

Permanent Address: <http://www.scientificamerican.com/article/climate-change-will-be-solved-in-cities-or-not-at-all/>

[Energy & Sustainability](http://www.scientificamerican.com/energy-and-sustainability) »

[News](http://www.scientificamerican.com/section/news/)

This article is from the In-Depth Report [400 PPM: What's Next for a Warming Planet](http://www.scientificamerican.com/report/400-ppm-and-climate-change/)

**Cities Will Solve Climate Change, Not Nations**

As world leaders gathered at the U.N. to talk about global warming, mayors set about actually doing something about climate change

September 23, 2014 |By [David Biello](http://www.scientificamerican.com/author/david-biello)

|



Advertisement

In the 1980s, the Chinese city of Shenzhen had some 300,000 mostly impoverished inhabitants. Today that city, the first to experience China's reforms and economic opening, has more than 15 million residents and also hosts [another first in China's history](http://www.scientificamerican.com/article/carbon-trading-experiments-in-china/)—a carbon market. Shenzhen's market to reduce global warming pollution covers some 620 manufacturers and other industries that collectively grew by 9 percent in 2013. The buying and selling of permits to emit carbon dioxide pollution resulted in a drop of 500,000 metric tons in the manufacturing sector and [swapping cleaner energy for coal](http://www.scientificamerican.com/article/price-of-coal-in-china-climate-change/) reduced carbon dioxide emissions by an additional 2 million metric tons for the entire city.

"If you can know Shenzhen can do this then you can believe Chinese government can do this as well," says Tang Jie, vice mayor of one of the largest megacities in China, who says the overall goal is to [have total pollution peak as soon as possible](http://www.scientificamerican.com/article/carbon-trading-experiments-in-china/). "In 2020, our city will leap over the emission peak. If Shenzhen can make this peak, I think maybe in 10 or 15 years the whole of China can peak."

As Shenzhen goes—and Beijing, Chongqing and Shanghai, all Chinese cities with new carbon market experiments—so goes China. And as China goes when it comes to spewing carbon dioxide into the sky, so goes the world—China is the [world's largest emitter of global warming pollution](http://www.scientificamerican.com/article/price-of-coal-in-china-climate-change/) and thanks to a growing coal habit the 1.2 billion Chinese now emit as much per person as the roughly 500 million citizens of the European Union.

As world leaders gather at the U.N. on September 23 to reiterate or reveal pledges for action to combat climate change, it is in cities that such actions are actually happening. That could be [alternative fuel vehicles in Jinan](http://www.scientificamerican.com/article/transportation-revolution-in-china/?&amp;WT.mc_id=SA_SP_20140120), China, a program to share electric cars in Paris, or rapid-transit buses in Curitiba, Brazil. Or it could be a massive program to [retrofit old buildings](http://www.scientificamerican.com/article/how-green-is-my-city/) here in New York City. At the [U.N. summit](http://www.un.org/climatechange/summit/wp-content/uploads/sites/2/2014/05/Climate-Summit-main_FINAL-PR.pdf), 228 cities representing 436 million people committed to avoid more than 2 gigatonnes of greenhouse gas pollution per year going forward under a new global "[Compact of Mayors](http://c40.org/press_releases/press-release-global-mayors-compact-shows-unity-and-ambition-to-tackle-climate-change)." And 25 cities pledged to cut methane pollution seeping out of garbage dumps.

At the same meeting, the U.S. and China reiterated previous pledges. The U.S. will [cut CO2 pollution by 17 percent](http://www.scientificamerican.com/article/us-commits-to-greenhouse-gas-cuts-under-copenhagen-accord/) below 2005 levels by 2020, according to U.S. President Barack Obama while China will reduce carbon intensity by as much as 45 percent below 2005 levels by 2020, says Vice Premier Zhang Gaoli. "Nations are not delivering," says Eduardo Paes, mayor of Rio de Janeiro and chair of the C40 group of cities committed to fighting climate change. "How can there be any argument against prioritizing cities?"

