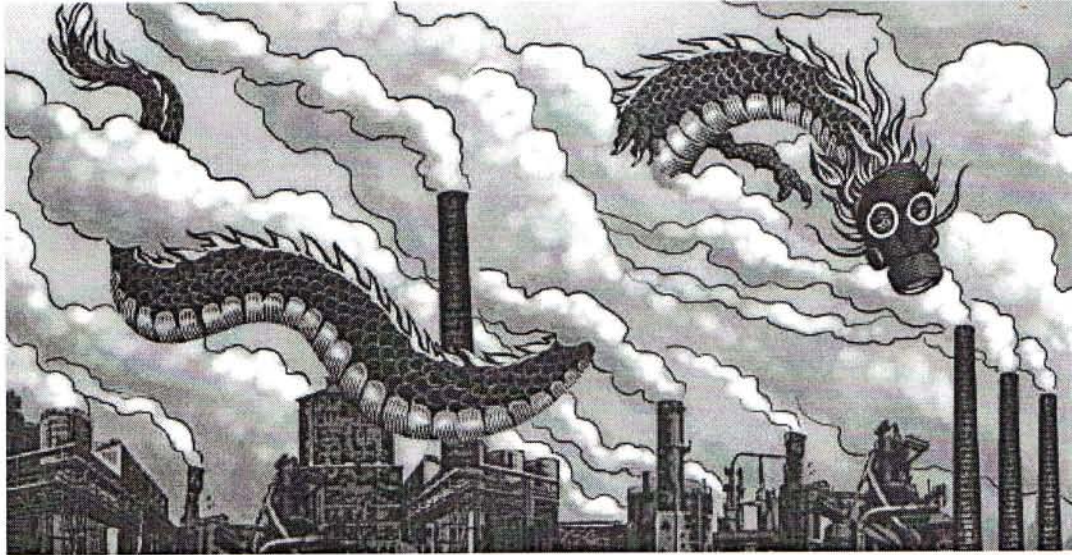


Playing Air-Quality Games

by Steven Q. Andrews



TIM FOLEY

IN 1998, THE air quality in Beijing was ranked the third worst in the world for a metropolitan area, and a self-declared war on air pollution was launched in the city. Based on reported improvements in air quality and a commitment to hold a “green” Olympics, Beijing was awarded the 2008 games in July of 2001. Today, with the Games less than two months away, the Chinese government has claimed nine continuous years of air-quality improvements, but in reality, pollution levels have not decreased at all. Instead, China has cleverly hidden its inability to reduce pollution. And while recently announced emergency measures may help cover-up years of inaction in time for the opening ceremonies on Aug. 8, China’s dissembling about its environmental crisis is helping no one.

Inconvenient Truths

HUNDREDS OF THOUSANDS of Chinese die every year due to outdoor air pollution, and not a single major Chinese city has met the World Health Organization air-quality guidelines. But to the public that pays attention to government reporting there is no problem. Daily reports on television and in newspapers throughout China broadcast an index of pollution levels accompanied by a description of the air quality. The audacity of these reports, wherein a deadly sky is called “blue,” highlight a misinformation campaign that has misled the public about pollution levels and enabled the continuing degradation of

Mr. Andrews is an independent environmental consultant based in Washington, D.C.

China's—and the world's—environment.

Since a 1996 State Council decision, air-quality data—once strictly classified—has slowly been released. This action was part of a strategy by the central government to put public pressure on local government officials to enforce national regulations. But China's classifications of air-quality levels are woefully out of sync with international standards: Air quality in China is designated as "good" when levels of particulate are three times above WHO guidelines. Hong Kong and Europe classify the same level of pollution as "high." Thailand and South Korea call it "unhealthful."

Extremely high levels of pollution in China, days when levels of particulate reach eight times above WHO guidelines, are designated as "moderate." In the unlikely event that Hong Kong reached such dangerous levels of pollution, it would classify it as "severe." Even an air-quality rating of "excellent" in China—a level of pollution that is at best called "good" in other countries—can still be hazardous.

What further exacerbates the understatement of air-pollution levels is that China completely excludes standard measurements of some pollutants that have proven difficult to meet. For instance in 1996 China established a national standard for ground-level ozone (smog), but many cities ended up routinely exceeding this standard. In response, the standard was first weakened in 2000, and then subsequently public reporting simply stopped. Similarly, carbon monoxide has been dropped from public reporting in China. (Hong Kong, Europe, Thailand and South Korea all include ozone and carbon monoxide in their air-quality indices.) It is thus not surprising that Pan Yue, a vice minister in the Ministry of Environmental Protection, has called China's Environmental Protection Law "a mere scrap of paper." With such incomplete and lax standards and local governments that often encour-

age the violation of environmental regulations, China's air situation is poised to get even worse before it gets better.

