

**Background Topic Three****Pollution as a source of illness in developed countries***Introduction*<sup>1,2,3,4,5</sup>

Pollution is a problem that has reached millions of those who live and work in the cities of the developed countries of the world. Pollution is any harmful substance or product put into the environment. Pollution can take on many forms, specifically pollution of the air and water. The majority of problems from air pollution occur in the form of health problems such as asthma and even Cancer. This is caused by the consistent breathing in of toxins in the air. The targets of illness from pollution are the elderly, children, women, and those already ill from another disease.

Pollution is a problem that has existed from the creation of the first factories. It has only grown with time as cities have become larger and more industrialized. Most people think that pollution just hurts the ozone layer, yet air pollution alone is the cause of about three million deaths each year. Air pollution can lead to water pollution through air pollution being absorbed by rain which pollutes the water. That water then gets into the bloodstreams of the fish and other animals that humans eat which can then be absorbed by the human body when it eats the animal.

Pollution is a problem that is faced by billions of people; especially those living in some of the most polluted places like China, India, Peru, Russia, Ukraine, and some argue even the United States. It is said that spending one day in Mexico City, Mexico is like smoking an entire pack of cigarettes in one day. Pollution is in fact a global issue. In fact, pollution that takes place in one city can have detrimental effects in another city far away. This is called “Transboundary pollution.”

A main problem dealing with pollution is figuring out how to prevent it. Some actions have been taken by governments in developed countries to help reduce the production of pollution. In cities of the United States, Houston and Atlanta for example, an HOV (High-occupancy vehicle) lane has been created and is designed for those traveling with two or more people in their car. This is meant to promote carpooling for those traveling in, to, or from the city. The HOV lane often moves faster and

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1 <http://www2.scholastic.com/browse/article.jsp?id=4622>

2 <http://www.time.com/time/specials/2007/0,28757,1661031,00.html>

3 <http://www.mibazaar.com/pollutedcities.html>

4 <http://www.articlesbase.com/environment-articles/health-problems-caused-by-air-pollution-22606.html>

5 <http://www.articlesbase.com/environment-articles/health-problems-caused-by-air-pollution-22606.html>

than the other lanes of traffic. The more people who carpool and use the HOV lane, the less Carbon Dioxide that is produced by cars commuting through large cities. This is an example of the problem of pollution and what can be done to prevent it.

### *History*

Pollution has been a problem to the world since as far back as there has been humans. Today, the main source of pollution is from factories people work in, the cars they drive, and the activities they take part in. Pollution does not just harm the environment, but also the health of millions of people throughout the world. The type of pollution that causes the majority of health problems in the world is pollution. This pollution occurs mostly in the cities of the developed countries of the world. According to the WHO, air pollution is estimated to cause about two million premature deaths each year worldwide.

“Pollution of the environment has started with the appearance of humans. When Homo sapiens lighted fire, its smoke proved to be the first environmental pollution”.<sup>6</sup> Smoke and its factors made breathing difficult even for the cavemen, who breathed in the smoke in the close-quarters of their caves. This has even continued in some of the less developed areas of the world where there is little ventilation in their houses.

“The very first pollution of the environment might have been the human excrement”.<sup>6</sup> From the earliest times, human beings have had to release themselves in less sanitary ways than we do today. The feces would then fertilize the plants which humans would in turn eat. This can cause major illness among humans and even today in China this continues to be a problem.

Another type of pollution that has occurred since the early times of humans is lead pollution. “Lead pollution from Roman smelters can be traced all across Europe”.<sup>7</sup> Lead is a common ingredient of gasoline, and has been a main factor in the harming of the ozone layer. Leaded gasoline and the burning of coal are the main benefactors to airborne lead pollution. “Young children are especially vulnerable: lead poisoning of children leads to permanent brain damage, causing learning disabilities, hearing loss, and behavioral abnormalities. In adults lead absorption causes hypertension, blood pressure problems,

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6 “Anthropogenic Air Pollution in the Ancient Times.” 2001. <<http://www.sci.u-szeged.hu/eghajlattan/akta03/005-015.pdf>>.

