtain wastewater for treatment and recycling, and with the power utility to sell CWERC-generated electricity on their grid.

Transformative change is difficult, to say the least, but staying the course of outdated wastewater treatment systems will be even harder. Some utilities have shown a willingness to use a distributed, neighborhood-scale, multi-benefit approach to resolve issues such as combined sewer overflows. Philadelphia, for example, chose to use green infrastructure (such as rain gardens, street trees, and green roofs) instead of building an enormous underground holding tank. This approach saved the city billions of dollars and provided many other benefits, such as local jobs, more attractive neighborhoods and increased property values. Is there an equivalent opportunity in beginning the transition to a distributed and resilient system for recycling wastewater?

Lewis-Patrick believes that the struggling neighborhoods of Detroit could provide a good test of this concept. In her view, the biggest obstacles are not financial, but political. And, underlying the political obstacles are long-standing issues of race and poverty. In a precocious display of

wisdom, Lewis-Patrick's seven-year-old grandson observed to her, "Control the water, control the people."

Of course, one stand-alone CWERCs isn't the answer. A distributed network is. To serve the 700,000 residents of Detroit would require 20 to 30 neighborhood wastewater recycling centers. To replace Detroit's wastewater plant, which serves a metropolitan area of three million people and is one of the largest wastewater treatment plants in the US, would require as many as 200 CWERCs. A daunting number to be sure, but a valuable alternative to trying to meet twenty-first century challenges with twentieth century technologies. As Lewis-Patrick sees it, "this is the kind of transformative thinking that we all need to be moving toward."

# *As Water Shortages Loom, How to Keep Western Rivers Flowing*

SANDRA POSTEL

*Originally published March 9, 2018 in The Hill*

The drought now gripping the southwestern United States feels scarily familiar. In a recent public opinion survey of western voters, 82 percent listed low river levels as their top concern when it came to water.

In five of the last seven years the snowpack in the Upper Colorado River Basin on March 1 has registered below the long-term average. It has been nearly two decades since Lakes Powell and Mead, the giant reservoirs on the Colorado River that supply water to some 40 million people and 5 million acres of farmland, were full. Currently, their capacities stand at 55 percent and 41 percent respectively, and with much of the Colorado River Basin now in severe or extreme drought, those lake levels will not rise significantly any time soon.

Yet people continue to flock to the states that share the liquid lifelines of the Colorado River. They come for many reasons. But many are drawn by the great outdoors—the fishing, boating, kayaking, tubing, bird-watching and other activities made possible by rivers flowing through beautiful landscapes. The Colorado Basin boasts a \$26 billion recreation economy that depends on water staying in rivers rather than being taken out of them.

Without a doubt, securing enough water for cities, farmers, businesses, and nature will require a balancing act. But there is reason for optimism: through innovation, collaboration and smarter management there is vast untapped potential to achieve that balance.

Conservation, efficiency, recycling, reuse and storm-water capture are proven, cost-effective measures that can often negate the need for expensive and harmful dams and diversions. Especially in agriculture, incentives to invest in efficiency—from micro-irrigation to canal modernization

to more precise irrigation scheduling—could free up water to restore depleted rivers.

In the Verde Valley in Arizona, for example, conservationists and irrigators have partnered to modernize 19th-century ditch systems, installing automated head gates and testing new management approaches. This enabled irrigators, who previously diverted nearly the entire flow of the Verde River, to take just the water they need. Portions of the Verde—a lifeline for birds and wildlife in the American Southwest—now have twice the summertime flow they had before.

To scale up such solutions the federal government could expand cost-sharing through the U.S. Department of Agriculture's Environmental Quality Incentives Program (EQIP). The department could make it applicable not only to on-farm efficiency upgrades, such as the installation of drip irrigation, but also to system-wide improvements, like the head gates on the Verde ditch system.

Voluntary, incentive-based programs can ensure that communities and rivers both have the water they need to thrive. We saw this in Colorado during the 2012 drought, when a Steamboat Springs water district was paid by a Denver-based conservation group to release water into the Yampa River to save the native white fish. Those extra flows also helped keep tubing and fly-fishing businesses open.

More recently, the U.S. Bureau of Reclamation and the utilities that supply water to Denver, Las Vegas, Los Angeles, and Phoenix have been paying farmers to reduce water use so as to raise the levels of Lakes Mead and Powell and avoid mandatory cutbacks.

While projects and programs such as these inspire hope, they constitute but a drop in the bucket of what is needed. We need to take these kinds of solutions to scale. Fortunately, public support is there.

Voters in both blue and red states value healthy rivers. That same public opinion survey found that at least 70 percent of voters in Arizona, Colorado, Nevada, New Mexico, Utah and Wyoming prefer to use existing water supplies more effectively rather than divert more water from rivers in less populous parts of their states.

We are also seeing support from the private sector. Those irrigation upgrades along Arizona's Verde River have been funded in part by corporations, including Coca-Cola, Cox Automotive, Intel, Recreation Equipment Inc. (REI), Swire and Waste Management. For these companies, restoring rivers is not only good stewardship, but also critical to keeping the Southwest attractive to employees and customers.

The drought that has plagued the Colorado Basin since 2000 is a prelude of things to come. Climate researchers estimate that rising temperatures alone could reduce water flows in the Colorado Basin by 20 percent or more below the 20th-century average. So-called hot droughts will create even greater deficits. To ensure a reliable water supply in a drier future, we will need to embrace 21st-century solutions that restore river health while respecting the needs of existing users and communities.

# *A Public School That Not Only Keeps Children Safe, but Heals*

SUZANNE BOHAN

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**A**fter the mass shooting at a high school in Parkland, Florida earlier this year, schools are at the epicenter of national debates on gun violence and mental health. How can teachers and administrators deal with troubled students? And how can they make schools safer for all?

It's not the first time that schools have been asked to address social problems that originate far outside their hallways. In a nation where more than 40 percent of kids are from low-income families, school teachers and staff regularly cope with problems far larger than algebra equations. Too often, their students are hungry, in need of medical care, traumatized by domestic violence, fearful of gangs, and living with perilous housing security or homelessness. Distressed kids act out their troubles in school, and overworked teachers often double as social workers.

Now, post-Parkland, some have called on us to “harden” our schools. President Trump and others have advocated arming teachers and recruiting former police and military personnel for school duty. The National Rifle Association is promoting its plan to re-envision schools as windowless bunkers surrounded by impenetrable fencing.

But it is not necessary to model our schools after prisons. There are ways to create safe, nurturing schools where kids can learn, even in the face of extreme poverty and social challenges. Just ask Godwin Higa, the former principal of Cherokee Point Elementary School in the City Heights neighborhood of San Diego.

Under Higa's leadership, in 2015 Cherokee Point officially became a “trauma-informed school”—a model that proved so successful, the San Diego school board expanded it districtwide. The elementary school is



now a place where everyone from the principal to the school custodian seeks to understand and heal the difficult experiences that cause kids to act out. It's an approach that calls for revised disciplinary practices, social-emotional instruction, school-wide training about trauma, strong parental engagement, and intensive individual support where needed, as well as partnerships with community organizations to support these efforts.

Those partnerships, in fact, were crucial to the endeavor's extraordinary outcome, which wouldn't have been possible without support from local nonprofits. The success in San Diego in codifying a culture of care on K-12 campuses affirms the growing call in the civic sector for nonprofits to explore more partnerships with school districts to leverage resources and launch programs with staying power.

Trauma-informed schools were inspired by the *American Journal of Preventative Medicine's* groundbreaking 1998 Adverse Childhood Experiences (ACE) Study, which found devastating long-term effects from traumatic experiences such as abuse, neglect, and close encounters with substance abuse and domestic violence. The ACE Study and subsequent research found that the toxic stress of childhood trauma can actually damage the structure and function of a child's brain. In this way, trauma can contribute to a range of problems, from poor school performance to violence, risky behavior, and early death.

Such trauma is distressingly common. The National Survey of Children's Exposure to Violence reports that nearly 60 percent of American schoolchildren have been exposed to violence in the past year, with more than one in ten reporting five or more exposures.

Many of the nearly 600 students at Cherokee Point have experienced trauma in the form of strife at home, fear of their parents being deported, and neighborhood violence and crime. But this K-5 school is an oasis of calm—and not because the perpetrators of misbehavior have been banished.

When a student at Cherokee Point acts out, punishment is not the first response. An administrator or teacher will likely ask, "What happened to you?"—not "What's wrong with you?" As Higa explains, "When you ask, 'What's wrong with you?' it's totally negative right away, versus 'What's happening to you, you don't seem right.' As soon as we say that, the kids

look at you like ‘How did you know that I’m feeling down today?’” When they’re done talking, usually the child feels better and returns to class, the disruptive behavior occurs less often and generally fades away after a few more talks, and a trusting bond is formed, he said.

Higa, who has a kindly smile, warm eyes, and close-cut black hair turning gray, said his own difficult childhood animated his compassion for children dealing with adversity. Even though he was just two years old, he still distinctly remembers a dish thrown against a wall in anger the same year his parents divorced. He grew up in Hawaii, on his grandfather’s hog farm on Oahu, and money was always scarce. His father left his life after the divorce, and his mother died when he was sixteen.

Those early experiences informed Higa’s approach as an educator. Even before he heard about trauma-informed schools, Higa made a commitment to educating the “whole child”—understanding students’ social and emotional worlds in addition to their academic needs, and substituting empathy for harsh discipline.

When Higa joined Cherokee Point as principal in 2008, stacks of discipline referrals from teachers and other staff awaited him. Under the traditional system, those often led to detention, suspension, or even expulsion. That first year, he suspended seven students, not too high a number, but more than he was comfortable with. So, over the objections of some teachers, Higa took a new approach to discipline. Rather than being sent home, a student who acted out might be asked to sit out recess and contemplate misbehavior. Higa also instituted a restorative justice approach, in which any child causing harm to another acknowledges it and makes amends.

For example, a teacher called Higa to a classroom after a girl began throwing chairs. He surveyed the chaos and then assured the girl that although the classroom was a mess, it could be cleaned up. What was important, he told her, was that he wanted to know what was going on with her. He left the classroom with the agitated student and took a walk with her around the campus while she described what was distressing her. Higa said he told her he understood that people have bad days and asked her to think about it before she did something like that again and contact him if she felt she might. He explained, “If you feel you’re going to get angry, just tell the teacher, ‘Can I go see Mr. Higa?’ And so we worked

out a plan. Within a week, she said, ‘You know, I’m not going to do that anymore.’” And she didn’t, Higa said.

Early in his tenure at Cherokee Point, Higa realized that hunger might account for some student misconduct. He arranged a free breakfast for every child—in a school where 100 percent of the children qualify for free and reduced-price meals because of their household income. Student behavior quickly improved, staff noticed. He also turned the elementary school into a community school, developing partnerships between the school and local nonprofits, which created an array of new services on campus to benefit not only students and parents, but also the neighborhood. In 2010, for example, a local food bank needed a distribution center, and he offered his school site. “So I have 4,000 pounds of fruits and vegetables come every other week. Parents come and pick up their food, no judgments.”

In 2011, Higa received a call from a “Peace Promotion Momentum Team,” affiliated with The California Endowment’s Building Healthy Communities (BHC) campaign. The team shared his whole-child philosophy and offered powerful new support to help make his vision a reality. They asked Higa if he was interested in implementing a restorative justice and wellness program on his campus—goals that perfectly fit his own—with grant funding from the BHC campaign. “So I said, ‘Of course,’” Higa said. The \$684,000 grant launched the Wellness and Restorative Practice Partnership, run in consultation with several San Diego State University professors. Among the partnership’s aims: increase on-campus and in-home health care services for students and their parents; develop youth leadership to drive change on campus and in the community; create a positive climate that prevents conflicts; and—critically—train campus staff, from teachers to custodians, as well as parents and students, in restorative practices, which entail repairing harm while building relationships.

With the influx of new resources in both funding and personnel, a transformation took hold. Medical professionals now give every student a dental, eye, and physical exam, and free counseling is available for any parent or student who requests it. Along with Higa’s already compassionate approach, the restorative practices training reinforced a culture of respect between students and staff, creating an all-important sense of safety for students. Higa remembers a few years ago overhearing a kitchen staff worker “screaming and yelling at the kids.” He said, “You are not going to speak to kids this way. If you continue to do this, I’m going to have to

go to the next step. And I want to help you. Do you have issues at home? Whatever is making you this way, I want to help you.”

The results have been dramatic. A few years after implementing the new approach, suspensions at Cherokee Point fell to zero, and there have been none since then. Given the calm pervading the campus, Higa stopped staffing a campus police officer in 2015. “All he did was stand around,” Higa recalled. The officer once told him, “I have more problems with adults coming in the wrong way in the parking lot than kids.” The school police chief pulled the officer and told Higa to call if they were needed. They have not been called since.

The same trauma-informed approach now practiced at Cherokee Point is being adopted in schools across the US. The state of Washington has implemented a Compassionate Schools Initiative; Massachusetts created a Flexible Framework for Helping Traumatized Students Learn program, which arose from a sustained campaign by the Massachusetts Advocates for Children for trauma-sensitive approaches at schools. Several state departments of education now provide resources to address trauma, including Illinois, Wisconsin, and Massachusetts. In Idaho, 75 percent of school districts have sent staff to attend Idaho State University’s mental health training program, which includes trauma education. The Menominee Indian School District in Wisconsin has embraced trauma-informed schools and practices throughout its community. And in Washington, DC, where one in four children lives in poverty—half in some neighborhoods—the Children’s Law Center has successfully advocated for additional trauma training for several hundred educators.

Like Cherokee Point, other trauma-informed schools are seeing dramatic improvements. Lincoln High School in Walla Walla, Washington (which was profiled in the documentary *Paper Tigers*) saw an 85 percent reduction in suspensions after adopting a trauma-informed approach.

In the wake of the Parkland shooting—and other eruptions of violence that afflict schools and communities—Cherokee Point and other trauma-informed schools offer a powerful model of an effective alternative approach with lasting benefits. A large number of education experts agree that hardening our schools will not end violence on school campuses. Instead, they urge school administrators to adopt a public-health approach, and to treat traumatized or troubled children with compassion and care

to foster healing and cultivate healthy school climates—and to welcome community partners in supporting that work.

A 2016 article in *The Atlantic*, “Fixing Schools Outside of Schools,” describes how more school districts are turning to nonprofits and foundations to form partnerships in order to offer a wider array of student supports, with the growing realization that schools thrive with this teamwork. These partnerships also give school districts latitude to innovate and try new approaches. The article, however, notes how little of educational philanthropic dollars actually trickle down to the K-12 level, with most going to higher education.

The Center for American Progress prepared a report on cultivating these kinds of collaborative efforts, called *Achieving Results through Community School Partnerships*. Schools that partner with nonprofit organizations outperformed those who don’t in state tests, as well as in graduation and dropout rates, the report stated. As one school superintendent was quoted as saying, “Quite frankly, we can’t resolve (school) issues in isolation. It takes a community effort.”

The report offers ample advice on establishing and maintaining such partnerships, including ensuring that all partners develop a common vision and agreed-upon mechanism for mutual accountability, and that all parties cultivate open, candid dialogue about challenges and solutions.

Noemi Villegas, Ed.D., an instructional support officer with the San Diego Unified School District who is involved in implementing the districtwide trauma-informed training, also said it’s critical for potential partners to understand the structure of a school district and the various populations of students served, and to keep an open mind as to what’s needed. Sometimes, she said, a community organization arrives with offers for services the district already has, but the schools could use support on other fronts.

