

“AIRMAGGEDON”



In January of 2013, Beijing (pictured here) and cities across northern China experienced some of the worst air pollution ever measured. Source: Getty Images.

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One of the truisms of U.S. transportation planning has long been that each year, there will be more cars on the road...

This has been the case for decades. But not the past decade. [T]he growth in the amount of driving per capita (also known as vehicle miles traveled), has peaked and is now in decline. People are simply driving less than they used to.

And it's a trend that is being led almost entirely by young people. As a newly-released report documents, the average 16-to-34-year-old American is driving 23 percent fewer miles than the average young person drove in 2001.

CLEAN AIR AND SUSTAINABLE CITIES IN CHINA

Beijing recently suffered a period of astoundingly bad air quality. On January 12th, pollution monitors showed a peak level nine times higher than the daily average for Beijing. This was equivalent to more than 20 times the safe level established by the World Health Organization. This “airmageddon” gives a new urgency to improving air quality in China.

The first line of defense in reducing air pollution is to stem emissions from factories, cars, and trucks. After more than a decade of negotiations, China recently passed world-class fuel quality standards, aligning the country with the European Union, United States, and other nations that also require super-low emitting vehicles. This is a momentous change—and credit should be given to the two organizations that worked towards this for years, the China Sustainable Energy Program (part of the Energy Foundation) and the International Council on Clean Transportation.

But in the medium- to long-term, this effort can only succeed if China builds more sustainable cities. Cities create most of the world's GDP, and are likewise home to the most consumption. China's cities are swelling by over 15 million residents annually. Given the incredible pace and scale of city building in China, and the long lives of such cities, it is crucial for the world that China get cities right.

HOW CITIES CAN HELP

The late 20th century American model of car-reliant development must not be replicated. That approach is already falling out of favor in the United States. Evidence can be found in declining vehicle-miles-traveled per capita (see sidebar) and in real estate value dynamics; centrally-located walkable areas best maintained their value throughout a housing downturn across the United States. Los Angeles, the epicenter of car culture in the post-WWII era, is now focused on building a comprehensive public transit system, including both bus rapid transit service and underground metro rail.

Though less than five percent of the population owns a car, traffic congestion is already causing paralysis in many Chinese cities. Transportation-related emissions are the fastest growing source of air pollution in China. More cars will not solve the problem. New York City, the financial capital of the United States and one of its wealthiest cities, demonstrates the power of public transit. Largely due to its world class subway system, New York's per capita greenhouse gas emissions are two-thirds less than the national average.

What are the most important elements of a sustainable city? International best practices point to the importance of walkable, mixed-use neighborhoods served by first-rate public transit and dedicated bike lanes, and with greater population and job density concentrated at major transit hubs (transit-oriented development). In other words, the solution is

WALKABLE, MIXED-USE NEIGHBORHOOD IN CHONGQIN



Transportation energy demand and related emissions are reduced by building walkable, mixed use neighborhoods. Source: "Planning Cities for People."

THE WORLD'S WORST TRAFFIC JAM



Though less than five percent of Chinese own cars, traffic congestion is already problematic. In 2011, a highway outside of Beijing was the scene of the worst traffic jam ever. By the numbers: more than 10,000 vehicles, over 61 miles, 11 days to unsnarl. Source: weibo.com.

the opposite of low-density, single-use, sprawling development that forces people to rely on cars. This approach to urban form and transportation echoes the way that traditional Chinese cities organized themselves, with mixed-use and walkable hutongs, but such patterns have rarely been followed in recent years.

WALKABLE, MIXED USE NEIGHBORHOODS

People do not want to spend time in transit: what they want is convenient access. If residents can find services and amenities nearby, they will happily travel less. Sustainable cities increase accessibility while reducing travel. The result is lowered demand for energy to meet transportation needs and reduced air pollution.

HIGH QUALITY PUBLIC TRANSIT, EMPHASIZING BUS RAPID TRANSIT

Walkable neighborhoods are necessary, but not sufficient on their own. People need to travel beyond their comfortable walking range, thus requiring China's cities to have high quality public transit. Public transit must be comfortable and convenient for it to emerge as a favored choice. Compact, densely-populated cities allow the costs of infrastructure to be spread out over more people, lowering the per capita infrastructure cost and justifying investment in higher performing systems.

Bus Rapid Transit is a big part of the public transit solution. Such systems can transport passengers at metro speeds for a small fraction of the cost and can be built more quickly. China's 12th Five Year Plan includes a call for an ambitious yet achievable 3,000 kilometers of Bus Rapid Transit to be built by 2015. Avoiding traffic paralysis itself yields air quality benefits: no one benefits from cars burning fuel at a standstill. And new buses built to international standards have miniscule emissions of conventional pollutants.

China's cities are also building hundreds of kilometers of light and heavy rail systems. Many of these are electrified, which means no local exhaust. City rail transit is also a valuable component of sustainable urban transport, but is more capital intensive, and so more costly and time consuming to build.

ENERGY EFFICIENT BUILDINGS ALSO YIELD AIR BENEFITS

In compact, dense cities, land costs are higher, which puts downward pressure on the size of homes, and reduces resource demand per capita, including in the energy realm. Nonetheless, sustainable cities must get building policies right. Energy efficiency standards for buildings must be robust and regularly strengthened to reflect technological advances, and then be well enforced. Increased efficiency reduces the amount of electricity and other energy consumed by buildings, which reduces pollution from power plants, thus contributing to clean air.

A final point in our survey of the air quality benefits from sustainable cities: compact, dense cities are an opportunity to concentrate our environmental impact, leaving more nature undisturbed and able to provide the ecosystem functions we depend on for clean air and clean water. We know that smart urban form and transportation systems will help clean up the air. Now we need to rapidly scale these solutions to meet the scope of the challenge.