7 “History.” “Pollution Issues.” 2010. <<http://www.pollutionissues.com/Fo-Hi/History.html>>.

and heart disease”.<sup>8</sup>

Pollution has increased as a problem as modernization, or urbanization, has occurred. Air pollution increases as economic growth occurs. Factories, cars, and the basic burning of fuels generate the majority of air pollution which can cause illnesses from cancer to birth defects. However, it is possible to decrease the production of pollution without slowing economic growth. These are a few ways the United Nations and the World Health Organization have done to help solve the problem of pollution.

The United Nations has taken some steps to help regulate air pollution levels. They annually set guidelines for certain pollutants that regions are supposed to stay at or under. Particulate Matter (PM) is one of these pollutants. “Suspended particulate matter is made up of airborne smoke, soot, dust, and liquid droplets from fuel combustion”.<sup>8</sup> The WHO’s air quality standards state that the concentration of suspended particulates should be less than 90 micrograms per cubic meter. In many cities, this is not the case and the numbers are many times higher.

Another aspect the WHO has focused on when trying to prevent air pollution is the pollutants emitted to the air during the combustion of fossil fuels. They believe this is one of the worst contributors to air pollution. Car pooling and similar activities are being encouraged throughout the world to prevent pollution from the fuels in cars.

The WHO is has been working arduously over the years to prevent air pollution. They have initiated worldwide days of people trying to not smoke tobacco products. In 2008, they had a “World Day for Safety and Health at Work.” The United Nations had also developed the Millennium Development Goals which, among other things, include a goal to use solid fuels for cooking.

This is a brief history of pollution as a health problem for humans. It is also a brief history on what the United Nations, and more specifically, the World Health Organization has done to help prevent the health problem of pollution in the developed places of the world. Delegates should see the footnotes for links to more helpful information.

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<sup>8</sup> “Urbanization and Urban Air Pollution.” 1995. <[http://www.worldbank.org/depweb/beyond/beyondco/beg\\_10.pdf](http://www.worldbank.org/depweb/beyond/beyondco/beg_10.pdf)>.

*Current Situation*<sup>9,10</sup>

Pollution is a problem for most countries that is only continuing to grow. Surprisingly, pollution is a significant problem in countries that are still developing as a whole. Air pollution and water pollution specifically are causing health problems for the people of these developing countries. Recently, a number of incidents have occurred that are adding to the numbers of people affected by pollution.

One city that is especially suffering from pollution is Mexico City. Much of Mexico is still underdeveloped, yet Mexico City is one of the most polluted cities in the world. In a recent study done by members of an Austrian University, out of the top six air pollutants Mexico City had a severe degree in at least four. Also according to the study, “levels of almost any pollutant like nitrogen dioxide (NO<sub>2</sub>) now regularly break international standards by two to three times. Levels of ozone (O<sub>3</sub>), a pollutant that protects us from solar radiation in the upper atmosphere but is dangerous to breathe, are twice as high here as the maximum allowed limit for one hour a year and this occurs several hours per day every day.” This is resulting in many people having serious health problems. Mexico City has nearly 21 million inhabitants and they are all being exposed to possibly long-term problems, all because of the air they are forced to breathe.

Mexico City has done some things to try to keep its occupants healthy and safe from the pollution. For example, according to the above study, Mexico officials have created a day called “HOY NO CIRCULA”, which means “today my car doesn’t move.” The government sporadically sets these days which are meant to encourage the owners of private cars to take advantage of Mexico City’s public transportation and not use their cars which are believed to be a primary source of the city’s pollution. Mexico officials have also implemented programs that require regular maintenance and conditions for vehicle engines. These are only some things that have been and could be done recently to help control pollution in Mexico City.

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9 <http://www.sbg.ac.at/ipk/avstudio/pierofun/mexico/air.htm>

10 <http://www.who.int/mediacentre/factsheets/fs313/en/index.html>



Figure 1: Mexico City on an average day<sup>11</sup>

The World Health Organization (WHO) and United Nations are constantly coming up with more ways to help control pollution and how it affects the world as it is now, and will be in the future. The WHO states on their website that “More than half of the burden from air pollution on human health is borne by people in developing countries. In many cities, the average annual levels of PM<sub>10</sub>(the main source of which is the burning of fossil fuels) exceed 70 micrograms per cubic metre. The guidelines say that, to prevent ill health, those levels should be lower than 20 micrograms per cubic metre.” They clearly are aware that pollution is a problem, especially to those regions still developing.