“So we can bring the experiential knowledge that we have from inside the district,” Villegas said. Partners can then work with them to rethink strategies, and “align and maximize resources,” she added.

# *Preparing for the Health Impacts of a Fiery Future*

LINDA RUDOLPH

*Originally published July 11, 2018 in The San Bernardino Sun*

The 2018 fire season has officially begun, and it's likely to be a bad one. At this writing, over a dozen large wildfires are burning in the western U.S., including a blaze in Colorado that has torched more than 23,000 acres. Here in California, at least thirteen wildfires are burning across the state.

Welcome to the new normal. On a warming planet, we are seeing more of the hot, dry conditions that have turned the American West into a tinderbox. Indeed, the very concept of “fire season” is a thing of the past: according to the U.S. Forest Service, climate change has made wildfire a year-round problem.

Wildfire poses well-known risks to life and property. It's less well known that wildfire is also creating a public health crisis. But there are steps we can take to protect our health in a fiery future.

Consider this: last year's wildfires in Northern California produced the highest levels of pollution ever recorded in the area. In just two days, those fires produced as much pollution as all the state's cars do in a year.

Wildfire smoke is laden with particulate matter, which triggers asthma, worsens lung and heart disease, and is linked to premature births and low birth weight babies.

And, as fires incinerate everything in their path—including plastics, paints and pesticides—they release toxins into the environment. In Sonoma County last year, for example, melted plastic pipes may have contaminated drinking water with benzene.

The health impacts of wildfire travel long distances: smoke from last year's Northern California wildfires was detected more than 500 miles away in Mexico. In 2002, smoke from fires in Quebec drifted down the

U.S. East Coast, causing a nearly 50 percent increase in hospital admissions for respiratory disease.

Some people face greater health risks from fire. Pregnant women, children, and the elderly are especially vulnerable. For children, particulate matter can impact the development of their respiratory systems, leading to lifelong impacts from smoke exposure.

And—as with many health problems—low-income and marginalized communities suffer the worst impacts from inhaling wildfire smoke. That group includes undocumented immigrants, who often work outdoors and lack access to adequate health care. People with preexisting cardiovascular disease and asthma are particularly at risk, and low-income people of color have higher rates of those illnesses.

There are mental health impacts, too. Displaced residents and emergency responders often suffer anxiety, depression and PTSD in the wake of a devastating fire.

Given the huge—and growing—health impacts of wildfire smoke, what can we do to protect our communities? Here are some actions we can take right now:

- **Identify high-risk populations.** Protecting the vulnerable starts with knowing who they are. Research and mapping can identify “hot spots” where poverty and poor health put people at greater risk. Once vulnerable communities are flagged, health officials can target interventions, such as indoor-air filters, to help those at greatest risk.
- **Monitor wildfires—and their impact.** Local governments can do a better job of monitoring rapid shifts in the direction and levels of wildfire smoke. New tools—such as low-cost, portable monitors—can help. Expanded air monitoring linked with real-time health surveillance could be used to quickly recognize and respond to impacts.
- **Improve communications capacity.** Communities must have mechanisms in place to inform all residents about fire hazards and health risks, including those who speak languages other than English.

- **Provide shelter and care.** Communities can establish “clean air shelters” with filtered air to give a respite from breathing smoke-laden air, and provide respirators (especially for young children and the elderly). It is also essential to quickly ramp up mental health services in fire-impacted communities.
- **Prevent future wildfires.** There are many steps communities can take to reduce fire risk. For example, they can develop land use policies that reduce development in fire-prone areas, and enact building codes that make homes less flammable (and less toxic in the event of fire). Smart forestry management and healthier watersheds can reduce the fuel that ignites hotter, deadlier conflagrations. And, finally, we must step up the fight against climate change, so the “new normal” doesn’t get even worse.



# *How Farmers Can Survive Tariffs: Diversify*

GARY PAUL NABHAN

*Published October 24, 2018 in Newsday*

**I**n America's farm country, the fear is palpable. In recent months, I've talked to dairy farm owners in Wisconsin, grain and soy farmers in the Dakotas, and stockmen in California who worry that President Donald Trump's tariff wars will trigger a new farm crisis. Many predict hard times to rival the epidemic of bankruptcies that devastated American farms in the 1980s.

The tariffs aren't helping, it's true. But Trump's trade dispute is just the latest factor in a longer-term decline in farm income. Other pressures have been wearing down farmers' reserves of capital, soil and patience for years. There's the rising cost of energy, water and agrichemicals, for example, and a rash of climate disasters.

Yet the roots of the problem go even deeper—to the massive monocultures that dominate the American heartland.

Much of our nation's agricultural land is devoted to two crops: corn and soybeans. Those endless fields of corn and soy are a marvel of modern agribusiness, but they are vulnerable to the vicissitudes of markets and Mother Nature. Think of it as a stock portfolio invested in just two companies.

When the prices of those crops fall on the global commodity markets, farmers take a big hit. The price of soybeans has fallen by more than half since 2012, from about \$17 to \$8 per bushel. Taxpayers are also on the hook: soy farmers will receive \$3.6 billion—76 percent—of the \$4.7 billion allocated for Trump's farm bailout so far.

To sidestep a crisis of epic proportions, policymakers need to refrain from trying to prop up the status quo with more price supports and

emergency relief. Instead, we should invest in a new model of agriculture: diversified farms that supply grains, dairy, meats and other produce to a variety of markets.

The good news is that this new model already exists. Today, innovative producers are working at several different scales of vegetable, fruit and meat production. They have found ways to reduce inputs, land debt and delivery costs to bring their direct-marketed foods to consumers for less than conventional farmers can do.

By 2015, 167,000 U.S. farms and ranches were direct-marketing fresh and value-added foods in their home regions. Those family-owned operations produce nearly \$9 billion worth of diverse crops each year. And they are proving economically resilient: As USDA economist Nigel Key has found, “farms that market directly to consumers through farmstands, farmers markets or CSAs (community-supported agriculture) have higher business survival rates.”

How do they do it? Their operations typically have a more favorable asset-to-debt ratio because they purchase less machinery, use fewer costly agrichemicals, and have lower interest payments.

Importantly, these farmers are focused on meeting the needs of their rural neighbors and nearby urban “green market” consumers, rather than on the distant—and fickle—foreign markets now involved in the tariff wars. They retail their fresh and value-added foods through more than 8,700 farmers markets and 7,400 CSAs across the U.S., returning more than three times their revenues in multiplier effects that ripple through and enrich their own communities.

In the last two decades, the number of farmers’ markets in the United States has grown nearly five-fold. What’s more, these farmers are building alliances with each other through marketing co-ops, and with consumers in nearby metro areas in ways that can heal the rural-urban divide.

Even if the tariff wars pass, American farmers remain vulnerable. Doubling down on commodity monocultures won’t help. To prevent the next crisis, we must nurture a new kind of agriculture: diversified farms that serve the needs of farmers and consumers alike.

# *What Hurricanes Warn Us About the Future of Food*

PAULA DANIELS

*Originally published September 14, 2018 on Medium*

What kind of wine goes with a hurricane? Not one that should be chilled, because the power would likely go out. That's what my sister thought as she pushed her shopping cart through the aisles of an Oahu grocery store as Hurricane Lane approached. The shelves for Gatorade and bottled water were already empty. There were a few cans of Campbell's Cream of Celery soup left, but otherwise all the canned goods were plucked clean—especially the SPAM, which went fast, and first.

Hawai'i has the largest per capita consumption of SPAM in the U.S. (a culinary taste acquired during World War II when Hawai'i was under martial law) and it was flying off the shelves when Governor David Ige gave the warning to shelter in place for 14 days as the hurricane barreled toward Hawai'i.

His emergency proclamation included an order that all commercial harbors be closed and that all cargo ships vacate the ports. "[T]he harbors are our lifeline to essentials such as food and products," said Governor Ige. "We must protect the harbors and piers so that shipping operations can resume once the storm has passed."

For over a century Hawai'i has been importing 85–90 percent of its food, due to the complete usurpation of the once-sovereign country by sugar barons eager to maximize industrial production of their crop. There is no longer any sugar production in Hawai'i, but its agricultural lands are now occupied by another industry: the vacation industrial complex. Land is more valuable as a resort, or an expensive vacation home, or housing for the workers supporting the tourist industry, than it ever could be for agriculture, if the profit model for farming remains the norm. Countless tech and entertainment celebrities have vacation estates of several hundred

acres that sit empty for the most part, while the locals tend to the grounds. Not much of the islands' famously fertile soil is used to grow food for the 1.25 million who make their home in Hawai'i, or for the eight million tourists who visit every year. Hundreds of thousands of acres of prime agricultural land are slated for development instead.

Governor Ige has declared a goal of doubling the current level of local food production by 2030. The local production of fruits, greens, dairy, nuts, and coffee is estimated to be at around 10 percent right now, with not enough variety to sustain a modern, healthy diet. It has often been said that if the cargo ships stopped coming to Hawai'i, the stores would be out of food in a week. That proved true when Hurricane Lane approached; not long after the cargo ships were ordered away from Hawai'i, the stores were just about out of food. Not much was left by the time my sister went shopping, wanting to first put tarp around her windows, bring in the outdoor furniture, and tie down everything else.

I'm from Hawai'i, but, I've lived in Los Angeles for decades. My local disaster experience is with earthquakes and wildfires. My memories of the 1994 Northridge earthquake are still vivid; I remember the loss of water and power in every building in the neighborhood for several days after. Last year we evacuated due to a threatening wildfire, exacerbated by unprecedented 80 mph winds.

Whether from floods or fires—or any of the other natural disasters that are accelerating and intensifying with the rapid warming of our climate—when roads collapse or are closed, when interstate commerce grinds to a halt, we all find ourselves vulnerably dependent on the food at hand. Hawai'i is an island state, but any region could find itself similarly isolated by disaster. None of our country's regions have much local food, even in California. Most food is shipped in or out, anywhere around the world, available at all times and in all seasons, in our on-demand global marketplace.

And more disasters are coming. California's Governor Jerry Brown recently issued a Climate Assessment Report, warning of the "apocalyptic threat of irreversible climate change." On our warming planet, hurricanes are hurtling in a more northerly direction than they ever did before—a worry that the eastern and southern states share with the 50th.

But greater regional self-sufficiency is possible. Hawai'i used to be as dependent on energy imports as it is on food imports, but it set a goal of 100% renewable energy by 2045. Thanks to aggressive installation of solar panels and wind turbines, Hawai'i is currently about 25 percent of the way to energy self-sufficiency. But its local food goals? Not so much.

Hurricane Lane could serve as a wake-up call on the need for regionalizing local food production. The state could create a renewable agriculture portfolio as eagerly as it did a renewable energy portfolio. Then, when the SPAM runs out, Hawai'i could have a reasonable amount of its own local food on hand. Every region used to be able to locally support its population before the industrialization of its food system; Hawai'i was no different.

Across the U.S., more than 200 food policy councils are working to revitalize regional food systems. Iowa is an example. It doesn't seem that Iowa and Hawai'i have much in common except for the letters in their names, but the local food problem is similar. In Iowa, most fertile land is devoted to the industrialized production of corn, the state's signature agricultural export. The Sustainable Iowa Land Trust (SILT) points out that the state imports more than 90 percent of its food, and that Iowa is losing 25 acres of farmland each day to development. Sound familiar? In response, SILT is creating land trusts and agriculture conservation easements that commit the land to nature-friendly food production, providing favorable leases to farmers to avoid a debt burden. And, they are working with city planners and private developers to include small farms in land-use planning.

Hawai'i's local food goal could be achieved with a similarly focused effort: supporting increased and accelerated investment in distributed agricultural land trusts and easements, and doubling down on its economic development of a sturdy chain of good jobs in local food and farming. Most cities have incentivized set asides for affordable housing; what if there were also set asides for affordable farming? Just think of how much more good food could be grown if a well-designed corner of the lush resorts (Disney's Aulani, for example) and the enormous vacation estates in Hawai'i (Mark Zuckerberg's Kauai home is estimated to be over 700 acres) were devoted to the production of healthy food.

In the meantime, what food can an island resident buy that would

survive at room temperature in a house about to be battered by a major hurricane? My sister bought peanut butter, crackers, cheeses, chips, trail mix, hummus, carrots, zucchini, mushrooms, corn. All imports. The wine choice? A light summery pinot noir from Oregon. It went well with the post-hurricane party she and her friends had a few days later, feeling relieved and lucky that the major hurricane weakened and whirled away.

This time.

# *Hold the Soy, Save the Pollinators*

GARY PAUL NABHAN

*Originally published November 30, 2018 in Civil Eats*

**T**hese are tough times for soybean farmers. As President Trump's trade war with China drags on, retaliatory tariffs are clobbering soybean prices—and some farmers are selling their crops at a loss.

The federal government has stepped up to help: At the urging of Midwestern senators, the USDA is compensating farmers for some of their losses, shelling out \$3.6 billion to soybean farmers so far. While the subsidy is appreciated, many soy farmers I've talked to see it as a politically motivated handout that won't help them in the long run. They would rather work toward lasting solutions than accept a quick fix.

So, here's a proposal. Instead of simply compensating farmers for their losses, let's pay them to plant native perennials on land taken out of soy production. If we do that for a decade or more, we can help restore lifesaving habitat for monarch butterflies and bumblebees—saving these critical species from extinction, and protecting the future of American agriculture.

Pollinators are in deep trouble: some bumblebees have been listed as endangered species; the majestic monarchs, which have declined more than 80 percent in the last two decades, are likely to be listed next year. Pollinators are essential to the web of life—and to three fourths of all crops grown in the U.S. Their loss would be devastating for many American farmers. Moreover, if the monarchs are listed as threatened—a determination that must be made in 2019—farmers will have to cope with tight regulatory constraints on how they grow their crops and use their land.

Habitat loss is a major cause of the pollinators' decline. In part, that's because millions of acres that were once part of the USDA's Conservation Reserve Program (CRP), the federal program that pays farmers to set farmland aside, have been put back into corn cultivation over the last decade because farmers can get bigger subsidies for ethanol production.

Other habitat is threatened by commonly used agrichemicals. A recent report by the Center for Biological Diversity suggests that 9 million acres of monarch and bee habitats could be damaged by the off-target movement of the herbicide dicamba. Chemicals like dicamba and glyphosate kill native milkweed, which feeds monarch caterpillars. We need 1.5 billion new milkweed sprouts to stave off further monarch declines.

The good news is that farmers are aware of the problem—and many are willing to help. In the 2016 Iowa Farm and Rural Life Poll, 81 percent of the farmers surveyed said they were aware of monarch declines, and 65 percent were concerned about them. A majority of the farmers said they would like to learn how to improve monarch and pollinator habitat on and near their land.

That's not just idle talk. Since 2008, the Xerces Society has trained more than 120,000 farm professionals in pollinator habitat conservation and restoration; many more have participated in workshops facilitated by the federal government, universities and non-profits. According to Mace Vaughan of Xerces, those efforts have helped restore more than a half million acres of wildflower-rich habitat on working farms across the U.S.

The current trade crisis offers an opportunity to greatly expand these efforts. Given the falling price of soybeans, we could see 6.7 million fewer acres planted in soy next spring. While many farmers will switch to corn, cotton, or another crop, some of that acreage may remain fallow due to the high transition costs of planting other crops. If even a portion of that land was restored as habitat, we might be able to save pollinators from extinction.