The Beijing Example

WITH THE OLYMPIC Games, international attention has focused on Beijing's efforts to improve air quality. And unfortunately the capital's efforts are being heralded by the international community and the Chinese government alike as a model to apply to the rest of the country. Beijing's self-declared war on air pollution and its "blue sky" campaign were initiated by the Beijing Environmental Protection Bureau when air-quality reports were first released on Feb. 28, 1998. A simple metric was developed to gauge air quality during a year—the annual number of "blue sky" days. A blue sky day indicates that the air quality measured over a 24 hour period meets the Chinese National Ambient Air Quality Standards for all measured pollutants. Air quality on a blue sky day thus must be classified as either good or excellent by the Chinese government.

The reported annual number of blue sky days in Beijing has increased every year from 100 in 1998 to 246 last year. The United Nations Environment Program has said that if the lessons learnt by Beijing's approach were applied by other municipalities across China that would yield a "real and lasting nationwide legacy." Indeed, Beijing's strategies to improve reported air quality are now being emulated by many other cities, but unfortunately calling the sky blue doesn't make it so. Official environmental statistics present little evidence of environmental progress. Studies using satellite imagery and independent monitoring have found significant increases—up to 50%—for some of the chief pollutants in recent years.

Since the Chinese National Ambient Air Quality standards were established in 1996

through 2000, the main pollutant of concern in many major cities including Beijing, Shanghai and Guangzhou was nitrogen oxides. In 2000, during the bidding process for the 2008 Olympic Games, the national air-quality standards were weakened both for nitrogen oxides and ozone. Even though several cities had nitrogen-oxide levels two to three times above the 1996 Chinese standards from 1996 to 2000, none of these cities were above the revised, weaker 2000 standard. Simply by weakening the standards nitrogen oxides stopped being a pollutant of concern throughout the country.

In Beijing this meant the number of blue sky days more than doubled from 100 in 1998 to 203 in 2002 even though pollution levels didn't improve. Nitrogen oxides had been the pollutant above the national standard on the majority of days between 1998 and 2000, but since the standard has been revised, nitrogen-oxide levels have not once exceeded the new, weaker standard. The air quality in Shanghai and Guangzhou has also seen similar increases in the number of days meeting the national standard.

In recent years, targets have been set for the annual number of blue sky days, both in Beijing and other cities. Since the adoption of these targets, and the commencement of rankings of cities based on the annual number of blue sky days, an increasing bias has been seen in reported air-pollution index values near the politically important, but scientifically insignificant blue sky boundary. The Chinese index system ranks air quality from one to 500. An index value of 100 or less indicates attainment of the Chinese National Ambient Air Quality Standards—a blue sky day. An index value of zero to 50 is called excellent; 51 to 100 good,

101 to 150 slightly polluted, 151 to 200 lightly polluted, 201 to 250 moderate polluted, 251 to 300 moderate-heavy polluted, and one greater than 300 heavy polluted.

The likelihood of an index value right below the blue sky boundary (96 to 100) should be approximately equal to the likelihood of an index value right above the boundary (101 to 105). And in reality, there is nothing good about air quality on either margin. But with cities ranked and officials evaluated based on the number of blue sky days there is substantial pressure on officials to increase a city's blue sky tally.

Beijing has received international media scrutiny for manipulating the numbers near the boundary in recent years, but other cities have been even more audacious. In 2007, Chengdu reported 52 days with an index value right below the standard (96 to 100) and zero days right above the standard (101 to 105); Xian reported 48 days

with an index right below the standard; and zero right above. Beijing in comparison had 57 days right below the standard and five days right above (at least less of a bias than in 2006, but still hardly believable).

Moreover, in 2006 the Beijing Environmental Protection Bureau changed the location of air-quality monitoring stations, which had been constant for 20 years. Air quality varies significantly within a city and the location of monitoring equipment can greatly influence the measured values. The monitoring stations had originally been set up to measure areas of the city with representative characteristics. Two stations in transportation areas had the worst air quality of all stations in the network. (Once the Beijing EPB dropped these two stations from its official tally, the reported air quality improved significantly.)

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In 2008, Beijing took this strategy a step further, and began using additional monitoring stations outside the urban districts of the city to measure the city air quality. All of these new stations are located beyond the sixth ring road, and with these new, relatively pollution-free stations, it is not surprising that further improvements in air quality are being reported for this year. It appears that other cities, with the blessing of the Ministry of Environmental Protection, are also using strategic monitoring station placement to report cleaner air quality. A recent New York Times article suggested that Guangzhou and other major cities are placing air-quality monitoring stations where pollution levels are below average. Although the Beijing Environmental Protection Bureau and Olympic officials have repeatedly denied the change in monitoring-station locations, notice of the changes in Beijing and other cities has been posted on multiple government Web sites.

