

China's Blurred Horizon

The Washington Post
By Joshua Kurlantzick
September 19, 2004

The road between Urumqi, capital of the vast western Chinese province of Xinjiang, and Turpan, a breathtaking oasis city two hours' drive from Urumqi, is one of the finest drives I've taken in China. The modern highway snakes amid stunning rust and ochre-colored mountain ranges bathed in sunlight, passing camels, colorfully attired Kazakh herders with their flocks of goats and sheep, and small, round yurts -- all under a wide desert sky.

Unfortunately, when I drove this road last month, the stunning scenery at times was hard to discern. Clouds of brownish smoke poured from natural gas refineries and coal plants in the distance, blackening the sky and discoloring the roadside mountains and caverns. Dust storms whipped our windshield. Lakes and rivers along the road had dried up, leaving vast gullies in their place. When I arrived in Turpan, the hood of the car was covered in black soot.

Xinjiang, which borders Pakistan, Central Asia and Mongolia, is hardly unique. While most foreign observers have focused on the potential social and economic problems lurking beneath China's success story -- rampant corruption, an authoritarian regime and hundreds of millions of people potentially left unemployed as state enterprises shut down -- the country is now home to the world's worst environmental problems, extending far beyond the polluted air. And it is totally unprepared to combat them.

The catastrophe is already unfolding in sickening detail. In a new book on China's environment, "The River Runs Black," a Council on Foreign Relations scholar, Elizabeth Economy, documents how two-thirds of Chinese cities have air quality below World Health Organization standards, by far the worst rate of any large country in the world. By some measures, at least six of the world's 10 most polluted cities are in China, including Beijing and Urumqi. Several have the highest rates of airborne carbon monoxide in the world. The country's environmental agency says that living in Chinese cities with the worst air pollution does more damage to an average Chinese person's lungs than smoking two packs of cigarettes a day.

Meanwhile, as trees are ripped out of northern and central China -- forest cover has fallen by more than half over the past two decades -- the country's deserts are expanding by several hundred thousand square kilometers per year, faster than anywhere else in the world. The government's efforts to replant tens of millions of trees have thus far proven woefully ineffective at stopping the desert's march. The Gobi Desert, which stretches across central China,

has moved so close to Beijing, at a pace of about two miles a year, that its borders are less than 200 miles from the capital. Beijing is buffeted every summer by sandstorms that fill the sky and sometimes send particles drifting as far as South Korea.

According to Economy, the water in five of China's largest rivers is so polluted it is dangerous to the touch, because it causes skin diseases; the Huai River, in the fertile province of Anhui, is filled with garbage, yellow foam and piles of dead fish. Several of the country's main waterways, including the Yellow River, a vital artery, run dry before reaching the sea. More than 600 million Chinese, roughly half the country's population, now drink water contaminated with animal and human waste, says Jasper Becker, a longtime China analyst based in Beijing.

Anyone living in China should not be surprised by these statistics. Last winter in Shanghai, nearly everyone I met had hacking, never-ending coughs that are partly caused by the gray, sooty air that blankets the city like split pea soup. In heavily industrialized northeastern China, city aquifers are filled with heavy minerals. Even Hong Kong, by far the wealthiest part of the country, now frequently suffers from such horrific air pollution that its breathtaking skyline is almost totally obscured on some days.

The environmental catastrophe is the result of a storm of factors. In the past two decades, China has witnessed an extraordinary migration from rural to urban areas, as more than 200 million people, looking for work, have moved to the cities, overstressing resources. In the next two decades, another 300 million are expected to join them.

In a mark of the nation's rising consumption, these new urbanites are buying cars as fast as they can, making China the top emerging market for most automakers, but also contributing to air pollution, since relatively tough emissions requirements are not tightly enforced. A study by Chinese ministries estimated that the number of cars in the country will rise sevenfold by 2020. On a recent visit, I spent afternoons in Beijing in gridlock that made the Capital Beltway look like the autobahn; the hot summer air outside the car was so smoky it almost made me choke.

Beijing has meanwhile focused on rapidly moving the country through phases of industrialization, with few controls. China's equivalent of the U.S. Environmental Protection Agency has roughly one-hundredth as many staff members, though China's population is four times as large as the United

States'. Local branches of the environmental agency are almost completely toothless. Because the country has invested little in natural gas or other clean forms of energy, more than 70 percent of its energy still comes from brown coal, the dirtiest fuel available.

Beijing is not unaware of these problems. As far back as 1982, the Chinese leadership placed an environmental protection section in the national constitution. Today, the director of the government's environmental agency frequently warns that China's development is ecologically unsustainable, and that the country will not be able to reverse the damage once it has attained a higher gross domestic product. These warnings go unheard, because breakneck urbanization and industrialization have benefited too many Communist Party leaders. Local party chieftains reportedly take payments from developers and win plaudits based on local economic growth rates, and thus have little incentive to halt construction. National party leaders have an incentive to support the massive projects initiated by the government, which help keep the economy afloat and provide jobs, thereby reducing anger at Beijing.