The 2016 Iowa farm survey revealed that a quarter of the farmers were on board to plant as much as 4.8 acres with native plants each, if they could receive full reimbursements for planting and maintaining pollinator habitats. Extrapolated out to just a quarter of all of the 300,000 current soybean farmers in our country, that would suggest that more than 360,000 acres of pollinator habitat could have been voluntarily planted even before the tariff wars began.

Imagine that the current incentives (CRP funds, National Fish and Wildlife Federation grants, and Monarch Collaborative grants and contracts) support farmers to ramp up the plantings to 360,000 acres of



additional pollinator habitat for each of the next five years, supporting 900 million additional monarchs in new milkweed-rich pollinator habitat.

But we don't need to stop there. To save the monarchs—and prevent their listing as an endangered species—we'll need as many as 1.8 billion additional stems of milkweed plants in North America, according to a recently published U.S. Geological Survey (USGS) study. Scientists with the USGS found that a total of 3.6 billion milkweed stems are needed in the landscape to reestablish a stable monarch population, but only 1.34 billion stems remain in the U.S.

Next year, farmers are expected to plant 82.5 million acres in soy, down from 89.1 in 2018—a decline of 6.6 million acres. If they plant 500 milkweed stems on just over half of those acres—3.6 million—we'd have the needed 1.8 billion milkweed stems to assure a viable monarch reproduction and successful migration.

Since soy farmers say they don't just want a handout, let them get paid for bringing back pollinators instead. Soy farmers received a substantial cash infusion from taxpayers to ease their suffering from the tariff wars. And that was on the heels of U.S. farm policies that facilitated 17 straight years of growth in sales of soy to China. That two-decade surge in the proliferation of herbicide-resistant soy came at the expense of much needed pollinator habitat in the Midwest, and in particular, at the cost of imperiled monarchs.

It's time for the 300,000 soy farmers in the U.S. to sing for their supper. I propose that bean farmers given cash infusions be mandated to put a percentage of acres formerly reserved for soy into pollinator habitat, using funds from NFWF, NCRS, the Monarch Collaborative, and industry to support monarch and bee recovery over the next five years. The percentage should be calculated to ensure adequate habitat for the monarchs and other pollinators.

Today, farmers and pollinators are both in trouble. By diverting a portion of farm subsidies and wildlife conservation funds to support monarch habitat restoration, we can ease the financial strain on soybean farmers, while saving the pollinators on which we all depend.

**SECTION III**

**SUSTAINABLE CITIES FOR ALL**

# *What Democratic Design Looks Like*

BARBARA BROWN WILSON

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*“The word empower, I truly hate it. No one can empower you. We have the power already. It’s just about utilizing the power, and I think in the City of Detroit, the people have been so misled that they no longer think they have this power to really move the city forward. A lot of the work that we have done at this table, in certain communities, we have reenergized that power with the residents. And that is what it’s about—reenergizing the power residents already have.”<sup>1</sup>*

—Sandra Turner-Handy, Denby Resident Leader/ Community Organizer

Detroit, in the popular imagination, is a city in need of saviors, or at least supervision. (It is impossible to ignore the racist overtones in that perception of this majority African-American city.) To many outside observers, Detroit is best known for its poverty and crime, its exodus of jobs and people, its mournful ruins.

Less well known are Detroit’s home-grown efforts to make positive neighborhood change despite disinvestment and sometimes tone-deaf state oversight. In 2010, Detroit launched a 24-month visioning process intended to engage a high percentage of Detroit’s 700,000 residents in the crafting of a 50-year framework for Detroit’s future. Instead of focusing on bad things to be removed, this process focused on building on Detroit’s many assets.

The visioning process produced a 50-year framework—Detroit Future City—driven by a cohort of resident leaders known collectively as Impact Detroit. After the framework was finalized, this group launched a series of pilot projects across the city to actively engage residents in the physical manifestation of that future. The first such project—the Skinner Playfield Project and its corresponding Safe Routes to School Initiative

in the Denby neighborhood—is a story of incredible collaboration, of grassroots youth leadership, and of hope.

During the Detroit Future City (DFC) visioning process, it became clear that “brain drain” was a common concern; Detroit’s young people were an asset worth working harder to retain. As student leader Hakeem Weatherspoon explained, “In 2014, out of the 12% of the population that graduated from high school, only 1% came back to the City of Detroit. . . . I think that it is shocking—why don’t you give back to the city that made you?”

To better engage young people directly with the design of their city’s future, Sandra Turner-Handy, an Impact Detroit leader and community organizer from the Denby neighborhood, worked with Jonathan Hui, a local high school teacher, to integrate the Detroit Future City framework across all four years of the curriculum. Sandra and Jonathan collaborated with the Detroit Community Design Collaborative (DCDC), which was central to the DFC planning process and continues to provide supportive infrastructure for Impact Detroit.

The Denby neighborhood was not yet receiving substantial municipal assistance, so Sandra easily convinced other Impact leaders to focus their first pilot project there. Further, the DFC cited schools as potential community hubs that would serve all neighborhoods and all residents during off-school hours, so this project would model that important concept as well. Most importantly, the Denby neighborhood needed to see change, and that change needed to be locally grown.

Working with Impact, Denby High School developed a new senior year curriculum, engaging students with urban planning and city improvement in each of their classes. As a capstone experience, students draw from their research to take part in an applied, change-oriented project in Detroit. After successfully getting an abandoned apartment building torn down and helping to weave smaller resident organizations into a Denby Neighborhood Alliance (DNA), the students began more boldly asserting their creative ideas.

Denby’s mostly residential streets are lined with beautiful bungalow-style homes, but vacancy now also marks those homes. Northeast Detroit leads the City in foreclosures—with over 12,000 households

losing their homes since 2008 through mortgage or tax foreclosures in the 48205 zipcode, which encapsulates most of Denby.

Imagine being one of Denby's more than 6,200 children, trying to walk to school in one of the most crime-ridden neighborhoods in the country. The foreclosure rate within a quarter-mile of Denby High School is 16.66%,<sup>2</sup> meaning every sixth house is likely covered in vines, boarded up, marked in spray-paint with a large X to note its abandonment, and potentially housing nefarious activities. It is no surprise, then, that when Denby youth were asked what they cared most about in the community, the most popular subject of interest was crime and the second was land use.

### **The Skinner Playfield Project**

The Denby public schools are the neighborhood's major anchor institutions; many are stunningly beautiful historic landmarks. But, the Denby neighborhood does not have enough high quality recreational spaces, and Skinner Playfield, a municipal park adjacent to Denby High School, was woefully underutilized.

Skinner Playfield stopped receiving attention from the City long ago, so the students worked with local Impact leadership and DCDC to adopt and transform it. The Playfield now boasts two basketball courts (centrally located and adjacent to the school building because students thought potential street violence would be a distraction), a central open space, a playground for younger children, volleyball courts, pickleball courts and horseshoe pits (suggested by older neighborhood residents), raised bed gardens, compost bins, rain gardens, and a solar-powered pavilion, which provides a space for community meals and performances.

The students also partnered with the DNA to map and implement dozens of safe walking routes to all the neighborhood schools. Through an organized volunteer "blitz" clean-up week in the summer of 2016, students and residents worked with thousands of volunteers from across the region to board up 362 vacant houses; remove blight on 303 blocks; conduct major repairs to 80 student homes; paint murals on multiple community buildings; and install wayfinding artwork and 125 planter boxes to mark the newly transformed "Safe Routes" to Denby schools.

Causation is tricky to attribute, but it is clear that these efforts coincided with substantial neighborhood improvements. Crime rates dropped

precipitously, and after the planning curriculum was introduced, graduation rates at Denby High rose from 44 percent to 70 percent.

The power of the Denby project lies in the fact that it was rooted in, and driven by, neighborhood residents—not outside “saviors.” Sandra Turner-Handy explains that “We had been doing work in the community all along—we didn’t need to be saved. . . . Who knows better what needs to be done in that community than its own residents?” She sees this homegrown leadership as critical to the future of this project:

*I think we really transformed the people. . . . We are still trying to develop a full plan for the whole community, still making sure that everybody is at the table . . . but everybody’s ready to get involved now to do it.<sup>3</sup>*

The importance of a robust network of actors that includes, but does not center around, the City government seems to directly increase a vulnerable community’s adaptive capacity. As illustrated in the project network map, the blend of residents (young and old) and representatives from other social service organizations is what makes this project so strong. With this community-oriented solution to crime, when the gangs show some tagging and other activity in the otherwise neutral park space, Black Family Development—another important member of Impact—is on hand to work with them to maintain peaceful relations that do not disrupt the community at large.

Nonetheless, the underlying structural inequalities make this work a continual challenge. It is hard to negotiate and maintain dynamic networks with many organizations and focus intense collective energy on one model project when so many acute challenges remain unmet. Further, balancing the different needs of the various neighborhoods within Detroit is a challenge in itself. Vacancy remains a major challenge in Denby. Crime remains an ongoing issue about which the community must remain vigilant and work in concert with the police. Race relations remain very tense in the City, necessitating difficult conversations and redistribution of resources to correct injustices that is likely not going to happen. And in 2017 the state reclassified many Detroit public schools as “failing,” including Denby High School, despite its positive trajectory. Community members were able to argue to keep it open, but the struggle has refocused many community leaders’ efforts

on ensuring that their children simply have access to a safe place to learn nearby.<sup>4</sup>

But the success of this project will be measured with longer time horizons. Impact Detroit leader James Ribbron observes that by the time DFC is implemented “in fifty years, [members of Impact] will be well into our senior years. But it’s really about building that legacy for the City of Detroit. . . . If we can get our kids involved in this, then we know for a fact that we will see some success.”<sup>5</sup>

Hakeem Weatherspoon would agree. Interviewed a few weeks after the “blitz” he helped coordinate, and—still energized by that success—Weatherspoon reflected on his experience with a nod toward this future:

*It feels so great just to give back to the city of Detroit and actually be a man of my word. . . . This work I have been doing all summer is like my dream job. Honestly, I didn’t know making phone calls, emails, going to meetings could be so tiring . . . but it is a great job to do and I feel like I want to do this for the rest of my life.*<sup>6</sup>

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# *A Tale of Two Cities: Detroit's Revival Still Leaves the Poor Behind*

ALAN MALLACH

*Originally published July 19, 2018 in U.S. News & World Report*

Five years ago this week, Detroit declared bankruptcy. In April, the Financial Review Commission—created by the state of Michigan in 2014 to oversee the city's finances—finally restored fiscal autonomy to the people of Detroit. It's the latest sign that this hard-hit Rust Belt city, which has become America's poster child for both urban distress and revival, is getting itself back in gear. But, to really turn itself around, Detroit still has a long way to go. And most of that journey will hinge on whether the city can effectively tackle the twin challenges of jobs and education.

In 2013, when it became the largest city in American history to file for bankruptcy, Detroit was in fiscal, economic and social meltdown. True, there were encouraging signs: Quicken Loans founder Dan Gilbert had moved his company and 1,700 jobs into the city a few years earlier, and the Detroit Future City planning process, mostly bankrolled by The Kresge Foundation, had engaged thousands in creating a new vision for the city. But the dominant reality was one of decline and despair, with abandonment and foreclosures proliferating, and a dysfunctional city government incapable of even keeping the streetlights on.

Five years later, the city feels like a different place. Downtown is bustling, with dozens of glorious early 20th century office towers converted into apartments, and new hotels and restaurants opening nearly every day. Once desolate areas such as Woodward Avenue and Campus Martius Park, the city's central square, teem with activity. The Midtown neighborhood, home to Wayne State University and the Detroit Medical Center, has 2,000 new housing units in the pipeline, many in once-abandoned mansions and apartment buildings. Even outlying neighborhoods, such as Rosedale Park or East English Village, are seeing property values on the rise.



Under the effective leadership of Mayor Michael Duggan, Detroit's city government has taken on a can-do character. Breaking through jurisdictional logjams that had stalled action on the city's vacant properties, Duggan consolidated all 100,000-plus properties under the Detroit Land Bank Authority. The DLBA has sold off more than 12,000 properties and demolished another 8,000, with more than 7,000 additional demolitions in the works. And the city is carrying out the first appraisal of properties for tax purposes in more than 50 years as part of an effort to make the city's property taxes both fairer and more manageable. Finally, thanks to an innovative deal with the state, by the end of 2016, every block in the city had new, state-of-the-art LED streetlights.

Reflecting the progress that the city has made, after his re-election, Duggan told his State of the City audience that "the first four years we're there to try to fix the services, get the grass cut in the park, get the streetlights on. I'm not talking about that stuff anymore. Now we're talking about building one Detroit for all of us. And we're going to do it together."

All of this is good, even amazing. But beneath the surface, the picture is more complicated. Downtown's resurgence is largely credited to Gilbert, a billionaire. Gilbert, his companies and his affiliates now employ 17,000 people in downtown Detroit, where they may own as much as 40 percent of the real estate. He and his partners have invested billions in downtown Detroit since 2011: buying and restoring dozens of buildings; recruiting retailers and restaurateurs; spending millions to upgrade and beautify public areas. What Gilbert has done to create both visible change and critical mass in an area marked by vacancy and blight only a few years ago is truly transformative. But it remains to be seen whether that transformation is self-sustaining.

Detroit is an especially dramatic example of the standard American urban revival narrative: the "eds and meds" institutions, the white-collar jobs, and the high-density, mixed-use areas that draw well-educated millennials. That's only one side, of course, of the divided modern American city. The other side is the extent to which most of the city—and most of its people—aren't part of that revival. Indeed, when I visited downtown Detroit earlier this year, I was struck by how few people of color—in a city that is 80 percent African-American—were visible in the throngs I saw around me.

The fact is, Detroit still has a long way to go. For all the activity and investment, there's a lot of work still to be done even in downtown, where dozens of empty, derelict buildings squat like toads between Gilbert's trophy properties. And outside downtown, Midtown, and a few nearby pockets of revival, most of the city's neighborhoods are still stuck in poverty and disinvestment. Fully half of the city's population is poor or near poor. Detroit is a paradigmatic "divided city."

It is not that Duggan and his administration are indifferent to the city's neighborhoods; on the contrary, their desire to address neighborhood needs is palpable. The sheer amount of work undertaken by the city's now reinvigorated and well-staffed planning department is breathtaking. Yet their activities seem oddly unmoored from the core social and economic realities of life in Detroit.

To change those realities, Detroit must start with jobs. Since 2002, the number of Detroiters with jobs has dropped by 39 percent, while the number who work in the city has dropped by nearly 50 percent. Barely one out of four jobs in Detroit is held by a city resident. Fewer than half of Detroit's adult population works at all, and unemployment in 2016 stood at more than 16 percent. Detroit needs to focus on putting the pieces together to build a comprehensive workforce strategy that can address the multiple factors—including soft skills, legal disabilities, transportation and more—that keep its people from getting and holding jobs. To be fair, both Duggan and Gilbert get it. In January, Gilbert told *The Detroit News* that jobs must be the first priority. "Anybody in Detroit who can work and wants to work, in my opinion, should be able to have an opportunity to get into the workforce," he said.

Education holds another key to Detroit's future. Tragically, Michigan's dysfunctional charter school laws, largely driven by U.S. Education Secretary Betsy DeVos' determined advocacy, foster a race to the bottom and have led nearly half of all Detroit's school-age children to be enrolled in largely inadequate, mostly for-profit charter schools. But they are state laws, and so far, those laws have been beyond the ability of the mayor or anyone else in Detroit to influence. Much of the flight to charter schools, though, has been driven by the long-standing instability of the city's public schools. While the new superintendent of the Detroit Public Schools Community District may have begun to stabilize the situation, education remains a challenge. So does crime,

which although slightly down from a few years back, remains stubbornly elevated.

