China Pollution

Don’t just concentrate on coal…too specific

Intro

The vast history of the People’s Republic of China is indeed a fascinating journey. The many unfortunate tragedies and seldom fortunate progressions have led China to its current state. This presence it exerts to the world now depicts that of a developing country that the world heavily relies on. China, through its history, became a major manufacturer that provides its products to the rest of the world. However, this status came with its consequences. The immense industrial nature of the People’s Republic of China has introduced a corrosive element to China’s environment. Their excessive industrial market and the increasing population has been the cause for the increasing air pollution in China through the 1900’s to present day. This pollution has accumulated alongside the industrial development of the country. Although air pollution and the pollution of the environment is a global dilemma, the concentration of pollution in China is particularly threatening even as it is decreasing. As some studies have stated the leading cause of death in the People’s Republic of China is respiratory diseases caused by air pollution (pg. 3).[[1]](#footnote-1) Many factors are present for this threatening air pollution and these many factors contributed to the masses that have died.

Gas facts and other facts (the bad ones)

* This
  + Furthermore, the very large [population](http://www.eoearth.org/article/Human_population_explosion) of China, an estimated 1,340,000,000, compared to the US (300,000,000) or the EU (about 490,000,000 including recent extensions) means that the same emission per head in China will lead to respectively 4.5 or 3 times the emission from the US or Europe. http://www.eoearth.org/view/article/149933/
  + This increased number of cars but also the increased use of fossil fuels, especially in the Eastern part of China, has caused high emissions of nitrogen oxides. http://www.eoearth.org/view/article/149933/
* This
  + Recent concentrations of total suspended material (TSP) are quite high if compared with present concentrations found in US or European cities, see e.g. the CAFE Report (6). http://www.eoearth.org/view/article/149933/
  + Particulate matter, especially the smaller particles, has harmful effects on human health. Estimates of deaths due to respiratory and heart diseases caused by [air pollution](http://www.eoearth.org/article/Air_pollution_emissions) in China vary between 200,000 and 600,000 per year. http://www.eoearth.org/view/article/149933/
  + Of course the status as an underdeveloped nation and the reliance on cheap but often sulfur-rich [coal](http://www.eoearth.org/article/Coal) were severe handicaps in the handling of [air pollution](http://www.eoearth.org/article/Air_pollution_emissions) in the period 1980-1990 and are still a problem in the less developed parts of China. http://www.eoearth.org/view/article/149933/
  + In the early stages of Chinese [economic development](http://www.eoearth.org/article/Economic_growth), the use of [coal](http://www.eoearth.org/article/Coal) and inefficient [boilers](http://www.eoearth.org/article/Boiler), etc., were responsible for high concentrations of particulate matter and [sulfur dioxide](http://www.eoearth.org/article/Sulfur_dioxide) in the air. http://www.eoearth.org/view/article/149933/
* This
  + Estimates of the losses of crops due to air pollution in China vary but the loss due to acid rain could be 2% or higher and can reach levels of 10 to 20% in some provinces http://www.eoearth.org/view/article/149933/
  + Parts of China, especially where the [soil](http://www.eoearth.org/article/Soil) does not contain high concentrations of calcium carbonate, a natural, neutralizing chemical, are affected by [acid deposition](http://www.eoearth.org/article/Acid_rain). http://www.eoearth.org/view/article/149933/
  + Atmospheric aerosols are a complex chemical mixture of solid and liquid particles suspended in air. These sources include the direct emission of fine particles into the atmosphere during the burning of fossil fuels and biomass. http://www.pnas.org/content/96/24/13626.full
    - Causes regional haze that reduce the amount of solar radiation that reaches the atmosphere
  + According to the study …A rudimentary assessment of the direct effect of atmospheric aerosols on agriculture in China suggests that optimal crop yields are significantly affected by regional-scale air pollution and its associated haze. http://www.pnas.org/content/96/24/13626.full
  + In the case of wheat, we found a little more than a 1% increase (decrease) in yields for each 1% increase (decrease) in solar irradiance. For rice, the sensitivity was somewhat lower; i.e., an ≈0.7% increase (decrease) for each 1% increase (decrease) in solar irradiance. <http://www.pnas.org/content/96/24/13626.full>
  + The consequences of [climatic change](http://www.eoearth.org/article/Climate_change) due to the emissions of [greenhouse gases](http://www.eoearth.org/article/Greenhouse_gas) could be quite severe for China. A number of climate models indicate that in the next 50 years [rainfall](http://www.eoearth.org/article/Precipitation_and_fog) in the North-East, already a dry [region](http://www.eoearth.org/article/Region), would be less, while in the South, where flood control already is a problem, it would increase (ref. 10). <http://www.eoearth.org/view/article/149933/>

Citation

* <http://www.eoearth.org/view/article/149933/>

The Encyclopedia of Earth. “Air Pollution in China.” Last modified May 3, 2013. <http://www.eoearth.org/view/article/149933/>

* + - <http://www.pnas.org/content/96/24/13626.full>

Chameides, W. L., Yu, H., and Liu, S. C., “Case study of the effects of atmospheric aerosols and regional haze on agriculture: An opportunity to enhance crop yields in China through emission controls.” *PNAS* 96 (1999): 13626-13633. Accessed November 10, 2015. Doi: 10.1073/pnas.96.24.13626

[Jean Muhlbaier Dasch](http://www.tandfonline.com/author/Dasch%2C+J+M)

Dasch, Jean M. “Nitrous Oxide Emissions form Vehicles”. *Journal of the Air and Waste Management Association* 42 (1992): 63-67. Accessed October 20, 2015 Doi: 10.1080/10473289.1992.10466971

10.1080/10473289.1992.10466971

The good ones

* Present [sulfur dioxide](http://www.eoearth.org/article/Sulfur_dioxide) concentrations in, e.g., Beijing, in the summer are generally quite low and comparable to those found in Western Europe, indicating that China has achieved quite a lot of progress here.
* The reduction of particulate matter concentrations has been considerable, but present levels are still harmful.
* While the energy use in Beijing has increased about 15% between 1998 and 2002, the fuel consumption per 10,000 yuan has gone down in the order of 25%.
* For example, a series of laws, regulations, and standards such as the Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution, the National Ambient Air Quality Standards (GB3095-1996) and the Emission Standards of Air Pollutants for Thermal Power Plants (GB13223-2003) have been formulated and promulgated.

A series of laws were and regulations were passed to regulate the amount of emissions that were accumulated through the years. Three of these laws consisted of the Law of the People’s Republic of China on the Prevention and Control of Atmospheric pollution, the National Ambient Air Quality Standards, and the Emission Standards of Air Pollutants for Thermal Power Plants.

Ma, Xiaoying, and Leonard Ortolano. Environmental Regulation in China: Institutions, Enforcement, and Compliance. Rowman & Littlefield Publishers, Inc., 2000.

1. Nielsen, Chris P., and Mun S. Ho. Air Pollution and Health Damages in China: An Introduction and Review. Cambridge, MA: MIT Press, 2007. [↑](#footnote-ref-1)