In 2005, the WHO developed Air Quality Guidelines (AQG’s) that are meant to act as guidelines to nations as to how much pollutants they are emitting into the air each year. (These guidelines can be viewed at the WHO’s website. The link is listed as source number three). The AQG’s also focus on each individual pollutant as to how much of each should be emitted. The AQG’s are eventually meant to help decrease the concentrations of the pollutants admitted from higher to lower concentrations.

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<sup>11</sup> [http://www.google.com/imgres?imgurl=http://top-10-list.org/wp-content/uploads/2009/08/Mexico-City-Mexico-Pollution.jpg&imgrefurl=http://top-10-list.org/2009/08/04/&h=300&w=432&sz=22&tbnid=xQ\\_PesKOcfW4DM:&tbnh=88&tbnw=126&prev=/images%3Fq%3Dpollution%2Bin%2Bmexico%2Bcity&zoom=1&q=pollution+in+mexico+city&usg=\\_\\_Et6yCksPFhdBLmVI3ltGFoAS9RM=&sa=X&ei=MJyNTO68KYOdIgey\\_MBh&ved=0CC0Q9QEwBA](http://www.google.com/imgres?imgurl=http://top-10-list.org/wp-content/uploads/2009/08/Mexico-City-Mexico-Pollution.jpg&imgrefurl=http://top-10-list.org/2009/08/04/&h=300&w=432&sz=22&tbnid=xQ_PesKOcfW4DM:&tbnh=88&tbnw=126&prev=/images%3Fq%3Dpollution%2Bin%2Bmexico%2Bcity&zoom=1&q=pollution+in+mexico+city&usg=__Et6yCksPFhdBLmVI3ltGFoAS9RM=&sa=X&ei=MJyNTO68KYOdIgey_MBh&ved=0CC0Q9QEwBA)

The WHO believes that four of the most common and potent pollutants are Particulate Matter (PM), Ozone, Nitrogen Dioxide, and Sulfur Dioxide. These pollutants can cause most damage to the respiratory system. They cause some problems such as asthma, chronic bronchitis, and lung cancer, among other illnesses as well. They are even starting to be linked to cardiac problems and raised mortality rates.

For more information on pollution and its current happenings, delegates can visit the World Health Organization's website. Also, all of the sources in this background guide may be helpful, as well as some the delegates might find in their own research. Pollution is an on-going problem that is always linked to something in the news. These are only *some* of the actions nations and organizations are taking to battle pollution and its effects on the health of people in all nations, especially those that are still developing.

### *Directive*

Every day, pollution is a problem that could be causing illness to thousands of people in developed countries like the US and China. *Pollution* is termed as the introduction of harmful substances or products into the environment. There are two main types of pollution: air and water pollution. Air pollution is mainly caused by the combustion of fossil fuels for transport, power generation and other activities humans partake in every day. It can also lead people to have severe respiratory problems. Children are most at risk. Also, if the water we use is polluted it can give people many bacterial diseases and effect the food we eat by giving disease to animals. Water pollution is often focused on solely in developing countries, despite the fact that it remains a problem in the cities of even the most developed countries through their sewer systems.

The WHO works as a committee to make decisions on how we should work to prevent and treat disease. Pollution is a main cause of some the diseases faced by many citizens in developed countries. The WHO is constantly faced with making decisions on how to prevent disease. Since pollution is a cause of some disease, the WHO must try to prevent pollution in order to prevent the disease that occurs because of it. The WHO has already tried to solve pollution problems by educating people of the risks of it and by trying to initiate trends such as carpooling and emissions restrictions in the cities.

Delegates should first think about what can be done to make disease from pollution occur less often. The WHO has some things they need to keep in mind when making decisions. For example, when delegates are making their decisions, they must consider the short and long-term consequences their decisions may have. They should also keep in mind the economic and societal repercussions of the solutions they come up with. Delegates should try to come up with ideas about solving air pollution in the cities of developed countries, remembering what has already tried to be put in place to solve the problem of pollution. They should also keep in mind and maybe research faulty water purification and other water pollution problems in cities.