The fact that Detroit has not solved these problems is no reflection on the city's commitment to its citizens; it simply highlights the extent to which Detroit shares the problems of dozens, if not hundreds, of other cities around the United States. The fact that one can now talk about Detroit as one of those cities—rather than as a symbol of urban despair, seemingly almost beyond hope—reflects how far the city has come in only five years. Now it is time for Detroit to start thinking strategically about its long-term future and, above all, invest in its human capital. Only with that investment will it be possible to revitalize all of this divided city.

# *Design as Democracy: Barcelona's 'Carritos' Encourage a More Inclusive Urbanism*

DAVID DE LA PEÑA

*Originally published July 16, 2018 in TheCityFix*

Community participation has become a checklist item for any major urban development project. But what does community participation actually mean? What would it look like if we flipped the responsibility of engagement from citizens to designers? What if, instead of asking more people to show up at meetings, we asked designers to show up in the community?

For the past few years, a curious experiment in this sort of active engagement has been rolling out across the streets and plazas of Barcelona, Spain.

In 2016, to assist with its Municipal Action Plan, which set the priorities, objectives and actions for the city administration, the Department of Citizen Participation commissioned 10 small carts, or *carritos*, to deploy in each of the city's 10 districts to collect proposals. Since then, teams of city staff have been charged with bringing the carritos into the everyday spaces of Barcelona.

Painted bright red and equipped with maps, drawings, handouts and surveys, carritos attract the attention of passersby and prompt conversations about how the city around them. In essence, the city has asked designers and planners to participate in the daily life of communities rather than expecting the other way around.

## **“Grounded in the Heart of the Community”**

A cooperative of urbanists called Raons Públiques introduced the carrito to Barcelona back in 2009. The cooperative itself emerged as a multidisciplinary group of designers, anthropologists, sociologists and educators,

whose goal was to challenge the city's norms of participation and to find more inclusive ways of engaging citizens in the design of public spaces. The carrito, then, was not just a gimmick; it was a deliberately more humble and empowering way of relating with citizens about the places they valued. To one member of Raons Públiques, the carrito was powerful because it generated “a different kind of participation—one that is grounded in the heart of the community.”

But how exactly does the carrito work? The carts are parked usually at the edge of a plaza or alongside a busy pedestrian street, where people will naturally pass. By slightly disrupting the daily rhythms of life, they attract more than just the usual suspects who attend workshops. For traditional public meetings, people have to deliberately show up, and they need to dedicate precious personal time to the effort. On the street, casual encounters can be brief and more intimate.

The result is an entirely different kind of public participation. Community elders stop and tell stories, children muse over drawings or play with models, and people coming from work or going to the store ask about what is going on in their neighborhood, or just talk about the weather. If they're interested, they may even take a flyer or a survey.

The ability to reach a more representative sample of people affected urban development is compelling enough, but an equally important transformation happens in the minds of the designers and planners themselves. The carrito takes experts out of their comfort zones, away from their desks, where planning can be an activity of abstraction, and into the reality of the street. Here, a new relationship with communities is required, one that is more open to listening, observing and appreciating what is already there. It encourages an attitude of curiosity and places value on local knowledge.

### **Toward Citizen-Driven Planning**

The carrito is not the only way to create active engagement, nor is it intended to replace tried and tested planning processes, but it does open up possibilities for more creative approaches to city making.

For many public projects, participation is now a required component of the design process. As a result, engagement is framed as something tedious that designers are obliged to do, rather than something that

enriches the design process with valuable insights and community connections. Public meetings and workshops are not going away, and they still provide important spaces for more formalized presentations and for gathering input. But for designers who really want to listen and observe, these venues alone, however well crafted, will be inadequate.

For Barcelona's part, the carritos have proven instrumental to the success of the Municipal Action Plan, which has in turn launched dozens of citizen-driven planning initiatives. Because of their obvious utility, carritos have been appropriated for use in several neighborhood plans as well as the redesign of the city's famous Eixample grid system too, also known as "superblocks."

The carritos are only a small part of Barcelona's shift to a more robust participatory framework, which includes better online platforms and more transparency overall. Laia Torras Sagristà, who has worked on citizen participation for the city since 2011, sees these efforts as ways to make engagement more instrumental in the development of design projects. Beyond that, however, the transformation of attitudes can be more challenging. Planners and designers don't always appreciate local expertise, and often don't want to give up their control over the process. The carrito can't ultimately force that change, but it can't hurt either. If it helps to emphasize the need for multiple ways to engage with citizens, that is a start.

# *The Devaluation of Black Neighborhoods*

CHRISTINA STURDIVANT SANI

*Originally published December 20, 2018 in Greater Greater Washington*

In the DC metro area, the average cost of a home in a majority-black neighborhood is \$48,490 less expensive than a comparable home in a neighborhood with few to no black residents, according to a recent report from the Brookings Institute.

This 15% price difference in the Washington region mirrors a national trend that shows how homes in black neighborhoods in US metropolitan areas are being devalued—to the tune of \$156 billion in cumulative losses for black homeowners, per the report. The cause, according to lead researcher Andre Perry, is a housing market in which racist policies and practices have negative impacts on blacks in America.

To dismantle the notion that homes are cheaper in black neighborhoods because they live in worse conditions, the researchers conducted apples to apples comparisons of home prices in neighborhoods where the quality of residences and nearby amenities are relatively equal—the only difference being the racial makeup of the people who live there.

For instance, the authors analyzed home prices in neighborhoods in the same region that had similar square footage and numbers of bedrooms, in close proximity to public transportation, commercial districts, and quality schools.

Nationally, the report found that owner-occupied homes in neighborhoods with majority black residents are undervalued on average by 23%, or \$48,000 per home, compared to houses in similar quality neighborhoods with few to no black residents. In Lynchburg, Virginia, the price gap is as much as 81%; Rochester, New York peaks at 65%; and Peoria, Illinois' disparity is 54%.

While the report's multi-colored maps and charts effectively display the disparities that were uncovered over months, Perry hopes it doesn't stop there. He wants the report to serve as a tool to change a damning narrative about African Americans.

“When people reflectively say after something goes wrong in the black community that ‘it all starts at home,’ I want them to shift talking about this cultural pathology to one of structural racism,” Perry said at a panel discussion earlier this month.

He said papers such as Daniel Patrick Moynihan's 1965 report on “the negro family” has led Americans to believe that black families headed by single mothers lead to poverty, when in fact, decades of structural racism has “infected the housing buying market” to the detriment of black families.

“We must address racism—which is tangible, measurable, and costly—if blacks are ever to benefit from the American Dream,” he said. “Blacks clearly didn't buy into the market to disadvantage ourselves and we should not shoulder the blame of that reality.”

The report is about housing, but it's also about educating black people about their value and policing the system that tries to strip it away, he said. “Housing is such a foundation that without this major revenue source being maximized, other parts of our lives start to fall apart.”



# *Can Ride-Sharing Apps and Autonomous Vehicles Help Bridge the Mobility Gap?*

ANNE BROWN AND BRIAN D. TAYLOR

*Originally published June 26, 2018 in City Metric*

*“Grace” is a single mom with two kids living in Los Angeles’ Koreatown. Because high rents have put car ownership out of reach, Grace endures a hellish daily commute. Each weekday, she rises at 5:30 a.m. to dress and feed her children and walk them four blocks to her cousin Lydia’s apartment; Lydia then walks Grace’s daughter to daycare and her son to elementary school while Grace makes a 75-minute, two-bus trek from Koreatown to her job as a teacher’s aide in Westchester. The trip home in the afternoon is just as bad, and Grace struggles to get dinner on the table by 7:00 p.m.*

Transportation, like so many aspects of American society, is divided between haves and have-nots. While the mobility “haves” enjoy a wide array of travel choices, for the have-nots everyday travel—trips to work, daycare, the grocery store—can be lengthy, complex, or even impossible in a car-dominant society. “Grace” is fictional, but her plight—and that of the “mobility have-nots”—is real.

While just eight percent of American households are without cars, carlessness is spread unevenly across the population and concentrated among some of the most vulnerable travelers. More than one-fifth of households earning less than \$25,000 a year don’t own a car; African-American households are car-less at nearly four times the rate of whites.

At the same time, the current status quo—with a sharp divide between auto-mobility haves and have-nots—is being upended. The much heralded mobility revolution—which includes ride-hailing services like Uber and Lyft and (down the road) automated vehicles (AVs)—could make traveling much easier for people like Grace. Or they could make it worse.

In the dream scenario, on-demand vehicles are affordable and widely available, expanding access and mobility for those currently struggling to get around. But there's an equally plausible nightmare scenario: that new technology exacerbates mobility inequalities. We're now at a crossroads where policy actions can help to determine whether the dream or the nightmare prevails.

The primary issue is whether these transportation revolutions will change the cost and access calculus for car travel. The evidence, so far, is mixed. Early studies show that ride-hailing services like Uber and Lyft may improve mobility for low-income and car-less travelers. In San Francisco, one-third of Lyft and Uber users earn less than the median income. In New York City, ride-hailing provides better service to the outer boroughs than taxis. But research from other cities also shows that higher-income adults with more education comprise a disproportionate share of ride-hailing users, suggesting that these services may be out of reach for some low-income travelers.

With car ownership out of reach for many mobility have-nots, it's likely that future automated vehicles will also be too expensive for many households to own. But fleets of AVs owned and operated by mobility providers may sharply reduce per-trip costs, greatly expanding auto access for disadvantaged travelers. Because they can offer point-to-point services on demand, AVs may extend mobility to those too young, old, or physically impaired to drive. The cost of such services is expected to be well below today's Lyft and Uber-like services, since fully automated vehicles will save money by not requiring a driver.

Automation and ride-hail services are well suited for the short point-to-point trips that are common in dense urban environments. New services could also supplement scarce or non-existent public transit service in suburban and rural areas, and greatly expand access for those without auto access. Automation may also benefit lower-income users, as ride-hail services and transit agencies could save on labor costs, enabling them to offer trips at lower prices.

But, without the right public policies, shared and automated services can further disadvantage mobility have-nots. One immediate problem is that Lyft, Uber, and other services require users to have a smartphone and a credit or debit card. About one-third of all Americans did not have

a smartphone as of 2015, so it is possible that large shares of the population are excluded from these services. Even more troubling, substantial overlap exists between the car-less, who are already vulnerable and face transportation hardship, and those lacking smartphones or credit cards.

As shared and autonomous vehicles spread, they could undermine existing public transit services by diverting transit riders to new services. With fewer riders, transit agencies could lose fare revenues and the justification to provide transit service as frequently or at all. Public transit currently provides important mobility options for the car-less. While supplementing or replacing fixed-route, fixed-schedule transit with shared or automated cars might provide more access for some, it could also reduce mobility for the elderly, wheelchair-bound, sight-impaired, and other travelers who rely on lift-equipped transit vehicles, or the assistance of experienced paratransit drivers.

Travelers can be excluded if they do not have access to new technologies, or cannot afford new services, or cannot physically access automated or shared vehicles. But they can also be excluded through discrimination. Studies find that Lyft and Uber drivers cancel rides requested by African-Americans at higher rates than they do for other riders. Presumably, automated shared ride vehicles would address this sort of discrimination.

Public policies can address these equity challenges and help reduce mobility costs for have-nots. There are some encouraging signs that policymakers are taking seriously the potential perils of shared and automated transportation. But more must be done to regulate shared and autonomous services to move transportation equity in the right direction.

For example, streamlined fare-payment systems can integrate all regional modes, from transit to ride-hail to carshare, and subsidize low-income travelers. Requiring that ride-hail companies share passenger data with local governments can help monitor service delivery and cut down on discrimination. Cities such as Ottawa and Portland, Oregon have implemented rules for ride-hail companies to provide a certain amount of wheelchair-accessible service, and levy small fees on rides to fund accessibility programs.

Policymakers can also encourage the development and deployment of tools and apps to make vehicle sharing more affordable. Recent apps

that compare prices and times of travel options, such as RideScout and Citymapper, offer more transparency for users and incentivized services to lower their prices in order to compete with other modes.

The wheels of government move slowly, but some local and regional bodies are beginning to plan for the impacts of the mobility revolution on their transportation future. The widespread use of shared and autonomous vehicles may still seem distant—but experience tells us that the time for policy innovation is in the midst of transition, before stakeholder positions harden and change becomes more difficult. Without early policy interventions, the mobility gap between the haves and have-nots might well widen into a chasm.

# *Trump's Infrastructure Plan Won't Build the Transportation We Need*

LINDA BAILEY

*Published February 18, 2018 in The Seattle Times*

**I**n his January State of the Union address, President Donald Trump said we must build the “safe, fast, reliable, and modern infrastructure our economy needs and our people deserve.”

It is impossible to square that vision with the plan and budget he released on February 12, which would actually cut billions in federal transportation funding.

Trump's infrastructure plan calls for \$1.5 trillion in spending, but offers only \$200 billion in federal money, just 13 percent of the total. And, because it relies heavily on private funds, the plan prioritizes infrastructure projects that can turn a profit for investors. It's as if the plan is designed to provide maximum benefit to Wall Street financiers, rather than to repair our country's vital public infrastructure.

Worse, not all of that \$200 billion in federal funding is new money: the Trump administration intends to simply loot existing domestic programs, especially those dealing with public transportation.

Its proposed budget would wind down New Starts, which supports new rail and high-quality bus rapid transit lines, and gut the popular TIGER program, which has funded transit projects ranging from intermodal hubs to safer street redesigns, all with a significant local match. In fact, New Starts and TIGER already have the highest local match of any federal transportation programs.

In recent years, cities across the country have led the way on transportation, raising funds at the ballot box and executing visionary projects. Transit agencies in Denver, Charlotte, Phoenix and Indianapolis—among

many others—have leveraged federal grants to generate billions of additional state, local and private funding. A forward-looking federal transportation plan would reward those groundbreaking efforts, instead of kneecapping them.

And Trump's plan does little to repair the nation's dismal transportation infrastructure. All across the country, examples abound of bridges closed and trains slowed due to a lack of spending on maintenance, even when there are clear ways to help pay for essential repair needs.

For example, a modest increase in the gas tax could ensure the future of the Highway Trust Fund, which is now set to go bankrupt by 2020. The national gas tax was last raised in 1993 and its real value has fallen by almost 40 percent since then.

At the same time, we could follow up on policies passed in the bipartisan FAST Act in 2015, and provide meaningful new funding to support cities as they work to keep up with rapid population and economic growth.

President Trump could lead a bipartisan effort to repair and improve our country's vital transportation infrastructure. Instead, he released what his budget director calls a "messaging document" that sends the wrong message. Cities are leading the way on transportation, raising funds and executing visionary projects. It's time for federal partners to meet cities at the table, and fund the projects that will connect people to jobs and opportunities.

# *What's Cooler Than Scooters and Dockless Bikes? Safe Streets*

CHRIS RILEY

*Published May 24, 2018 in the Fort Worth Star-Telegram*

**M**ay is National Bike Month, a good time to appreciate the innovations that put more sustainable transportation options on city streets.

We now have smartphone-enabled bike-sharing programs, along with “dockless” bikes and scooters that anyone can use. There is growing interest in these alternatives, especially among millennials.