So China constructed the Three Gorges Dam, despite considerable evidence that there were cheaper ways to obtain power, and that the dam's construction would decimate south-central China. The government is building the world's longest bridge between the eastern cities of Ningbo and Hangzhou (its impact still unclear), a railway line into Tibet that likely will never make economic sense, and a 3,000-mile long pipeline from the country's east coast to petroleum fields in Xinjiang -- an undertaking that will be far more expensive than importing gas from Indonesia or the Middle East.

Average Chinese citizens will suffer enormously. China's environmental protection agency estimates that the quantities of carbon, nitrogen and other gases in Chinese cities will make the air too toxic to breathe in the most polluted urban areas within a decade. By 2020, about 550,000 Chinese will be dying prematurely of chronic bronchitis from airborne pollution, and tens of millions will be affected by respiratory distress, Economy writes. Toxic drinking water may be responsible for the astronomical rates of cancer in provinces like Anhui. Most farmers in central China may be forced off their land within a decade, as the land becomes dry and desertlike. The environment also will be a broader drag on economic growth. China's Academy for Environmental Planning estimates that by 2020, health costs associated with pollution will slash more than 10 percent off China's gross domestic product.

Yet it is China's environmental nightmare that ultimately could spark the most insistent and effective demands for reform, just as environmental destruction caused by unchecked industrialization helped

catalyze political liberalization in Eastern Europe. In the 1980s, Eastern European environmental groups often had more space to operate than other nongovernmental organizations, and they challenged their governments' mishandling of environmental catastrophes. In so doing, the greens formed alliances with other disaffected groups, including labor and church organizations -- alliances that, in the late 1980s, became explicitly directed at toppling regimes.

So, too, in China. A recent report by the U.S. Embassy in Beijing entitled "The Grapes of Wrath in Inner Mongolia" argued that the tens of millions of Chinese "Okies" -- farmers losing their land to the expanding desert, like 1930s Dust Bowl growers in the United States -- have no outlet such as California to escape to. Instead, Chinese farmers are likely to migrate to eastern cities, where they could become a force for protest, or to regional capitals, where they could attack local officials for overdevelopment, desertification and water pollution.

The number of daily protests in China has dramatically increased every year in the past decade. Many new protests have brought together loose coalitions of unemployed laborers, farmers and average citizens upset with water and air pollution, and with water scarcity. In southwestern Yunnan province, Economy recounts, hundreds of farmers have demonstrated against a local industrial company for poisoning their crops with arsenic; the company had almost no pollution controls.

What's more, as in Eastern Europe, an organized environmental movement is already developing, providing a structure to some of this anger. While Beijing has cracked down hard on evangelical churches, Falun Gong, the China Democracy Party and unofficial labor unions because it views these groups as explicitly political, it has allowed green organizations to flourish, though most environmental groups remain small.

Taking advantage of this leniency, more than 2,000 environmental nongovernmental organizations have been formed in China, a large number in a country where the regime normally makes it difficult to set up an NGO. The Chinese media also have become more attuned to environmental issues -- the number of environment-related articles in Chinese newspapers has more than doubled since 1995 -- and willing to blame the government for ecological disasters. Some green activists have even begun explicitly saying that only democracy, and a cleaning out of corrupt officials, will solve environmental problems.

Ultimately, it may take but one environmental disaster to radicalize activists and cement an alliance with farmers and laborers. In Eastern Europe, that disaster was Chernobyl, a cataclysm that demonstrated both the venality and the weakness of the

Soviet system. In Southeast Asian nations such as Thailand, environmental problems such as the over-use of destructive dams have brought together diverse civil society groups and directed anger at the state. In China, so far, it remains unclear which disaster could provide this spark. But as the country's

Choking on Growth

Excerpts from *Time* Magazine, December 13, 2004

...The capital [Beijing] is certainly among the most polluted cities in China, but it has plenty of competition. According to the World Bank, 16 of the 20 most polluted cities globally are in China. China's Ministry of Science and Technology says air pollution kills 50,000 newborn babies a year. With the country's ravenous demand for energy only increasing and its automobile revolution just gearing up, however, China's current air pollution may be only the tip of the smokestack. "The danger in China is that you're getting to the point of no return," says Dr. Elizabeth C. Economy, a fellow at the Council on Foreign Relations and author of *The River Runs Black: The Environmental Challenge to China's Future*.

Nowhere is that sense of urgency more keenly felt than in Beijing, where in less than four years Olympic athletes must run a marathon through streets where respirable particulate levels average three to four times U.S. safety levels. The capital has already passed some of China's most ambitious environmental measures, spending \$8.1 billion on environmental-protection projects from 1998 to 2003. Tighter emission standards took effect this fall, public buses that run on alternative fuel are being used, and the city has promised stricter emissions standards on cars by 2007. Despite these efforts, Beijing's air has become increasingly hazardous to human health. Dr. Seamus Ryan, chairman of family medicine at Beijing United Family Hospital, says he sees a rise in respiratory admissions on particularly polluted days: "When the air gets bad, you see people coming in with coughs and rhinitis."

