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HIS 1250-009 China and East Asia

11/18/15

Pollution in the People’s Republic of China

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 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 air pollution in China is particularly threatening even as it is decreasing recently. 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.

China had a population of 400,000,000 people in the year of 1900. This immense figure also represents the most populated country of 1900. Overpopulation, nonetheless, also contributes to pollution of the environment. As of the most recent consensus, the population has risen to 1,340,000,000 people across the People’s Republic of China.[[2]](#footnote-2) With increasing population, the demands for the production of goods and foods also increases. This increase in industry and production was necessary to supply for the accumulating demand of the population. Even though emissions per head in China were half of that for Europe, and 20% of that of per head in the US, pollution in China is evidently more present due to its immense population.[[3]](#footnote-3) One major contributing factor of this pollution is the major consumption of fuels by the vast presence of automobiles as of recent times. This increasing consumption of fuel due to automobiles has been the cause for the raise of nitrogen oxides emissions in China.[[4]](#footnote-4) This further increases the amount of emissions per head as consumption of fuels such as gasoline is increasing.

This pollution through industrial and automobile emissions has caused grave consequences to the crops yields of China. Such consequences led China to receive marginal yields in crops as the air pollution and atmosphere has been densely polluted by the natural gasses. One aspect of this pollution is the acid rain that rendered the fields inept for farming. “Parts of China, especially where the soil does not contain high concentrations of calcium carbonate, a natural, neutralizing chemical, are affected by acid deposition”.[[5]](#footnote-5) Acid deposition is when water quality is degraded through its lowering of pH levels. Large Provinces could lose approximately 15% of its crops through acid rain.[[6]](#footnote-6)This minimal yield of crops has led to hunger in many homes as prices increased for the low supply and high demand of the crops. Such unfortunate circumstances were only worsened by the drought in the northeast and the increased flooding in the south.[[7]](#footnote-7) This climate change and emissions of greenhouse gases have been a problem since the early 1900’s. Another component of pollution through emissions of greenhouse gases is the increasing density of atmospheric aerosols.[[8]](#footnote-8) These aerosols are a complex chemical mixture of solid and chemical mixtures suspended in air. These particles directly contribute to regional hazing. Regional hazing refers to the limitation of solar radiation that reaches the Earth’s atmosphere.[[9]](#footnote-9) Due to this regional hazing crops don’t receive the optimal amount of sunlight for the desired growth to supply the demand rising in public. In the case of wheat, there seems to be a 1% decrease in yields for each 1% decrease in solar irradiance.[[10]](#footnote-10) Furthermore, rice yields presented a .7% decrease for each 1% decrease in solar irradiance.[[11]](#footnote-11) The present implication of the correlation doesn’t seem too worrisome, but as time goes on and regional hazing accumulates, crop yields may drop correspondingly. Such consequences may be present and probably worse in the future if pollution were to proceed its progress.

One source of pollution that will proceed to exist for years to come is industrial production. Cheap production in China formed a grave dependence on one source for their fuel for industry. This fuel for their industry was coal. Early economic development in China heavily relied on the cheap and sulfur-rich coal which led to trouble as China tried to handle the air pollution problem in 1980-1990.[[12]](#footnote-12) As the major cities have gotten better, some underdeveloped cities still suffer. Coal causes the most pollutant residues as a product of consumption as opposed to other sources of energy. This residue left behind is called Total Suspended Material, which is otherwise known as TSP or aerosol.[[13]](#footnote-13) Recent studies found that TSP concentration is higher in China compared to the present concentrations found in US and European cities.[[14]](#footnote-14) Such suspended material contains coal dust and soot which are very minuscule particles floating through the air throughout the environment. A study has found that “estimates of deaths due to respiratory and heart diseases caused by air pollution in China vary between 200,000 and 600,000 per year”.[[15]](#footnote-15) These miniscule particles are very harmful to health as they are often unavoidable. Some people choose to wear face masks to avoid this harmful residue.

Fortunately, China has taken efforts to reduce said pollution through the years. As of the present, China still portrays evidence of higher pollution than the US or even Europe, but the damage is slowly but surely decreasing. Some countermeasures were taken since 1985 in concern to the pollution problem in the People’s Republic of China. For example, in Beijing energy use may have increased by 15% but the fuel consumption has gone down by 25% since 1985[[16]](#footnote-16). Thus, less greenhouse gasses were released as a consequence. Also, sulfur dioxide concentrations have decreased noticeably in Beijing.[[17]](#footnote-17) 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.[[18]](#footnote-18) These laws and regulations have developed strict restrictions to amount of emissions that were produced in factories. These restrictions, consequently, have reduced emissions and pollution in the environment through the past 20 years.

The primary causes of pollution in China are through overpopulation and industrial production. These causes effect the people of this country gravely through the emissions of gases that create a harmful environment. Cheap and sulfur rich fuel for production such as coal was a very common yet harmful resource. The burning of coal produces TSP and aerosol particles that surround the atmosphere. These particles were harmful for humans along with the agriculture of the People’s Republic of China. These particles restricted the necessary amount of sunlight needed for optimal yield of crops. TSP’s also are harmful as they may be involuntarily breathed in. All these harmful consequences of industry lingered for a long period of time. Fortunately, actions were taken and laws were applied to prevent any further harm from the effects of these emissions. Though it will be a slow journey, the People’s Republic of China will yet again gain a cleaner atmosphere as it had before.

Bibliography

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

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

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

Nielsen, Chris P., and Mun S. Ho. Air Pollution and Health Damages in China: An Introduction and Review. Cambridge, MA: MIT Press, 2007.

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

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)
2. The Encyclopedia of Earth. “Air Pollution in China.” Last modified May 3, 2013. <http://www.eoearth.org/view/article/149933/> [↑](#footnote-ref-2)
3. ibid [↑](#footnote-ref-3)
4. Dasch, Jean M. “Nitrous Oxide Emissions form Vehicles”. *Journal of the Air and Waste Management Association* 42 (1992): 65. Accessed October 20, 2015 Doi: 10.1080/10473289.1992.10466971 [↑](#footnote-ref-4)
5. The Encyclopedia of Earth. “Air Pollution in China.” Last modified May 3, 2013. <http://www.eoearth.org/view/article/149933/> [↑](#footnote-ref-5)
6. ibid [↑](#footnote-ref-6)
7. 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): 13629. Accessed November 10, 2015. Doi: 10.1073/pnas.96.24.13626 [↑](#footnote-ref-7)
8. Ibid., 13628 [↑](#footnote-ref-8)
9. Ibid., 13630 [↑](#footnote-ref-9)
10. Ibid., 13629 [↑](#footnote-ref-10)
11. Ibid., 13629 [↑](#footnote-ref-11)
12. The Encyclopedia of Earth. “Air Pollution in China.” Last modified May 3, 2013. <http://www.eoearth.org/view/article/149933/> [↑](#footnote-ref-12)
13. Ibid. [↑](#footnote-ref-13)
14. Ibid. [↑](#footnote-ref-14)
15. Ibid. [↑](#footnote-ref-15)
16. Ma, Xiaoying, and Leonard Ortolano. Environmental Regulation in China: Institutions, Enforcement, and Compliance. 19 Rowman & Littlefield Publishers, Inc., 2000. [↑](#footnote-ref-16)
17. Ma, Xiaoying, and Leonard Ortolano. Environmental Regulation in China: Institutions, Enforcement, and Compliance. 22 [↑](#footnote-ref-17)
18. Ma, Xiaoying, and Leonard Ortolano. Environmental Regulation in China: Institutions, Enforcement, and Compliance. 25 [↑](#footnote-ref-18)