But the pace of change will be limited until we fix a fundamental problem: Our streets, roads and highways are deadly. About 40,000 Americans die on them every year; that’s comparable to a jetliner carrying 150 people crashing every single weekday. Many more people are seriously injured.

There would be fewer auto deaths if more people used other forms of transportation. But, ironically, one reason that doesn’t happen is because people are afraid to bike.

A survey taken in Portland in 2011 found that 60 percent of respondents said they were interested in biking but too concerned about their safety to ride regularly.

The innovation we really need, then, is something that gets at that fundamental problem of danger. Fortunately, we already know how to achieve that.

Many cities worldwide have significantly reduced deaths and injuries from car crashes. In the Netherlands, for example, a popular movement against traffic deaths in the 1970s resulted in a national commitment

to safer urban design. By 2011, traffic deaths in the Netherlands had dropped 81 percent.

Closer to home, New York City made huge safety advances by adapting its streets to provide better protection against the misjudgments of drivers. After the city installed 60 new plazas and more than 35 miles of protected bike lanes, the number of daily cyclists boomed, growing 68 percent from 2010 to 2014. And notably, the streets became safer for all users: traffic fatalities dropped to the lowest numbers ever recorded.

Reducing the fear of death will not, by itself, fill our streets with pedestrians and bicyclists. Walkability expert Jeff Speck has pointed out that it's not enough for a walk to be safe; it also needs to be useful, comfortable and interesting. The same is true of biking, scooting and skating.

The corridors that now carry much of our car traffic are seldom comfortable or interesting places. To make them inviting for all, we must allow greater concentrations of homes and business within human-scale distances, with pleasant pathways along the corridors. And we must limit the speed of car traffic to levels associated with traditional streets.

These changes would markedly reduce the size of our collective carbon footprint and allow us all to live more healthily and happily. As journalist Charles Montgomery has noted, people using active transportation report feeling more joy, and less stress, rage and fear, than people using other modes.

As long as our streets remain dangerous and unappealing, advances like bike-sharing programs will remain peculiarities enjoyed by a hardy few. But if we rethink our streets and land use, we can create conditions that will draw vast numbers of people to move from place to place without cars. That will not only ease traffic; it will improve our health, and the health of the planet.



# *Elon Musk is Wrong About Public Transportation. But Transit in the U.S. Is Still in Trouble*

ALAN MALLACH

*Originally published January 18, 2018 in City Metric*

Tech tycoon Elon Musk recently declared that public transit “sucks,” and is riddled with serial killers. In the Twitter storms that followed, there was much talk about Musk and his unconventional solutions to the mobility crisis.

We shouldn’t be talking, though, about Elon Musk. Instead, we should be talking about transit: what kind we have, who and what it’s for, and where it’s likely to go in the future.

Like almost everything else in 21st century America, transit is divided by class, and sometimes by race. Buses in the United States are thought to be for poor people, and the statistics largely bear that out. The people who ride buses are different from those who ride light rail and subways, and they are even more different from those who ride commuter trains.

Buses, however, also account for nearly two-thirds of all transit journeys to work outside New York City. And yet, most of the attention—and the funding—goes not to buses, but to their far more glamorous cousins, light rail and trolleys. And a lot of those projects, like Detroit’s much-heralded Q Line, actually have more to do with promoting redevelopment through real estate investment than with moving people around.

Instead of being defensive about people like Elon Musk, who—as others have pointed out—has absolutely no idea what he’s talking about, we should recognize that public transit in the United States is in serious trouble. For all the hype and the billions in investment, it’s still an exotic taste.

Outside New York City, only 3.5 percent of work trips (and an even smaller percentage of non-work trips) take place on transit. Transit accounts for 10 percent or more of work trips in only nine of the nation's top 60 urban areas, and 10 percent of total trips only in New York. Despite the fact that transit is heavily subsidized, many of our biggest systems are in poor shape or worse. Deferred maintenance, inadequate capital investment and fiscal woes are taking an increasing toll, as stories from New York, New Jersey, Washington DC and elsewhere over the past year or two have made abundantly clear.

While there is plenty of blame to go around, the most fundamental problem is that, for 60 years or more, we have systematically spread our population around our metro areas—yes, I'm talking about sprawl—in ways that are fundamentally incompatible with efficient, cost-effective mass transit. Many of our older cities have thinned out, while suburbia has spread further afield.

The city of Cleveland, for example, has only 40 percent of the people it had in 1950, while ever-spreading development has formed a blob spreading 25 or more miles east and south of downtown.

This triggers what transit people call the 'last mile problem.' It's a serious problem, and possibly insoluble by transit, despite a lot of creative thinking. People live—and their jobs are located—in such a dispersed fashion that, outside of high-density central areas, no plausible network of transit lines can get close enough to them to make transit preferable to simply getting in one's car and driving off. And no, the solution is not getting people to walk more; that might work on a beautiful spring day, but not the rest of the time.

This problem is further complicated by two big developments in transportation: ride-hailing systems like Uber and Lyft, and the imminent arrival of autonomous, self-driving vehicles. Whatever else they may or may not do, these changes have already made it easier for more people to use cars, whether theirs or someone else's, and will make it even easier in the future. After all, if solving the last mile problem through transit involves taking Uber to the bus, and then another Uber from the bus to the workplace, why not just take one Uber to begin with?

Transit is important, but I think we have to take a step back and ask ourselves why it's important. Public transit systems serve a variety of different policy agendas, including:

- Enabling financially-constrained people to get to jobs and take other necessary trips;
- Reducing congestion in dense urban areas and corridors;
- Promoting redevelopment of disinvested urban cores or transit hubs, and maintaining the competitive edge of urban centers;
- Reducing vehicular emissions;
- Enhancing mobility for people whose ability to use individual vehicles is limited, such as teenagers, the elderly and the disabled.

All of these functions are relevant, and important. But they are sometimes in conflict—and even when they're not, we may not have enough resources to address all of them. If we invest hundreds of millions in light rail systems whose primary role is to foster redevelopment, we will have fewer resources to help people with limited options get to jobs with reasonable efficiency. With the majority of urban residents today working in the suburbs, that's not an insignificant concern, and in my opinion, should be the highest priority.

We need to start thinking differently about transit. For example, we assume that transit should be a monopoly, run by the MTA in New York, the CTA in Chicago, SEPTA in Philadelphia, and so forth. Yet a monopoly can be a very inefficient way to achieve the many different goals that transit is called upon to serve.

A few years ago in *CityLab*, Lisa Margonelli pointed out that “America’s 20th largest bus service—hauling 120,000 riders a day—is profitable and also illegal.” She’s talking about the hundreds of what New Yorkers call “dollar vans,” which cater to people and areas inadequately served by public transit.

Most cities have something similar. Most or all are illegal. Why not allow anyone with a properly licensed, insured and inspected van to pick up passengers on street corners and take them where they want to go?

In the end, it's not about Elon Musk. Indeed, if his words encourage us to think more about what transit is for, and how to achieve those goals—plausibly, not through imaginary tech 'fixes'—that would make this entire Twitter spat worthwhile.

# *For People Working to Protect Nature, Cities Can No Longer Be an Afterthought*

MEERA BHAT

*Originally published September 14, 2018 in Ensia*

Today, conservationists are thinking differently. Cities can no longer be an afterthought or a charge left solely to urban organizations. More than half of the world's population lives in cities, and this number is rapidly increasing. Climate change has exacerbated hazards to cities, like flooding and extreme heat, putting millions of people in harm's way.

Cities present an interesting tension—as well as a big opportunity—for conservation groups that traditionally focused on saving the last pristine places. More people means more pressure on our natural resources to meet the demands of life. At the same time, urban living has many benefits for nature. Densely populated areas require less land to be developed, and resources and services can be delivered more efficiently. Well-designed cities with dense housing, walkable communities and good public transit can support low-carbon, sustainable lifestyles.

While valuing and enhancing natural areas in cities has long been an effort of park organizations, environmental justice groups, community land banks and others, large conservation organizations such as The Nature Conservancy (TNC), where I work, are quickly recognizing the power and potential of cities. Defining what “urban conservation” encompasses is still a challenge, but its essence is about managing a city's natural resources and systems in a way that benefits both people and nature.

Those of us involved in urban conservation continue to learn what works and what doesn't. While we don't have all the answers at TNC, we do know that conservation looks different in an urban setting in a few

key ways. In a rapidly urbanizing world, these lessons could be useful for anyone trying to make cities greener and more equitable.

### **1. Put People Front and Center**

In conservation, we often talk about protecting “keystone species,” which are species that define an entire ecosystem. In cities, *humans* are a keystone species: What humans do affects every other living being. The health and economic well-being of people is a goal of urban conservation.

In a practical sense, people are at the center of every conservation decision in a city. In contrast to more traditional land or water conservation work, in cities there is rarely *one right* solution for a particular place. We can only co-create an approach with the community by building relationships and trust with residents, and by truly listening. Our expertise then can show up in context-appropriate ways.

### **2. Prioritize Low-Income, Frontline Communities**

In the United States, environmental challenges facing cities, such as sea-level rise and pollution, have a disproportionate negative impact on low-income communities—often communities of color. Many of these communities have not historically been engaged by the conservation movement because of racial, economic and other barriers. This must change.

Access to the benefits nature provides—such as clean water, cool air and protection from flooding—should not be a luxury available to those who can afford it. It’s a right that goes to the core of human health and well-being.

We need to prioritize urban conservation projects that help people who need it the most. Adopting an equity-based approach to planning, community engagement and evaluation (one we’re taking at TNC) is critical to working authentically and transparently with partners and ensuring that nature—trees, green stormwater systems and open spaces—can make the biggest difference in underserved, diverse communities.

### **3. Recognize the Need for Flexibility and Adaptation**

Historically, the term “conservation” has been about preservation, protection and permanence. But in cities, where everything is always changing rapidly, what does “conservation” even mean?

Conservation scientists adaptively manage landscapes based on local needs, barriers and opportunities. They care deeply about nature and want to have a positive impact on those natural systems. Those same skills—observation and adaptive management—and those same values—respect for diversity and the value of place-based conservation—translate powerfully to urban conservation programming.

But unlike trees and wildlife, the people in urban communities have a strong voice that is inextricable from conservation projects and mandates a participatory approach to planning that is inherently different from working in landscape conservation. This inclusivity is an opportunity that is unique to urban conservation.

We need to reimagine cities as complex ecosystems where the built environment, nature and human communities work together to face unprecedented environmental challenges.

# *How Inclusive Contracting Can Produce the Infrastructure We Need*

DENISE FAIRCHILD

*Originally published September 20, 2018 in Governing*

For decades, many state and local officials have thought that they had to choose between developing their economies and protecting the environment. But the reality is that we have an opportunity to do both, creating jobs in struggling communities while building green, resilient 21st-century infrastructure. To make that happen, though, we need the right contracting and procurement policies in place.

The litany of challenges is familiar. Our infrastructure is deteriorating, just as climate change places new stresses on our aging roads, dams, sewer systems and power plants. And the much-vaunted economic recovery has left too many people behind, especially in communities of color.

State and local governments play an increasingly important role in infrastructure construction. Each year, they spend at least \$250 billion on public infrastructure, including transportation, energy and water/sewer system upgrades. But a recent report by the Emerald Cities Collaborative and PolicyLink shows that infrastructure spending will not automatically “lift all boats,” especially in historically marginalized communities.

The report highlights the multi-layered challenges that minority-, women-, disadvantaged- and veteran-owned business enterprises (or MWDVBEs) face in competing for infrastructure contracts. To overcome those challenges, governments must be purposeful about connecting local and underrepresented businesses to economic opportunities. That’s where inclusive procurement and contracting comes in.

Of course, there is no one-size-fits-all inclusion policy. Inclusive procurement and contracting policies evolved over a 60-year history into a complex maze of standards and requirements that differ by the



procurement agency, the level of government, and the local and state political environment. But a few strategies apply broadly:

- **Prioritize local procurement, especially for underrepresented businesses.** Small and medium-sized local businesses, those with fewer than 500 employees, are major engines of job growth. In fact, nearly half of the nation's private sector is employed at a small business, and small businesses are responsible for two out of three net new jobs. They are the secret sauce for spurring the local economy. But these enterprises are often cut out of infrastructure contracts, which favor large prime contractors. That's doubly true for MWDVBEs, which bear a legacy of discrimination in lending, contracting and business ownership. To level the playing field, states and localities should ensure that infrastructure investments give priority consideration to local contractors, including those historically excluded from public-sector opportunities.
- **Adopt accessible project delivery methods.** Water, energy, transportation and other climate-resilient infrastructure projects are large-scale, multibillion-dollar, long-term endeavors. The process for bidding on these complex projects has become increasingly difficult for smaller contractors. More than three dozen state legislatures have given local governments authority to use public-private partnerships and other innovative project delivery methods to help cut the time, cost and the complexity of these projects. But P3s can undercut local economic development goals. Because they are designed to maximize efficiency and investment returns, P3s tend to bid out large contracts to national or international firms rather than “unbundling” bids to match the capacity of smaller, local contractors.

One alternative is for public authorities to move beyond low-bid methods to values-based contracting, in which local procurement is one of the articulated project goals. Governments need to ensure that these goals are embedded in the program design and throughout the construction process.

- **Build a robust small-business ecosystem.** Finally, success requires improving support systems to help local businesses effec-

tively compete. This includes streamlining the multitude of local, state and agency certification programs and sharing regional data on MWDVBEs available to collaborate on large projects. It is also critical to increase small businesses' access to bonding, insurance and capital; prime contractors can be awarded extra points for helping their smaller subcontractors obtain these essentials. In addition, a small assessment on an infrastructure project can readily capitalize collateral pools to provide credit enhancements for small contractors.

Of course, these strategies run the risk of modestly increasing program costs. But if the axiom that “you get what you pay for” is true, then-if you want good jobs for local residents-you will have to pay for it. With major new infrastructure investments on the horizon, state and local governments are uniquely positioned to put the jobs-vs-environment myth to rest.

# *ZERO Code: How to Build a Carbon-Neutral Future*

LAURIE MAZUR

*Originally published May 16, 2018 in Multifamily Executive*

It's no exaggeration to say that the planet's future depends on how we plan, design, and construct the built environment today. Now, a new building standard—ZERO Code—aims to make sure that future is sustainable and carbon-neutral.

An initiative of the nonprofit organization Architecture 2030, ZERO Code is the first global standard for buildings that produce no net greenhouse gas emissions. By adopting the new standard, local jurisdictions, builders, and architects can improve their bottom lines and the health of the planet at the same time.

ZERO Code starts with state-of-the-art, cost-effective energy-efficiency standards for new commercial, institutional, and mid- to high-rise residential buildings. It then takes those standards a step further by specifying the *source* of energy for these high-performance buildings: on- or off-site renewable energy. By integrating efficiency and renewables, the code achieves the holy grail of sustainability—zero-net-carbon buildings.

## **No Time to Waste**

The need for carbon-neutral buildings—and cities—is clear. We're adding about 1.5 million people to the world's cities every week, a trend that will continue for the foreseeable future. To accommodate those new city dwellers, some 2.5 trillion square feet of buildings will be constructed by 2060. That's the equivalent of building an entire New York City every 34 days for the next 40 years.

At the same time, our collective emissions of greenhouse gases have brought us to the brink of climate catastrophe. Atmospheric carbon dioxide has reached levels not seen in human history; record-breaking

heat is now the norm in the U.S. and around the world. To prevent the worst impacts of climate change, the Paris Agreement seeks to limit the rise in global average temperatures to below 2 degrees C.