In China's urban areas, the chief culprit is coal. Cheap and abundant, it supplies 70-80% of the country's energy. Though the government has pledged to use more renewable energy and cleaner fuels like natural gas, the scale of China's power demand means that coal use is still expected to nearly double by 2030. When the country faced a huge energy shortage last year, coal mines and power plants that had been closed for environmental reasons were quickly reopened and sulfur-dioxide emissions soared.

It doesn't help that China has fallen dangerously in love with the automobile. In Guangdong alone the number of cars per household rose 31% last year. China's Ministry of Communications estimates

environment careers over the edge, there is no shortage of possibilities.

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China could have 140 million vehicles on the road by 2020, compared with more than 20 million today. Even if emission controls are enforced, this car boom is an environmentalist's nightmare. "You can do a lot of things right," says Economy, "but the question is whether the scale is simply going to dwarf everything you've tried to accomplish."

"We understand that China is a poor country that needs to develop economically and that this isn't easy," says Shi Zekang, a retired aviation engineer who co-authored the Shenzhen residents' environmental study. "But I've really started to lose confidence that the government will do the right thing." Others share his skepticism. "Of the laws and regulations on environmental protection, only 10% are being enforced," reckons Wang Canfa, a Beijing-based environmental-law professor who, in 1999, founded the Center for Legal Assistance to Victims of Environmental Pollution. "And people tell me that's an optimistic estimate."

Yet China could surely do better. Although China and Japan are hardly the same, the fear that China will be unable to clean up without stalling economic progress is belied by the example of Japan, which also experienced rapid growth that initially caused serious pollution. In the early 1970s Tokyoites took to the streets in surgical masks to shield themselves from the smog. But today Tokyo has some of Asia's cleanest urban air, thanks in part to stringent efforts that brought down pollution even as the economy thrived. That's partly due to people like Yoshimitsu Ikuta, a 60-year-old inspection chief from Tokyo's Vehicle Pollution Policy Division. Ikuta is a "vehicle G-man," one of 75 officers who test the city's auto fleet each day for polluting diesel vehicles. (The name comes from a popular 1970s TV show about hard-boiled detectives.) Though Tokyo doesn't even have a severe problem with diesel pollution—less than 3% of the diesel vehicles inspected by the G-men over the past year were in noncompliance—Ikuta says he still gets calls from happy Tokyoites thanking him for keeping the air clear: "They say their laundry stays clean after it's been outside to dry. I like to hear people's response to our job."

For now, it's hard to imagine Beijing or Bombay ever having a work force of G-men. And it's this lack of administrative commitment—not to mention re-

sources—that really foils efforts to control pollution in developing countries. When smog first struck Tokyo in the late 1960s, the city quickly began applying ever stricter emissions standards on cars and power plants—and, more importantly, enforced them. China has surprisingly tight environmental regulations, but the central government's best intentions are often not implemented on a local level. Countries like China and India have access to far more advanced environmental technology than Japan or the U.S. did when they began to attack air pollution, yet the institutional will is often lacking. "The question is enforcement," says Yang Fuqiang, the China representative of the U.S.-based Energy Foundation, a think tank that supports research on sustainable energy. "There's no capacity, and the budget is limited."

China's State Environmental Protection Agency, for instance, has just 300 full-time staff members. (Hong Kong's Environmental Protection Department has more than 1,600 covering a relatively tiny area.) China's local environmental agencies are notoriously weak, and the central government provides just 10% of their budget; the actual authority and most of the funding for pollution protection rests with local political officials who are more likely to be heralded for economic growth than environmental protection. Penalties are so low that it's not uncommon for polluting factories to keep paying fines rather than install expensive cleaning equipment—which helps explain why, by one estimate, just 5-6% of China's factories employ desulphurisation techniques. Even in Beijing, officials have been unable to enforce a

two-year-old ban on the burning of coal in the downtown area. "There's no incentive or disincentive to change behavior," says Economy. "It's just easier, faster and cheaper to do it wrong. Then you pay the price later."

Yet even developing cities have proven that it's possible to dramatically improve air quality. For years, New Delhi vied with Mexico City for the title of the world's most polluted metropolis... Lately, however, Delhi's air has begun to clear. Plans had been in the works since 1998 to switch the capital's highly polluting diesel buses to cleaner compressed natural gas (CNG), but vehicle owners objected that the new fuel was too expensive. Finally in 2002 India's Supreme Court stepped in and began imposing fines on recalcitrant operators. Today most of Delhi's buses, taxis and auto-rickshaws run on CNG. The Supreme Court has also ordered a switch to unleaded petrol and the closure of polluting industries in the capital. The effects have been dramatic: from 1996 to 2003, sulfur-dioxide levels dropped 63% and respirable suspended particulates—bits of pollution small enough to be deeply inhaled—dropped 30%. Delhi has shown that strong government intervention—backed by environmental activism—can make a difference even in poorer cities. "The air quality is significantly better," says Pradhan, who no longer avoids the rush hour. The change is palpable, especially for those exposed to it every day. "There's still pollution in the air," says Alok Jaiswal, who sells watches on the street, "but my face doesn't turn black and my eyes don't itch." ...