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## Council on Foreign Relations

### China's Environmental Crisis

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#### Introduction

China's environmental crisis is one of the most pressing challenges to emerge from the country's rapid industrialization. Its economic rise, in which GDP grew on average 10 percent each year for more than a decade, has come at the expense of its environment and public health. China is the world's largest source of carbon emissions, and the air quality of many of its major cities fails to meet international health standards. Life expectancy north of the Huai River is [5.5 years](#) lower than in the south due to air pollution ([life expectancy](#) in China is 75.3 according to 2013 UN figures). Severe water contamination and scarcity have compounded land deterioration. Environmental degradation threatens to undermine the country's growth and exhausts public patience with the pace of reform. It has also bruised China's international standing and endangered domestic stability as the ruling party faces increasing scrutiny and public discontent. More recently, amid waning economic growth, leaders in Beijing appear more determined to institute changes to stem further degradation.

#### A History of Pollution

While China's economic boom has greatly accelerated the devastation of its land and resources, the roots of its environmental problem stretch back centuries. Dynastic leaders who consolidated territory and developed China's economy exploited natural resources in ways that contributed to famines and natural disasters, writes CFR's [Elizabeth C. Economy](#) in [The River Runs Black: The Environmental Challenge to China's Future](#). "China's current environmental situation is the result not only of policy choices made today but also of attitudes, approaches, and institutions that have evolved over centuries," Economy writes.

It wasn't until the 1972 United Nations Conference on the Human Environment that China began to develop environmental institutions. It dispatched a delegation to the conference in Stockholm, but by then the country's environment was already in dire straits.

Economic reforms in the late 1970s that encouraged development in rural industries further exacerbated the problem.

**“China’s current environmental situation is the result not only of policy choices made today but also of attitudes, approaches, and institutions that have evolved over centuries.”—Elizabeth C. Economy, Council on Foreign Relations**

Chinese leader Deng Xiaoping implemented a series of reforms that diffused authority to the provinces, creating a proliferation of township and village enterprises (TVEs). By 1997, TVEs [generated almost a third](#) of national GDP, though TVEs have since declined in relative importance to the Chinese economy. But local governments were difficult to monitor and seldom upheld environmental standards. Today, with a transitioning Chinese economy fueled by large state-owned enterprises, environmental policies remain difficult to enforce at the local level, where officials often prioritize hitting economic targets over environmental concerns. Despite the government's stated goals, [actual change](#) to environmental policies and effective implementation will require revisiting state-society and state-market relations and China's bureaucratic power structure, writes CFR's [Yanzhong Huang](#).

China's modernization has lifted hundreds of millions out of poverty and created a booming middle class. In some ways, the country's trajectory of industrialization is not unlike those of other modernizing nations, such as the UK in the early nineteenth century. But experts say China's environmental footprint is [far greater](#) than that of any other single country.

### **How Bad Is It?**

China is the world's largest emitter of greenhouse gases, having overtaken the United States in 2007, and was responsible for [27 percent](#) of global emissions in 2014.

The country's [energy consumption](#) has ballooned, with [reports](#) from late 2015 implying that it consumed up to 17 percent more coal than previously reported. In January 2013, Beijing experienced a prolonged bout of smog so severe that citizens dubbed it an “[airpocalypse](#)”; the concentration of hazardous particles was forty times the level deemed safe by the World Health Organization (WHO). In December 2015, Beijing issued red alerts for severe pollution—the first since the emergency alert system was established. The municipal government closed schools, limited road traffic, halted outdoor construction, and paused factory manufacturing. At least 80 percent of China's 367 cities with real-time air quality monitoring failed to meet national small-particle pollution standards during the first three quarters of 2015, according to a [Greenpeace East Asia report](#). In December 2015, the Asian Development Bank approved a [\\$300 million loan](#) to help China address the capital region's choking smog.

Coal is largely to blame for the degradation of air quality. China is the world's largest coal producer and accounts for [about half](#) of global consumption. Mostly burned in the north, coal provides around two thirds of China's energy mix, however demand for it appears to be declining. China's National Energy Agency claimed that [coal use dropped](#) to 64.2 percent of the mix in 2014, down almost two percent from 2012. This drop in coal demand also comes as China's economy is slowing, with its central bank [forecasting](#) that annual growth will only expand by 6.8 percent in 2016, down from 6.9 percent a year earlier. Still, doubts linger of China's commitment to wean itself from coal. In 2015, China's coal power plant capacity increased by 55 percent in the first six months, 155 new coal-fired

plants were approved, and China admitted that it had underreported its annual coal consumption since 2000.