To achieve that goal, all new construction must be designed to high energy-efficiency standards and use no CO<sub>2</sub>-emitting fossil-fuel energy to operate, starting now. By 2050, the entire built environment must be carbon-neutral.

But while there have been worldwide improvements in building-sector energy efficiency, as well as growth in renewable energy-generating capacity, they haven't been nearly enough to offset the increase in emissions from new construction. As a result, building-sector CO<sub>2</sub> emissions have continued to rise by nearly 1% per year since 2010.

This is the problem ZERO Code aims to solve. The code includes prescriptive and performance paths for building energy-efficiency compliance, based on current standards that are widely used by municipalities and building professionals worldwide—ASHRAE Standard 90.1-2016 and higher. These standards call for energy-saving building envelopes, daylighting, passive cooling and heating, and efficient systems and controls.

“These efficiency standards have been thoroughly vetted by the industry,” says Edward Mazria, founder and CEO of Architecture 2030, “so there’s no need to reinvent that wheel.”

Efficiency standards have proven economically—as well as environmentally—beneficial. Efficient buildings offer substantial cost savings for owners and tenants alike. For example, LEED-certified buildings use 25% less energy and cost 19% less to operate than noncertified buildings. Green buildings are increasingly valued by a growing group of corporate, public, and individual buyers: 73% of single-family builders and 68% of multifamily builders say consumers will pay more for green homes.

### **Energy-Source Spec Breaks New Ground**

In addition to stringent efficiency standards, the ZERO Code breaks new ground in specifying a building's energy source. The code calls for incorporating on-site renewable energy (solar, wind, geothermal) into the building's design and/or the procurement of off-site clean energy.

This provides opportunities for buildings with limited on-site generating capacity—in dense urban environments, for example.

But what if on-site renewables aren't feasible, and there are no off-site renewables in the local energy market? The ZERO Code's developers thought of that possibility too. Where options are limited, builders can meet the code by contributing to a renewable-energy investment fund, which can spur local development of clean energy. And, if no other option exists, builders can purchase renewable-energy credits (or certificates), which support renewable generation elsewhere.

“It's a very flexible approach,” says Vincent Martinez, COO of Architecture 2030. In other words, there's no longer any excuse *not* to build carbon-neutral.

The ZERO Code is supported by software that eases the implementation process and reduces errors. It also includes an application program interface (API) that enables access to the software through a website and via smartphone or tablet.

If we hope to meet the Paris goals and avert climate catastrophe, there's no time to waste. The good news is that the current global building boom provides an unprecedented opportunity to change the built environment's carbon footprint. Armed with the ZERO Code, local governments, architects, and builders can help seize that opportunity.

# *Better Urban Design Can Help Curb Flooding*

STEFAN AL

*Published September 25, 2018 in Houston Chronicle*

Over the course of four days in mid-September, Hurricane Florence dumped a record-breaking 34 inches of rain on Swansboro, North Carolina—a city that usually gets 57 inches in an entire year.

In 2017, Hurricane Harvey caused the worst flood in Houston's history. In 2012, flooding from Superstorm Sandy—considered a once-in-700-year event—devastated coastal New York and New Jersey.

These and other events are typically called natural disasters. But overwhelming scientific consensus says they are actually the result of human-induced climate change and irresponsible construction in flood-prone areas.

Most scientists agree that global warming is causing sea levels to rise, while increasing the frequency, intensity, and duration of extreme weather events. At the same time, the rapid urbanization of coastal areas is putting more people and property in harm's way.

Given this new normal, it is time to rethink our approach to floods. We typically deal with only the symptoms of the problem, by evacuating residents before a disaster, housing them temporarily in emergency shelters, and paying insurance so that they can rebuild afterward.

But this is tremendously costly, both in human and financial terms.

Moody's Analytics has tallied at least \$17 billion in property damage from Florence so far. Harvey cost \$125 billion and the tally for Maria in Puerto Rico is \$139 billion. Katrina destroyed \$161 billion in property.

Fortunately, the right infrastructure can prevent flooding, rather than treat it after the fact. Prevention is cost-effective: The National Institute of Buildings Services estimates that every dollar spent on the reduction of a community's vulnerability to disasters saves approximately \$6 in economic losses.

As an architect and urban designer working on large-scale projects, as well as a native of the Netherlands, a low-lying country that wouldn't exist without flood-management infrastructure, I have been intrigued by recent, innovative solutions to flood prevention.

For example, the beach town of Cleveleys, in England, chose not to build a standard concrete seawall, which has all the charm of a military bunker and can block human access to the shore.

Instead, the city built a structure with amphitheater-like viewing spaces and steps. The steps accentuate the beautiful curvilinear shapes, while creating access to the beach and adding public space, which is important for a coastal town that relies on tourists.

Flood protection can even be integrated into buildings. The Dutch coastal town Katwijk aan Zee integrated a levee with a parking garage, and covered it with landscaping. In Rotterdam, levees include built-in shops and parks. This type of infrastructure has economic benefits beyond flood protection.

Finally, some of the best solutions rely on an ancient flood protection device: dune grass, a saltwater tolerant plant that stabilizes dunes and prevents erosion. In contrast to reinforced concrete defenses that take the full force of waves until they are worn away by the sea, dunes absorb the waves' velocity, while beautifying the landscape and providing habitats.

By marrying flood management with creative urban and landscape design, infrastructure can become a strategic civic asset. In addition, it can pay for itself by unlocking the real estate and economic development potential of newly protected areas. The new normal of flooding and sea-level rise poses great challenges, but it also offers opportunities to improve our urban areas and landscapes.

# *Parks: A Wise Infrastructure Investment*

CATHERINE NAGEL AND MAMI HARA

*Originally published March 26, 2018 in The Hill*

When it first opened in 1976, Seattle's Freeway Park became America's first park built over a highway—a 'cap park'. Though it has been more than 40 years now, Freeway Park continues to serve Seattle well beyond its original design, to reconnect the Downtown and First Hill neighborhoods that were split by the construction of Interstate 5 and bring more nature to the heart of the city. The park celebrates urban infrastructure with large concrete structures, views of buildings and cars, and sounds of the city. And yet, the concrete, plantings, and water features not only evoke the mountains, forests and natural elements that surround the city, they also shield neighborhood residents and nearby convention center visitors from air pollution and divert stormwater from falling on the oil-slicked highway below. Additionally, the park has also spurred significant local investment, increased tourism and improved Seattle's quality of life.

Freeway Park is not alone. Rose Fitzgerald Kennedy Greenway in Boston, Klyde Warren Park in Dallas, and City Arch River in St. Louis are more recent examples of parks connecting neighborhoods across the country. Emboldened by these models, other cities are pursuing new, more aggressive plans that use parks to solve modern challenges of growing populations, aging infrastructure, and changing climate conditions. In addition to providing outdoor recreation opportunities, city parks today are delivering a vast range of ecological services easily taken for granted, from storm and surface water management to carbon emissions reduction, keeping cities safer, cleaner and cooler.

In Washington, D.C.—with recent major storms and record flooding top-of-mind—legislators are once again talking about investing in our nation's infrastructure. They use words like 'resilience' and 'mitigation' and highlight levees, dams, culverts and other efforts to address stormwater. It's time to bring parks into the mix as we rebuild our urban infrastructure



networks, to improve performance and make cities great places to live. A new video, “City Parks: America’s New Infrastructure,” from City Parks Alliance documents how Nashville, Atlanta, and Houston have invested in parks to mitigate flooding, improve public health, strengthen community cohesion, deliver transportation options, and attract private sector development to their urban cores. Parks are a smart investment with great environmental, social and economic returns.

However, city parks cannot be built, maintained or programmed and live up to their potential if they are not funded. And they cannot be funded if they are not part of the discussion when budget decisions are being made. Communities must include parks in their infrastructure proposals to attract the federal and state funding or other grant support necessary to build exceptional parks and lawmakers must also do their part in prioritizing parks in their decision-making.

Here, once again, Freeway Park is showing the way with its unique blend of collaborative funding that highlights how public dollars can be leveraged with civic support. The park was built and has been maintained with a broad mix of funding streams, including a county-wide bond measure and federal, state, county, city and private monies. None of this could happen without strong public leadership from Seattle Parks and Recreation and their partnership with the Freeway Park Association.

We have the proof of concept. Legislators can draw inspiration from Frederick Law Olmsted’s original 19th century design for the Boston Park system, a string of nine continuous parks known as the Emerald Necklace, which has stood the test of time. Two centuries later, this cohesive infrastructure network is still meeting the same challenges that Boston faced then: providing relief from the pollution, noise and overcrowding of city life, as well as dealing with the stormwater and flooding issues of the day.

It’s time to recognize the multiple benefits of parks and fund them as infrastructure if we want our cities to be successful and prepared for the future. As we consider how to meet our infrastructure needs at the federal and local levels, parks are an enduring and wise investment.

# *Walkable Suburbia Requires Careful Planning and Design*

JASON BESKE AND DAVID DIXON

*Originally published September 6, 2018 in Planetizen*

Can suburbs be walkable? Absolutely! Do we know how to create complete streets that are designed to be safe and inviting for people, bikes, and cars? Yes. Is it harder to promote walkability in suburbs than in cities? Not necessarily, but it requires careful thinking about how we shape the next era of suburban development.

We know the basics. Walkable streets are typically tree-lined and well lit at a pedestrian scale. Walkable streets rarely require pedestrians to cross more than two lanes of traffic at a time. They have sidewalks wide enough for people to pass each other comfortably, for trees, and, ideally, for tables outside a café.

Walkable streets are lined with curbside parking (at least until autonomous mobility renders parking obsolete) and include bike lanes. They allow pedestrians and cyclists to stop and engage a friend, drop into a bakery or bookstore, or hang out in a square. They function as “third places,” where people meet, gather, and celebrate in a diverse community.

Still, too many lifeless “Main Streets” check all the boxes without offering real walkability. Creating a great street designed for walking doesn’t necessarily mean people will use it for walking. The arrival of near-universal auto ownership following World War II forced walking into a competition for our time and our hearts. In the 21st century, this competition has grown more complex, with new competitors unleashed by the internet, mobile devices, and corporations fighting relentlessly for our time, attention, and disposable income.

Safety—actual and perceived—plays a key role in making suburbs walkable. Although roughly 30 cities have adopted safety-driven Vision

Zero programs, only one suburban jurisdiction had done so as of January: Montgomery County, Maryland.

Walkable Main Streets don't just accommodate walking; their programming and design actively invite it by following four principles.

### **1. Promote density**

Density is a threshold requirement that the subsequent principles can reinforce but not replace. Many suburbs have increased density allowances as a way to satisfy housing demand while bringing long-held community visions to life. Depending on household incomes, 1,000 to 2,000 housing units within a quarter-mile/five-minute walk can support a block of community-oriented Main Street retail—as opposed to chain stores that must draw from an area so large that customers have to drive. If the market can't fully animate a Main Street with stores, cafés, and restaurants, then artist workspaces, dance studios, cultural amenities, entertainment, and similar active uses can help. Walk-to markets will gain importance as e-retailing continues chipping away at mass market, drive-to retail. As a rule of thumb, two or more square feet of office, research, and hotel space provide the same amount of support for retail as one square foot of housing.

### **2. Connect to the larger community**

Bike access continues to gain importance, in part because of its unmatched capacity to move people. Public transit plays an even bigger role, boosting both the economic and social quality of residents' lives. Where possible, develop transit-oriented, walkable urban places, ideally within a five-minute walk of a station. A compact, walkable urban place may also provide sufficient ridership to justify extension of a nearby light rail or bus rapid transit line.

### **3. Use parking strategically**

A single garage can serve workers during the weekday; residents at night and on weekends; and restaurants, shops, and other uses throughout the week. A garage that requires walking brings life to the blocks around it (but should never sit on a Main Street—nothing kills walkability like hulking blank walls). The walk to or from the garage can showcase everything a neighborhood offers. For example, a new mixed-use “urban village” in the Boston suburb of Newton locates much of its parking in a central garage, wrapped with housing and retail. On their way to or from their cars, people pass shops, restaurants, craft breweries, and cafés.

#### 4. Invite walkability in every season

Walkable streets should celebrate regional ecology with native plants and other natural features that underscore the pleasure of being outdoors. Weather and climate can, however, strip away the charm. Enclosed malls solved this problem but their artificial environment lost appeal over time. “Managing” weather today means creating a great place to be outside any day of the year.

- *Cold climates:* walkable streets in “winter cities” can’t afford to take six months off, and many have devised ways to attract people throughout the year. Proclaiming “climate is our ally,” Edmonton treats winter as an opportunity to reconnect with childhood fun and whimsy. Warming huts and pop-up patios appear in parks, where people gather around fires with hot drinks and music. Instead of hauling away cleared snow, the city uses it to fill parks with sledding hills, labyrinths, and walls that kids of all ages paint. Darkness arrives early, so Edmonton uses fire and outdoor lighting to help make even the drabest block feel enchanted.
- *Hot, humid climates:* “summer cities” face equal challenges. The narrow passageways and fountains that characterize the historic medinas of North Africa represent centuries-old ways of creating shade and enlisting the cooling effect of water. While misting represents one newer cooling technique, it consumes significant energy; fountains, water courses, and other features that animate as well as cool offer a more sustainable approach and add appealing elements to the public realm. Cities like Miami and Austin have worked to increase tree canopy along streets to cool pedestrians in the hottest months of the year.

The same recipe that creates walkability downtown—density, connectivity, strategic use of parking, and the creative embrace of climate—doesn’t have to stay downtown. Applied with care, it can bring walkability to the growing group of suburbs that see their future in the creation or extension of walkable urban centers.

SECTION IV

**POLICY, REGULATIONS, AND FINANCE**

# *Trump's Assault on EPA Science Threatens Our Health and Our Environment*

RUTH GREENSPAN BELL

*Originally published April 10, 2018 in The Progressive*

As protesters prepare to converge on Washington, D.C., for the second Annual March on Science on Saturday, April 14, the Trump administration is once again seeking to slash funding for the Environmental Protection Agency.

This is an affront to every American. Science is the EPA's backbone, essential to everything from establishing protections to cleaning up waste sites. Yet Trump's 2019 budget would cut the EPA's overall funding by 25 percent. An analysis by the environmental group I work with found that funding for science would, under the new budget, be cut by 48 percent.

In March, Congress rejected Trump's call for a 30 percent cut in the EPA's funding for the 2018 budget year. But there's no guarantee that the president won't get his way this time.

Science has played a starring role in EPA's greatest achievements since it was founded in 1970, leading to reductions in lead exposure, improved water quality, clearer air and more.

Consider lead, for example. Decades ago, this potent neurotoxin was painted on walls and blasted from tailpipes, making it ubiquitous in American homes, air and drinking water. EPA scientists pored through research that showed the devastating effects of lead on brain development and health, especially for children. That research was the basis for phasing out lead in gasoline.

As a result, the percentage of children with elevated levels of lead in their blood plummeted from 88 percent in the late 1970s to less than 1 percent by the mid-2000s.

Or consider our nation's waters. Back in the 1970s, two-thirds of the nation's lakes, rivers and coastal waters were unsafe for fishing or swimming. Untreated sewage and industrial toxins were pumped straight into waterways; oil-fouled rivers occasionally burst into flames. Using the best available science, the EPA set tough regulations that made it safe to go into the water again.