Cities around the globe are growing fast—more than half of the world's 7.2 billion people now live in one city or another, a number expected to swell to more than 6 billion people living in cities by 2050, mostly in Africa and Asia. Cities now deliver fully three-quarters of global economic activity, totaling more than $50 trillion. And it is citizens of cities who are responsible for at least half of all greenhouse gas pollution—through demand for heating and cooling, food, lighting, entertainment and transportation. As a result, [city action (or inaction) on climate change](http://www.scientificamerican.com/article/biello-china-house-boom-urban-class-environmentally-responsible/) may determine the ultimate outcome of global warming. "The future is in the cities," says Jeffrey Sachs, an economist and director of the Earth Institute at Columbia University.

Decisions surrounding how the world urbanizes will also shape the future climate. Sprawling Atlanta emits [10 times as much greenhouse gases](http://usa.streetsblog.org/2014/09/03/wowza-scale-maps-of-barcelona-and-atlanta-show-the-waste-of-sprawl/) as compact Barcelona simply because of transportation needs, the World Resources Institute notes. If emerging cities follow the Atlanta model the world will be a lot hotter. At the same time, as cities struggle to counter climate change, they will also have to solve problems like urban poverty and inequality. "If we miss it in the next 15 years, we will create another lost generation," says Aromar Revi, director of the Indian Institute for Human Settlements.

The C40 group of cities—now 69 cities now that have banded together to combat climate change—has released research showing that [city actions to reduce pollution](http://c40.org/press_releases/press-release-global-mayors-compact-shows-unity-and-ambition-to-tackle-climate-change) from buildings, cars and garbage could cut greenhouse gases by nearly four gigatonnes in the next two decades—and eight gigatonnes by 2050—in addition to any national policies. More importantly, mayors have more direct control over such policies in their cities. "We have strong constituencies we can't hide from—we don't want to hide from," says Bill de Blasio, mayor of New York City. "We are held accountable in a way that national leaders are not."

At the same time, cities are competing to be as livable as possible. While Beijing may have a carbon market and mandates to remove coal-burning from city limits, Melbourne in Australia plans to have zero net emissions by the end of the decade. By 2025, Copenhagen hopes to be the world's first capital city to become carbon neutral—a goal already achieved by the nearby [island of Samso](http://www.scientificamerican.com/article/samso-attempts-100-percent-renewable-power/). As Paris mayor Ann Hidalgo puts it, cities are going through a "*transition ecologique.*" Commenting on her city's electric car sharing program, she says, "If cities say we don't want fossil fuel cars then industry will provide." A new Urban Electric Mobility Initiative announced at the U.N. aims to increase sales of electric vehicle for use in cities to at least 30 percent of all new vehicle sales by 2030.

City governments not only have the means to slow climate change, but also the motivation—they face the brunt of global warming threats, such as [sea level rise](http://www.scientificamerican.com/article/slide-show-will-sea-level-rise-drown-your-town/). Cities are on the "frontlines of this war," Paes says. "The victims are city residents."

[Hurricane Sandy](http://www.scientificamerican.com/report/hurricane-sandy-2012/) in 2012 delivered a foreshadowing of climate change to come in New York City. Downtown was inundated and dark, and even the U.N. building itself flooded for the first time in its 70-year history in the city. "Climate change is the defining issue of our time," says Ban Ki-moon, U.N. Secretary General. "It's not a distant threat."

New York City has already cut greenhouse gas emissions by 19 percent since 2005, thanks to efforts initiated by former Mayor Bloomberg—now [U.N. envoy for cities](http://unenvoy.mikebloomberg.com/)—and continued under de Blasio. While national leaders still speak in generalities of signing a global climate deal in Paris in 2015 with targets to be negotiated, mayors of cities in almost every country continue to implement practical programs that reduce greenhouse gas pollution.

New York City, for one, is prepared to go further than the U.S. The city has committed to cutting greenhosue gases by 80 percent by 2050, and released [a plan to get there](http://www.nyc.gov/html/builttolast/pages/home/home.shtml). The centerpiece is [refurbishing old buildings](http://www.scientificamerican.com/article/how-green-is-my-city/) to use less energy because old and new construction together are responsible for 75 percent of New York City's emissions. "The failure to reach that goal dooms us all," de Blasio says. "If we don't get it right now, at some point it will be too late."