There were a [record 17 million new cars](#) on the road in 2014, further contributing to China's high emissions. Car ownership was up to 154 million, according to China's Ministry of Public Security, with compared to roughly 27 million in 2004, according to China's National Bureau of Statistics. Another trend compounding air problems has been the country's staggering pace of [urbanization](#), a national priority. The government aims to have more than [60 percent](#) of the Chinese population living in cities by 2020, up from [36 percent](#) in 2000 (53.7 percent of the population in 2015 lived in urban areas). [Rapid urbanization](#) increases energy demands to power new manufacturing and industrial centers.

Experts also cite [water depletion and pollution](#) as among the country's biggest environmental challenges. China is home to 20 percent of the world's population but only [7 percent \(PDF\)](#) of its fresh water sources. Overuse and contamination have produced severe shortages, with nearly 70 percent of the [country's water supplies](#) dedicated to agriculture and and 20 percent of supplies used in the coal industry, according to Choke Point: China, an environmental NGO initiative. Approximately two-thirds of China's roughly 660 cities suffer from [water shortages](#). Former Chinese premier Wen Jiabao has said that water shortages challenge "the [very survival](#) of the Chinese nation."

Industry along China's major water sources has polluted water supplies: in 2014, groundwater supplies in more than 60 percent of major cities were categorized as "bad to very bad" and more than a quarter of China's key rivers are "[unfit for human contact](#)." And lack of waste removal and proper processing has exacerbated problems. Combined with negligent farming practices, overgrazing, and the effects of climate change, the water crisis has turned much of China's arable land into desert. About 1.05 million square miles of China's landmass are undergoing [desertification](#), affecting more than 400 million people, according to the deputy head of China's State Forestry Administration. Water scarcity, pollution, and desertification are reducing China's ability to sustain its industrial output and produce food and drinkable water for its large population.

## **Cost of Environmental Damage**

Environmental depletions pose a serious threat to China's economic growth, costing the country roughly 3 to 10 percent of its gross national income, according to various estimates. China's Ministry of Environmental Protection calculates estimates the cost of pollution at around 1.5 trillion RMB (\$227 billion), or roughly 3.5 percent of GDP, according to [2010 figures](#). Due to the sensitivity of the topic, the ministry only releases such figures intermittently.

Data on the toll of China's pollution on public health paint a devastating picture. Air pollution contributes to an estimated [1.2 million premature deaths](#) in China annually. Epidemiological studies conducted since the 1980s in northern China suggest that poor air quality in Chinese cities causes significant [health complications](#), including respiratory, cardiovascular, and cerebrovascular diseases. Pollution has also been linked to the proliferation of acute and chronic diseases; estimates suggest that around 11 percent of digestive-system cancers in China may stem from unsafe drinking water.

[Recent studies](#) have reported that emissions from China's export industries are [worsening air pollution](#) as far as the western United States. China's neighbors, including Japan and South Korea, have also [expressed concern](#) over acid rain and [smog](#) affecting their populations. Environmental ministers from the three northeast Asian countries agreed to boost cooperative efforts to curb air pollution and to protect water quality and the maritime environment in 2014.

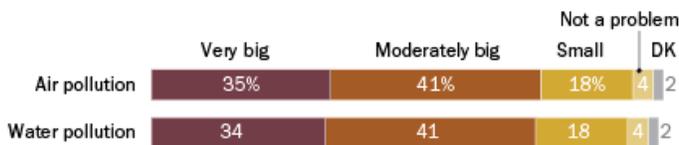
The damage has also affected China’s economic prospects as it continues to pursue extractive resources abroad, such as oil and other fossil fuels. Its economic partners, particularly in the developing world, face costly [environmental burdens](#) attached with doing business with China, write CFR’s Economy and [Michael Levi](#) in *By All Means Necessary*, their book on China’s quest for resources.