And there's the air we breathe. EPA scientists helped connect the dots between air pollution and asthma, respiratory illness, heart disease and cancer. Air pollution has been reduced by 70 percent over the last 45 years, even as the nation's economy has tripled. Reductions in nitrous dioxide and particulate matter have led to measurable improvements in children's health.

Fighting pollution is a never-ending battle. New threats constantly emerge, and we need sound science to help identify, track and correct them. For example, EPA scientists evaluate new compounds before they are put on the market, and ensure that the chemicals used in agriculture and industry don't pose a threat to children and families.

Cutting the science budget by half, as the Trump administration proposes, would decimate the agency's ability to keep us safe. These cuts are not just numbers on a spreadsheet; they affect real people, including vulnerable asthma-prone children.

The March for Science, which will include 230 satellite events around the world, seeks to "work toward a future where science is fully embraced in public life and policy."

Those who take to the streets April 14 are helping to protect us all. Let's hope they succeed, and that the Trump administration is forced to back down.

# *Even the White House Admits Environmental Benefits Outweigh the Costs*

DAVID F. COURSEN

*Originally published June 14, 2018 in The Hill*

The war on environmental regulations continues: This week, EPA administrator Scott Pruitt revealed that EPA is considering changing how it weighs the benefits and costs of regulations that protect against pollution. This reconsideration reflects the prevailing view of the Trump administration, Congress and industry that the benefits of regulations have been inflated and are costly.

But that view is not supported by the facts. Even Trump's own Office of Management and Budget has concluded that environmental regulations save lives and money. In a recent report, Trump's OMB found that, over the last decade, the benefits of EPA regulations vastly outweighed their costs: up to \$706 billion in benefits compared to up to \$65 billion in costs.

Still, "regulations are bad" is the administration's story, and they're sticking to it. After OMB issued the legally-required report, the agency ignored its findings. Pruitt—never shy when it comes to headline-grabbing statements about why regulations are bad—has been uncharacteristically silent when it comes to their benefits.

Regulations under the Clean Air Act, a law that is literally life-saving, produce the lion's share of benefits. A comprehensive EPA study found air quality improvements under the act—from 1990 projected to 2020—worth nearly \$2 trillion, with costs around \$65 billion. The investments translate into 230,000 fewer premature deaths and lower rates of lung and heart disease, other respiratory conditions and infant mortality. Thanks to cleaner air, people will have been spared 70,000 cases of chronic bronchitis, 200,000 heart attacks and 2,400,000 asthma attacks.



The regulations also prevent 120,000 emergency room visits, 5,400,000 lost school days and 17,000,000 lost work days. These are precisely the kinds of health benefits the Clean Air Act was enacted to produce.

You would never know that from EPA's published summary of Pruitt's first-year accomplishments, which modestly describes "22 deregulatory actions" as a "monumental" achievement saving "more than \$1 billion in regulatory costs." The summary recites a litany of buzzwords to describe regulation as "job-killing," "duplicative," and that old standby, "burdensome and overreaching." Not surprisingly, the summary also fails to mention predicted benefits of \$300 billion by 2030 from climate protection measures short-circuited by EPA deregulatory actions.

Even the predicted savings from reduced regulation are uncertain. Regulatory costs are often overestimated, for example, by ignoring industry's capacity to adapt. History shows that regulation routinely fosters innovation and economic competitiveness, with little evidence that it significantly harms employment or the nation's economy.

One recent study by experts from George Mason University, which expected to confirm that regulations harm the economy, actually found that "federal regulation is not a major cause" of reduced economic vitality.

By ignoring the well-documented benefits of environmental regulation, Pruitt's EPA is showing its true colors. Its goal is the reckless and wholesale elimination of environmental protections that have improved the health of our nation's people, air, land, and water for half a century. Under Pruitt, the EPA's core mission is to save money for polluters, rather than to protect the American people.

# *Why Environmental Impact Bonds Are Catching On*

LAURIE MAZUR

*Originally published May 25, 2018 in Governing*

Washington, D.C., had a problem. Like many cities with antiquated sewer systems, D.C. was under orders from the Environmental Protection Agency to reduce stormwater runoff that threatened the region's water quality. To solve the problem, the city wanted to experiment with "green infrastructure" as an alternative to building costly new pipes and pumps. But green infrastructure had not yet been tried at that scale, so how could the city finance this unproven approach?

The answer, for D.C., was to launch the nation's first environmental impact bond in 2016. An EIB enables the city to share the risks—and the rewards—of innovative problem-solving with investors. EIBs are considered a "pay for success" strategy because investors' returns depend on whether the project meets its goals. Because of the need for extensive measurement around those goals, the jurisdiction also learns what works best for future planning. This approach is catching on, with Baltimore and Atlanta recently announcing plans to issue EIBs.

In Washington, the impact investing firm Quantified Ventures worked with DC Water on a \$25 million EIB for large-scale green infrastructure: rain gardens, permeable pavement and other landscaping designed to absorb and divert stormwater. The EIB was privately placed with Goldman Sachs' Urban Investment Group and Calvert Impact Capital.

The need for intervention was clear. D.C. (like more than 770 other American cities) has an outdated combined sewer system, meaning that stormwater is funneled into the same pipes that handle raw sewage. On a good day, all that wastewater goes to a sewage treatment plant. But on a bad day—and climate change guarantees more of those—heavy

precipitation exceeds the capacity of the pipes and untreated sewage is discharged directly into local rivers.

In 2005, D.C. entered into a consent decree with the EPA to address this problem. The city's plan A was a \$2.6 billion tunnel system to capture the combined-sewer overflow. But halfway through that 20-year project, green infrastructure began to look like a viable and less expensive plan B. And green infrastructure has the potential to create ancillary benefits such as increasing access to green space, reducing the urban heat island effect and creating ongoing jobs in landscape maintenance. The EIB allows D.C. to test that hypothesis at scale.

Of course, testing a hypothesis depends on rigorous monitoring and evaluation, a feature that distinguishes EIBs from other modes of finance, such as standard municipal bonds. But while the full results of the D.C. EIB won't be known until the project's completion in 2021, other cities are already betting on the new approach.

Baltimore, another city with combined sewer problems, also will utilize EIBs to finance green infrastructure. Here, too, the need is urgent: Baltimore is required by federal and state regulators to reduce and treat polluted runoff from more than 4,000 acres of pavement and buildings by 2019. In partnership with the Chesapeake Bay Foundation and with support from The Kresge Foundation, Baltimore plans to issue up to \$6.2 million in EIBs later this year to help pay for stormwater management in some three dozen neighborhoods.

And Atlanta is the first winner of the "Environmental Impact Bond Challenge," funded by the Rockefeller Foundation and in partnership with Quantified Ventures and municipal-bond broker Neighborly. Atlanta's will be the first *publicly* offered EIB, allowing residents to invest in improving their city. The city plans to use EIBs to fund approximately \$12.9 million worth of green infrastructure projects in flood-prone neighborhoods on the city's west side.

Kresge and Rockefeller believe that EIBs can deploy impactful solutions to resilience, water quality and other environmental challenges. But not everyone has embraced environmental impact bonds. Some, for example, have compared them unfavorably to "green bonds" (which are similar to standard muni bonds but earmarked for environmental projects),

observing that EIBs are more costly to issue and that the monitoring and evaluation they require diverts time and resources from funded projects.

Ben Cohen, a senior associate at Quantified Ventures, concedes that “EIBs are not the best tool for every issue and geography.” But when cities want to try unproven approaches, scale up solutions that have been tested on a small scale, or share financing costs with other entities that may benefit from projects, the monitoring and evaluation requirement “is a feature, not a bug,” Cohen says. Evaluation is essential to make sure that taxpayers are not on the hook for projects that don’t work, while providing investors—who often have a social or environmental impact mandate—with an assessment of the outcomes their dollars are creating.

By focusing on outcomes and carefully measuring progress along the way, EIBs can also garner bipartisan support from those who want to see more government effectiveness and accountability. And as cities experiment with untested solutions to the unprecedented challenge of a warming planet, EIBs offer a valuable way to share risks and rewards. “EIBs are a powerful new tool in the municipal toolbox,” says Cohen.

# *Pay for Success Legislation Moves Government to Fund What Works*

BRENDAN O'CONNOR

*Originally published March 28, 2018 in Morning Consult*

For most state and local governments, the to-do list is long, and funding is short. But new legislation could unlock substantial new funding for social, health, and environmental programs. The Social Impact Partnerships to Pay for Results Act (SIPPRA) legislation, years in the making, was finally passed as part of the February budget. It appropriates \$100 million to a Treasury-controlled fund, which will, for the first time, allow the federal government to repay investors in a Pay for Success transaction for outcomes.

Pay for Success, also commonly referred to as Social Impact Bonds, uses capital from impact investors to scale effective programs. In a PFS transaction, a third party—often a government—repays investors only upon the validated achievement of pre-defined outcomes. Because investors assume the risk if the project does not work, PFS enables governments to try innovative, out-of-the-box solutions.

At the same time, paying for outcomes requires rigorous measurement of impact, which helps develop effective, evidence-based policies and practices. Currently, less than \$1 out of every \$100 spent on programs by governments is rooted in evidence, increasing the likelihood that ineffective programs are being funded and effective programs are being underfunded.

Even before passage of SIPPRA, some twenty PFS projects were launched in the United States. These programs have focused on green infrastructure, early childhood education, prison recidivism, homelessness, workforce development, and mental health, among others. This legislation is part of a broader, and growing, bipartisan trend toward evidence-based policymaking.

In many projects focused on improving social, health, or the environment, outcomes accrue to multiple parties, including the federal government. But until now, state and local governments developing PFS transactions had no mechanism to tap into federally-accrued savings or revenue generated as a result of those outcomes. With this legislation, projects focused on upstream preventive services that yield downstream value will now have a way to adequately finance their work, by creating the potential for investor repayment from governments who value the service's outcomes.

The Office of Management and Budget will implement the legislation over the next year, until the first Request for Proposals is released by February 2019. State and local governments should begin preparing in several ways to become attractive candidates for these federal outcomes payments:

- **Get Familiar with PFS**—Pay for Success is a promising new source of funding for much-needed work, but it also comes with a steep learning curve. Determine if PFS is an appropriate tool to scale underfunded, critical preventive services that will improve the outcomes of your environment or population. The Nonprofit Finance Fund Pay for Success Learning Hub is a great place to get started with sample projects, tools, and resources.
- **Focus on Prioritized Issue Areas**—focus your efforts on the following issues, which are outlined in the legislation as priority areas of focus: employment and workforce development, high school graduation, unplanned pregnancies, maternal and infant health, chronic disease, foster care, prison recidivism, homelessness, behavioral health and substance use disorders, veteran reintegration, early childhood education, and financial stability of low-income families, among others. And, because SIPBRA mandates that 50 percent of funding must benefit children, there is also opportunity to bring additional projects to the table, particularly in areas where government funding is declining, such as resilience planning for increasingly dangerous weather events in cities and rural areas.
- **Invest in PFS Feasibility Assessments**—SIPBRA funding supports Feasibility Assessments, which are often the first step

in structuring a PFS transaction. And the proposal requirements stipulate that a formal Feasibility Assessment must be completed for a project to be eligible for outcome payments. However, federal funds will support only about 10 percent of the cost of a feasibility assessment. Find a trusted partner familiar with PFS transactions that can help develop a Feasibility Assessment for your project.

- **Join the Future**—paying for outcomes is an increasingly bipartisan priority. It engages the private sector and benefits the public, while only paying when valued outcomes are achieved—a win-win for all. However, this is not business as usual for state and local governments. Become the internal champion and risk-taker leading these efforts. It could very well be a key part of the future of financing for critical state and local projects.

# *George H. W. Bush Put the Environment Above Politics—We Should Too*

A. STANLEY MEIBURG

*Originally published December 5, 2018 in The Hill*

The death of former President George H.W. Bush is cause to honor a man who made it possible for all Americans to breathe cleaner air. It also reminds us that partisan politics need not obstruct progress toward a healthier environment.

The historic Clean Air Amendments of 1990 would not have happened without the leadership of the late president Bush. Together with Senate Majority Leader George Mitchell—“the two Georges”—the Bush administration and Congress took on the hard work of crafting legislation to update the Clean Air Act, building on its strengths and repairing weaknesses that had emerged since 1970.

In 1990, smog-choked American cities. Around the United States, 98 areas were violating clean air standards for ozone. Power plants and other industries emitted more than 23 million tons of sulfur oxides into the air each year, creating acid rain problems in the East. Toxic air pollutants were largely uncontrolled, and automobiles had still not met the reduction standards required in 1970.

The 1990 Clean Air Act Amendments changed all this. Even measured against a tighter standard, today only 52 areas exceed the standard, 39 of these just barely. Sulfur oxide emissions have decreased by almost 90 percent, toxic air emissions have declined by 68 percent, and automobile pollution has dropped dramatically. This all happened even though our Gross Domestic Product has almost doubled, we drive 50 percent more mile, and our population has grown by a third. It produced cleaner air, more mobility and a stronger economy—not bad for bipartisan collaboration.



We still face daunting challenges. Not every community has benefited equally from cleaner air. Our changing climate brings greater health and economic risks from droughts, torrential rains, and rising seas. A growing world population requires new, renewable sources of energy along with sustainable sources of clean water and healthy food. Technology has provided amazing, cost-effective solutions to our clean air challenges, but we must do more to foster the innovations needed for a sustainable world.

The success of the 1990 Clean Air Act Amendments should nonetheless give us hope. They passed not because there was any lack of divisive issues or partisan positions. The amendments passed because people recognized they could address their own concerns only as part of a larger effort. They passed because thoughtful representatives acknowledged, in the face of compelling science, that the risks of inaction were greater than the risks of action. They passed because people were willing to compromise, keeping the perfect from becoming the enemy of the good. Most importantly, they passed because our country had leaders who placed the needs of the whole nation first.

Bush was such a leader, along with such colleagues as EPA Administrator William Reilly, White House Counsel Boyden Gray, Sens. George Mitchell and Alan Simpson, and Reps. Henry Waxman, John Dingell and Phil Sharp. When I tell this story to my students, they can scarcely believe it. The only world they know is one where the environment has become a bitter, partisan wedge issue.

This is a tragedy. If any concern can unite us, it is to make our planet sustainable for our children. Those of us who saw the 1990 Clean Air Act Amendments unfold need to keep repeating the tale. It tells us that progress is possible, that truly patriotic leadership can make good things happen, and that we, within our political system, are not hopeless victims but agents of transformative power.

Bush wanted to be “the environmental President.” History will give him credit as a good and faithful servant. We the people should honor that legacy by renewing our commitment to—and insistence on—leadership that aims at nothing less.

# *Trump Administration's Auto Emission Policies Could Bring Deadlier Fires*

DANIEL REICH

*Originally published December 12, 2018 in East Bay Times*

The devastating fires that engulfed both ends of our state have claimed at least 85 lives. The causes of such fires are complex, but scientists agree that climate change plays a prominent role.

The U.S. Environmental Protection Agency acknowledges that greenhouse gases (GHGs) trap heat and make the planet warmer—creating the conditions for more severe fires.

And yet, Trump's EPA is proposing regulations that will increase the release of GHGs from cars and power plants. The predicted result: higher temperatures, longer droughts and a “fire season” that burns year-round.

At issue are standards for light duty vehicles—like your car or pickup truck—which represent 60 percent of the GHG emissions from U.S. transportation. This summer, the Trump administration announced that it will abandon the fuel economy standards for those vehicles developed by the Obama administration for 2022-25.