Olympic Bad Air Days

BUT WHAT ABOUT air quality during the Olympic period? During the August 8 to 24 period in 2007 (the dates when the Olympic Games will be held this year) Beijing had the worst air quality it has had for this period in the past five years. Not a single day met the WHO guidelines. And when a third of Beijing's vehicles were ordered off the streets in a test during this period, pollution levels actually increased. The solution, both to this failure and Beijing's longer term lack of progress, has been to simply pretend it improved. Xinhua's headline, "Air improves during test for Olympics" differed markedly from the Washington Post headline, "Beijing's Pollution Rises in 4-Day Test of Restricted Driving."

The Chairman of the International Olympic Committee's Medical Commission, Arne Lundquist, said: "I think we are

facing a problem that could not be that well foreseen at the time when the decision was taken," in reference to Beijing's selection seven years ago by the IOC.

Officially reported levels of measured pollutants: particulate (PM10), sulfur dioxide (SO₂) and nitrogen dioxide (NO₂) were all higher during the "Olympic period" in 2007 than during the proposed Olympic period in Beijing's official bid documents which contained measurements from 1996 to 2000. The IOC, and many others, likely thought that air quality might improve after Beijing successfully won its bid for the Green Olympics back in 2001.

And the reality might be even grimmer than official statistics indicate. Scientists at the Chinese Research Academy of Environmental Sciences recently published a study based on their own monitoring of air quality levels in Beijing. Pollutant levels independently measured for particulate were 50% higher than reported by the government, sulfur dioxide levels were 33% higher and nitrogen dioxide levels were 12% higher. The Beijing government has stopped measuring ozone levels, but this study found levels were above the Chinese national standard—a level almost twice that of the WHO guidelines—on over half of the days during the Olympic period in 2007.

After Beijing achieved its 246th blue sky day in 2007, the spokesperson for the Beijing Environmental Protection Bureau said that the greatest advance in environmental protection in recent years has been increased environmental awareness among the public. Presumably he was referring to an awareness of the reportedly improved air quality, precisely the deceit that prevents the government from seriously tackling the air-pollution problem. With air quality improving, further action is not necessary, or so the story appears to have progressed. And strangely, the first step in Beijing's war on air pollution was to reduce the size of the Beijing Environmental Pro-

tection Bureau, or BJEPA. Even though reportedly \$17 billion has now been spent on improving Beijing's environment for the Olympics, neither the size nor budget of the BJEPA or the Ministry of Environmental Protection has changed significantly from 1998 to the present. The Ministry of Environmental Protection received full ministerial status earlier this year—previously it had been considered to be of a ministerial level but not a full ministry—but the plan for the upgraded ministry only aims to increase the number of staff from 200 to between 300 and 400 (and likely not until after the Olympics). In comparison, the Environmental Protection Agency in the United States has approximately 18,000 employees. The BJEPA and Ministry of Environmental Protection are, and without significant changes will continue to be, woefully undermanned to tackle the severity of Beijing's and China's environmental problems.

China is the largest emitter in the world of carbon dioxide, sulfur dioxide and mercury. In the last two years alone, China installed over 200 gigawatts of new power plants—a new 300 megawatt coal fired power plant per day. China uses more coal than the U.S., the European Union and Japan combined. The medical journal, the Lancet, has called China “the air-pollution capital of the world,” and a report by the Chinese Academy of Environmental Planning calculated 411,000 Chinese citizens die each year due to air pollution. According to the Chinese Ministry of Environmental Protection: “Environmental indices will be publicized for public supervision; those who fabricate them will be dealt with appropriately.”

Yet Beijing continues to spread across China the strategies it has used to create

the illusion of air-quality improvements: calling polluted days that meet the Chinese definition of good air quality “blue sky” days, embracing weakened standards for nitrogen oxides and the cessation of ozone reporting, manipulating data near the blue sky boundary, and selectively placing monitoring station in less polluted areas. Evaluating officials based on environmental targets appears to have further exacerbated the solution, and the public remains unaware of the true state of environmental degradation in China.

Recently announced plans to improve air quality for the Olympics are impressive and extreme, but they are not sustainable. Some 300,000 heavily polluting trucks are set to be banned from the city beginning on July 1. Only half of automobiles will be allowed to drive from July 20 until September 20, based on even and odd license plates. Additional bans are set to take place on construction and heavy industry both Beijing and surrounding provinces during the Olympic period.

If these planned emergency measures are successfully implemented, the air will likely be reasonable for the Olympics Games. And the Chinese government will certainly call it good. But after the competitions are over and the spectators have gone home, Beijing's temporary restrictions will be lifted, environmental regulations will once again be ignored, and the air-quality games will only continue. Not only will hundreds of thousands of Chinese continue to die from air pollution, but also global green house gas levels will continue to skyrocket, and the chance for a Green Olympics and a sustainable national legacy will have been squandered under a reportedly blue sky.

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