## Citizen Outrage

Environmental damage has cost China dearly, but the greatest collateral damage for the ruling [Communist Party](#) has likely been growing social unrest. Demonstrations have proliferated as citizens gain awareness of the health threats and means of organized protest (often using social media). In 2013, Chen Jiping, former leading member of the party’s Committee of Political and Legislative Affairs said that environmental issues are a [major reason](#) for “mass incidents” in China—unofficial gatherings of one hundred or more that range from peaceful protest to rioting. Environmental protests in [rural](#) and urban areas alike—such as those in [Guangdong](#), [Shanghai](#), [Ningbo](#), and [Kunming](#)—are increasing in frequency. The number of “[abrupt environmental incidents](#)”, including protests, in 2013 rose to 712 cases, a 31 percent uptick from the previous year.

### Views of pollution and climate change in China

*How big of a problem is ...*



*Is global climate change a very serious problem, somewhat serious, not too serious or not a problem?*



Note: Due to rounding, percentages may not total to 100%.  
Source: Spring 2015 Global Attitudes survey.

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CFR’s Economy points out that one of the most important changes in China’s environmental protest movement has been a shift, beginning in the late 2000s, from predominantly rural-based protests to urban-based movements. The issue has worried the top leadership, which views the unrest as a threat to the party’s legitimacy. “Air pollution in China has turned into a major social problem and its mitigation has become a [crucial political challenge](#) for the country’s political leadership,” write Center for Strategic and International Studies’s Jane Nakano and Hong Yang. Yet the government has responded to public outcries: Chinese Premier Li Keqiang declared a “[war on pollution](#)” in March 2014; in May of the same year the government [strengthened](#) the country’s Environmental Protection Law for the first time in twenty-five years. Such moves reflect “a changing understanding within China about the relationship between economic development and societal wellbeing,” Economy and Levi write.

The Internet has played a crucial role in allowing citizens to spread information about the environment, , placing additional political pressure on the government. In March 2015 *Under the Dome*, a TED Talk-style documentary on China’s air pollution went viral, attracting hundreds of

thousands of views before Internet censors blocked access, and in 2013 the discovery of thousands of [dead pigs](#) in the Huangpu river also spread rapidly online. However, experts say the jury is still out on the current government will implement meaningful reforms, which has shown more resolve in cracking down on public dissent than implementing environmental measures.

## What's Being Done?

The government has mapped out ambitious environmental initiatives in recent five-year plans, although experts say follow-through has been flawed. In December 2013, China's National Development and Reform Commission, the top economic planning agency, issued its first [nationwide blueprint \(PDF\)](#) for climate change, outlining an extensive list of objectives for 2020. Since January 2014, the central government has required fifteen thousand factories, including large state-owned enterprises, to [publicly report](#) real-time figures on air emissions and water discharges. The government also [pledged](#) to spend \$275 billion over the next five years to clean up the air and \$333 billion for water pollution. In a November 2014 [joint statement on climate change](#) with the United States, China committed to hit its peak carbon emissions by 2030 and to have renewables account for 20 percent of its energy mix by 2030. More recently, President Xi Jinping, on a state visit to Washington, announced that China would initiate a national [cap-and-trade program](#) in 2017.

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China is one of the biggest investors in renewables, investing nearly [\\$90 billion](#) in 2014 as part of its pledge to cut its carbon intensity (far outspending the United States' \$51.8 billion). Some analysts have [predicted](#) that China is on track to overtake the United States as the world's leading producer of wind energy by 2016. Meanwhile, Chinese firms continue to invest in and partner with [international companies](#) to develop renewable energy technologies.

Though policy implementation has been inconsistent, the environmental NGO community has grown to push the government to stay on track. Thousands of these groups—often working with U.S. and foreign counterparts—push for transparency, investigate corruption, and head grassroots campaigns. [Friends of Nature](#) is one of its oldest; [Global Village](#) and Green Home are among other well-known NGOs. Despite state support, these organizations inevitably face constraints from government fear that their activities could catalyze democratic social change.

Despite the political reforms needed to catalyze any real change in the environmental sphere, the response to China's crisis has triggered some optimism about the future. “What we’re seeing now is an entirely new administration with an entirely [different outlook on climate change](#),” writes Greenpeace East Asia's Li Shuo. China, once reluctant to take a stand on environmental issues and climate change, [emerged as a leader](#) in negotiations at the 2015 UN Climate Conference in Paris where 195 countries signed a breakthrough accord. While China deserves due credit for its ambitious efforts to curtail its own environmental crisis, Economy says it cannot be assumed that Beijing will follow through on its promises. “The [proof will be on the ground](#)—and of course, in the atmosphere.”