Instead, it will freeze the standard at the 2021 level. This move will allow the release of an additional 2.2 billion metric tons of GHGs by 2040—the equivalent of putting an additional 37 million cars on the road, according to the Union of Concerned Scientists.

California has set more stringent GHG standards for light duty vehicles, which have been adopted by several other states. But the Trump administration wants to take away California's legal authority to issue its own stricter regulations.

These changes makes no sense, especially when fuel-efficient automotive technology is growing in sophistication and popularity, as evidenced by the brisk sales of electric and hybrid vehicles.

Not surprisingly, a battle is brewing. California Attorney General Xavier Becerra put it bluntly: “My message to the federal government: Do your job. Withdraw this proposal. Fulfill your duty under federal law to protect all Californians and Americans from harmful GHG emissions and to conserve energy.”

The Trump administration’s efforts to roll back emissions standards do not end with weakened fuel economy. EPA Acting Administrator Andrew Wheeler is now leading the charge to replace President Obama’s Clean Power Plan.

Obama’s plan would have reduced GHGs by a third by retiring outdated coal-fired power plants. And, because those plants produce a host of other harmful pollutants, the Clean Power Plan would have also prevented 3,600 premature deaths and 90,000 asthma attacks per year.

In contrast, the new plan—by the Trump administration’s own analysis—would have negligible impacts on GHGs, while increasing premature deaths by 1,400 and new cases of asthma by 48,000.

Perhaps it won’t surprise you to learn that Wheeler was a former coal lobbyist whose clients included Murray Energy, the largest privately-held coal company in the United States.

Trump’s EPA has also proposed to roll back controls on hydrofluorocarbons (HFCs) used in refrigeration equipment. HFCs are 1,430 times more potent than carbon dioxide in warming the atmosphere.

The battle over regulating GHG emissions is now headed to court. The Trump administration has taken the position that Congress has not provided the legal authority for the EPA to regulate GHGs. If the Supreme Court sides with the Trump administration, then Congress must act on its own to authorize EPA to regulate GHGs.

The stakes are high. If we fail to curb GHG emissions, we must brace for a hotter, more fiery future. Conflagrations like the Woolsey Fire and

Camp Fire will become the norm, along with choking smog and skyrocketing property insurance. Even those far from the flames will suffer from asthma attacks and shortened lives.

But this dystopian scenario does not need to be our fate. By urging our elected officials to rein in emissions from cars and power plants, we can choose a healthier, safer future for all.

# *The Assault Against Science Continues at the EPA*

CHRISTOPHER S. ZARBA

*Originally published November 14, 2018 in The New York Times*

Last month, the Environmental Protection Agency effectively disbanded a scientific panel of experts on microscopic airborne pollutants that helped the agency figure out what level of pollutants are safe to breathe. The agency also dropped plans for a similar panel of experts to help assess another dangerous pollutant, ground-level ozone.

These decisions were the latest assaults on science at an agency that depends on science to protect Americans' health, safety and quality of life.

The disbanded panel on particulate pollution reported to the EPA's seven-member Clean Air Scientific Advisory Committee, which is responsible for advising the agency on overall air quality standards. Now, without the work of that panel, it is entirely likely that the advisory committee will lack the time and expertise to provide authoritative guidance on the regulation of this pollutant. The same can be said of ground-level ozone.

And that is no small matter. The EPA itself says that numerous studies show that particulate pollution can lead to premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeats, aggravated asthma and decreased lung function. Ground-level ozone can affect the breathing of people with asthma, children, older adults, and people who are active outdoors.

Flawed processes, like eliminating the expertise critical for making informed regulatory decisions, rarely lead to good outcomes. I know, because for the last five years of my 38 years as a scientist at the EPA, I was the staff director of the Science Advisory Board, which independently reviews the science behind some of the EPA's most consequential decisions and policies.

The approach of those committees—transparent and balanced, with meetings that are open to the public to provide opportunities for public input—helped give the public confidence that it is being protected from harm, and industry the assurance that corrective actions are justified and reasonable.

All of that is now in jeopardy as the agency purges scientists from its review panels and purposely disregards scientific research. I chose to retire from the EPA in February, dismayed by the increasingly compromised science review process and the Trump administration's swing away from the agency's core commitments to public health and the environment.

As I said, these are only the latest efforts at the EPA to undermine science. The agency has barred scientists who received EPA research grants from serving on its nearly two dozen scientific advisory committees because of some misplaced concern over conflicts. But it has had no problem appointing scientists to those panels who hold industry-supported research grants.

The agency has also had plans to forbid the use of scientific research to inform rule making if the underlying raw data—like the individual medical records of patients who were guaranteed confidentiality—isn't available for public review. The American Lung Association, Psychological Association, Heart Association and Medical Association and many other independent science groups have denounced this plan.

Sorting out the logic behind these new policies defies reason. The fact is that the agency's Scientific Advisory Board, which was created in 1978 at the direction of Congress to provide scientific advice to the administrator, has had extremely rigorous, issue-specific reviews free of conflicts of interest.

From what I saw, that approach was replaced by a closed-door process in which the agency's political appointees chose advocates for particular positions instead of seeking out impartial scientific expertise to help determine policies. By doing this, the administration has subverted the role of science in the agency's approach on issues.

This has fundamentally hobbled many years of legislative effort, by Republicans and Democrats alike, to protect human health and the

environment. The cost will be borne by the American public.

This attack on science and its connection to EPA decision-making reminds me of the desperation of the tobacco industry when it began to be clear that tobacco was dangerous. The industry tried to discredit and marginalize the science by maintaining that the health-effects data was inconclusive. Truth won out, but it was a hard-fought battle. Will we look back at actions the EPA is making today with the same regret and disbelief as we do with tobacco regulation?

Independent, honest science is the backbone of environmental regulation. It also threatens people who want to hide the truth.

# *PFAS Is the New Lead Water Crisis*

JILL RYAN

*Published December 11, 2018 in The Sacramento Bee*

Here's a story about some toxic chemicals that have been used for decades, contaminating drinking water in Michigan and across the nation. Health impacts, including developmental delays in children, are well known, but government agencies have concealed the dangers.

Sound familiar?

If you followed the drinking water crisis in Flint, this story will certainly ring a bell. This time, though, the toxin in question is not lead, but a group of chemicals known as “PFAS,” which stands for poly- and perfluorinated alkyl substances.

PFAS are plentiful in our homes and workplaces; they are used to make non-stick cookware, stain-resistant carpeting, food packaging, fire retardants and more. Unfortunately, they are equally ubiquitous in the environment, with 172 known PFAS contamination sites in 40 states. According to the Environmental Working Group, more than 1,500 drinking water systems, serving up to 110 million Americans, may be contaminated with PFAS.

Earlier this year, the Trump administration tried to stop the publication of a taxpayer-funded study showing that PFAS are much more toxic than previously thought. The study, from the Agency for Toxic Substances and Disease Registry (ATSDR), part of the U.S. Department of Health and Human Services, was eventually released. It documents serious health risks like developmental and behavioral problems in children, thyroid disease, elevated cholesterol, higher cancer risks, and male reproductive abnormalities—including shorter penises and lower sperm counts.

Why would the administration want to block this study? Perhaps because it shows that current federal health guidelines are far too weak



to protect our health. ATSDR recommends exposure limits that are 10 times lower than what the EPA now says is safe. Yet, rather than showing concern about a potential public health crisis, one administration official worried that the report would cause a “public relations nightmare.” Just like Flint.

In another echo of the lead crisis, Michigan again leads the nation with the highest number of PFAS-contaminated sites—more than 11,300, according to its state Department of Environmental Quality. This same agency was alerted to the PFAS problem by a staff report in August of 2012, yet that information stayed under cover until 2018.

And Michigan, like many other states, continues to utilize the EPA’s weak guidelines for PFAS exposure, rather than the more stringent limit recommended by ATSDR. A handful of states—including California, Vermont and New Jersey—have established stricter standards. But why should kids in Kalamazoo be exposed to more PFAS than kids in Sacramento? We need a national standard for PFAS in drinking water, not a piecemeal approach.

Trump’s EPA is rolling back environmental protections, so it’s not likely to act on PFAS. That’s why Congress must act to require enforceable national standards for these chemicals, based on the best available science. Congress must also provide funding and assistance to states for cleanup. Until federal standards are in place, protections at the state level are needed, either through legislative action or agency rulemaking.

The *Wisconsin State Journal*, the state’s second-largest daily, just ran a front-page story on the threat posed by PFAS and the lack of regulatory response. State officials there have been asked to issue an immediate health advisory and quickly set an enforceable standard for PFAS compounds.

We know what will happen if our leaders fail to act. The people of Flint were poisoned because state and federal governments took too long to acknowledge and address the problem.

Now the same story is playing out with PFAS, as health warnings are ignored or concealed. But, if our leaders commit to address the PFAS crisis now, this story can have a much happier ending.

# *As Hurricanes Threaten Chemical Plants, Trump Moves to Weaken Protections*

BRENDAN DOYLE

*Originally published September 18, 2018 in The Hill*

Since it made landfall, Florence continues to wreak havoc: the storm was expected to drop 18 trillion gallons of rain over the course of a week—enough to fill the Chesapeake Bay. That could mean flooding at more than 1,000 sites in the storm’s path where toxic chemicals are used or stored. If those facilities are damaged, they could release chemicals that threaten public health and the environment. Why, then, is the Trump administration’s EPA seeking to weaken a regulation aimed at preventing exactly this kind of disaster?

The danger is not just hypothetical. Last year, flooding from Hurricane Harvey caused a power outage that triggered fires at an Arkema chemical manufacturing plant in Crosby, Texas. Twenty-one emergency responders required medical attention and 200 people were evacuated from their homes for a week. This disaster and others like it could have been prevented by stronger safety rules that protect emergency responders, plant workers and residents who live in the shadow of industrial facilities across the country.

The Arkema fires offer a cautionary tale for the people impacted by Florence. While the plant’s management had a hurricane preparedness plan, it was not ready for the amount of rain that fell during Harvey—and accompanied Florence. The plant took on six feet of flooding, knocking out the refrigeration needed to keep the chemicals cool and stable. As temperatures increased in the trailers that housed flammable organic peroxides, three spontaneously ignited. More than 23,000 pounds of contaminants were carried by floodwaters into nearby homes.

It's not just hurricane-prone coastal areas at risk: Across the country, more than 2,500 toxic chemical sites are located in areas at high risk of flooding. As the changing climate makes floods more likely, those risks will only grow. That's why the U.S. Chemical Safety Board—an independent federal investigator—has urged companies, emergency planners, and regulators to reassess the chemical industry's preparedness for hurricanes and floods.

Despite these risks, Trump's EPA is currently working to gut the Risk Management Program Rule, which requires chemical companies and wastewater treatment plants to be ready for such disasters.

The rule, adopted in January 2017, is based on sound science, audits of existing risk-management plans and investigations of previous accidents by numerous government agencies. It contains provisions to improve emergency response preparedness and coordination, and to ensure that local responders and residents have access to information about hazardous substances at nearby facilities. And—because companies like Arkema have a poor record of addressing safety issues—the rule requires inspections by objective third parties rather than by the companies themselves.

The rule has already had a positive impact: A majority of the 12,500 chemical, oil and gas and wastewater treatment facilities covered by this regulation are already on a path to complying with final rule requirements. If Trump's EPA succeeds in eviscerating the rule, that forward momentum will be lost.

In the days to come, the survivors of Hurricane Florence will have plenty to worry about as they survey the damage and begin to rebuild. Let's take chemical disasters off their list of concerns. The Risk Management Program Rule should be left in place for the protection of us all.

# *Don't Let the Government Silence You in the Name of 'Transparency'*

DARIA WUBBELS DEVANTIER

*Originally published August 15, 2018 in The Hill*

Before he was ousted amid a number of ethics investigations, former EPA Administrator Scott Pruitt proposed a so-called “transparency rule,” to govern the EPA’s use of health data. If enacted, this dangerous rule will eliminate vital information about the health impacts of toxic chemicals, and prevent ordinary citizens from having a voice in EPA’s scientific process. But we can stop the rule from going forward if we speak up now.

Calling this a “transparency rule” is a cruel joke on the very people EPA is charged to protect. The rule would prevent the EPA from using data from human health studies unless the participants in those studies allow full disclosure of their personal information.

Think about it: would you participate in a health study if it meant that your name and medical history were released into the public domain? The cynical architects of this rule know that most people would say “no.” That’s why medical studies routinely shield their participants’ identities. Pruitt’s real purpose is not to promote “transparency,” but to silence scientists and citizens who want to keep toxic chemicals out of our communities.

Fifty years ago, Rachel Carson wrote about the deadly impact of DDT and other chemicals in *Silent Spring*. The silence she referred to resulted from the absence of songbirds that were killed in large numbers wherever DDT was applied. Carson’s work helped ban DDT, and started a national conversation about chemical risks that led to the creation of EPA.

I have seen the impact of chemical risks here in St. Louis, Michigan, where the toxic legacy of numerous chemicals, including DDT, has persisted for generations. As recently as 2014, songbirds were still dying in

a residential neighborhood of St. Louis, right at the gates of the Velsicol Chemical Corporation, a major manufacturer of DDT. Years after Velsicol went bankrupt and abandoned its factory, the DDT and many other chemicals left onsite and in the adjacent neighborhood affected not just birds, but also the people who lived there.

Early removal and containment efforts at the Velsicol site failed. But today, thanks to the tenacity and conviction of the people of St. Louis, EPA is conducting a more robust cleanup of the site. Due to the valiant efforts of Alma College and the citizens of St. Louis, in 2013, researchers from Emory University came to study the continuing impacts of the contamination left behind by Velsicol. When residents learned they could advance understanding about chemicals and health, the response was swift and enthusiastic. Those citizens didn't have to know a thing about science; they only had to subject themselves to invasive questions and the pokes and prods of medical exams.

While the study is ongoing, Emory University has already validated what the residents of St. Louis know: the damaging legacy of Velsicol lives on through them and their children. Studying and understanding toxic exposures can arm EPA with the medical data it needs to protect future generations. As a scientist, I thank everyone—including brave members of our community in St. Louis, Michigan—who has ever participated in a health study, environmental or otherwise.

If promulgated, the transparency rule will deny each and every one of those participants their voice, here and across our country. Health studies are one of the last ways the average person can make a meaningful contribution to scientific issues. It is “public comment” in its rawest, most transparent form. It's bad enough that chemicals and corporate greed silenced birds and other creatures. The transparency rule aims to silence people living in communities across our nation that have been affected the most by chemical contamination.

St. Louis is a city that highlights what is at stake for contaminated sites across our nation. It is painful to see the EPA, an agency charged with protecting human health and the environment, seek to silence the truths that scientific and medical research can reveal. Truth and transparency were the objectives of Carson's *Silent Spring*, and those principles have richly informed EPA's mission. Truth and transparency underpin the

science that informs regulations and protections we take for granted today. Those protections are now in jeopardy.

In the name of truth and health, we must oppose the so-called “transparency rule.” Speak now or be silenced, like the songbirds of that long-ago spring.

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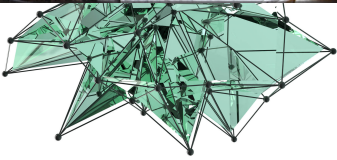
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# RESILIENCE MATTERS 2017



## Resilience Matters

*Transformative Thinking  
in a Year of Crisis*

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### Introduction by Laurie Mazur

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