

A Global Perspective of Air Pollution:
Effects on Location, Culture, and Society

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Productions such as Disney-Pixar's *WALL-E* and the motion picture portrayal of Dr. Seuss' *The Lorax* bring a new light to environmental discourse, illuminating the alarming



This is a still image from the Disney-Pixar film *WALL-E* depicting the future of air quality on Earth.

outcomes of an ongoing issue: pollution. The effects of specifically air pollution are evident in both films and stressed as an underlying cause of global destruction. While presented through vibrant animations and upbeat

melodies, the reality of air pollution is bleak.

According to the World Health Organization (WHO) (2018), “air pollution affects all regions, settings, socioeconomic groups, and age groups” (p. 15). The most recent WHO report shows a staggering seven million people die every year as a result of this crisis (CCAC secretariat, 2018). Although the elimination of air pollution as a whole is impossible, additional global efforts to lessen the negative effects of the issue should be implemented in order to stabilize its current threat to locations, cultures, societies, and lifestyles worldwide.

Air pollution—in its many forms—yields numerous consequences with severe implications. As defined by the National Resource Defense Council (NRDC), an organization in the United States prominent for its collection of environmental information, the term air pollution commonly refers to pollutants released into the atmosphere “that are detrimental to human health and the planet as a whole” (Mackenzie, 2016). Air pollution can be natural or man-made as well as outdoor or indoor. For the purposes of this paper, indoor air pollution refers to toxins released from household sources and will henceforth be called [household air pollution](#). Though all types of air pollution have a multitude of probable causes, they are always the result

of contamination through the addition of unusual gases, solids, and liquids into the air (Harris, 2018). John Walke, the director of the Clean Air Project at the NRDC, states that “most air pollution comes from energy use and production” (Mackenzie, 2016). In other words, man-made air pollution poses the greatest threat to the world today. Human causes range from pollutants released through cultural activities—such as the festival of Diwali in India—to emissions of gases from stovetop cooking. In addition to these origins of the issue, the effects of air pollution are extensive and diverse, impacting every aspect of modern life.

Locations across the globe are affected by air pollution, and certain areas contribute to worsening and/or attempt to better conditions surrounding the problem. As described in a TED Talk from Angel Hsu (2018)—an environmental data scientist and Assistant Professor at Yale University—Chinese residents have begun questioning the reasons for the [poor air quality present in the populous country](#), sparking an “environmental awakening of sorts in China and forcing China’s government to tackle its pollution problems.” As the world’s largest air polluter, the country drives the direction of



This is a photograph from Imagine China/Newscom of the thick haze shrouding Tiananmen Square in Beijing as a result of air pollution in 2017.

global efforts to reduce the issue. Though China has approximately “forty percent of the global total of coal-fired power plants” (Hsu, 2018), the nation has also been investing substantially in clean and renewable energy, making it the global leader in hydropower. Efforts to diminish the roots of air pollution are in dire need of leadership; while China is spearheading movement in the

right direction, “citizens in developing countries now face an even higher risk of lung cancer, heart disease, stroke, and other maladies” as a result of poor air quality (Content Team, 2017).

Due to air pollution created by developed countries, underdeveloped nations around the world are negatively affected and, in turn, create additional pollutants. According to the Director-General of WHO, “the poorest most marginalized people bear the brunt of the burden” because they often “lack the technology and resources to fight pollution” (Content Team, 2017). By shedding light on the effects of a major problem in less prominent areas of the world, emphasis is placed on how severe the issue really is and the urgency with which action should be taken. Based on data from the Climate and Clean Air Coalition secretariat (2018), an estimated “three billion people—more than 40% of the world’s population—still do not have access to clean cooking fuels and technologies in their homes” (World Health Organization, 2018, p. 15), which can explain why some regions of Africa, Asia and the Middle East experience “air pollution levels that are several times higher than those considered safe by the WHO Air Quality Guidelines” (World Health Organization, 2018, p. 15). Because many people living in underdeveloped countries burn biomass fuels inside their homes via open fires or poorly functioning stoves, household air pollution levels are highest in these nations (Kurti et al., 2016, p. 1). For these reasons, countries should continue—like China—or begin to invest in alternative energy in order to diminish the amount of pollutants released into the atmosphere.

Along with its locational repercussions, air pollution poses a threat to cultural heritage, a vital component of individual and collective identity. The United Nations Economic Commission for Europe (2015) has found enormous, irreversible damage to materials from the emission of pollutants into the atmosphere. This hazard affects culture through the destruction of cultural

landscapes. Such is seen in Rome, Italy, where 3,600 landmarks made of limestone and 60 made of bronze are at risk of deterioration—according to a recent study from the Institute for



This photograph shows the Roman Colosseum, one of the many monuments being threatened by air pollution, from Digital Vision/Getty Images.

Environmental Protection and Research in Italy and the Institute for Conservation and Restoration of Heritage (United Nations Economic Commission for Europe, 2015).

Similar research in the body of knowledge shows that outdoor concentration of air pollutants “are high across large parts of

Europe” (Ligus, 2017, p.763). The

significance of these findings is that there is a

prominent threat from air pollution to cultural heritage, especially in Europe where many cultures place heavy emphasis on architecture. With the corrosion of architectural materials comes a loss of a sense of cultural identity. For this reason, action should be taken to prevent the further degradation of monuments by promoting efforts to reduce air pollutant emissions.

Differing from the ways culture is jeopardized as a result of air pollution’s effects on landmarks, cultural traditions have been found to impact air pollution levels in specific areas of the world. There is a gap in the body of knowledge regarding the impact of holidays traditionally celebrated with fireworks on air pollution levels; however, one study of the Hindu festival of Diwali (a four to five day celebration also called the Festival of Lights) has uncovered a correlation between the burning of firecrackers and the concentration of pollutants in Delhi, India (Ghei & Sane, 2018, p. 4). Conducted by Dhananjay Ghei, a professor from the University of

Minnesota, and Renuka Sane, a writer from the National Institute of Public Finance and Policy (2018), findings of this study show that pollutant levels “rise up to approximately 100% in a short span of 5 hours” (p. 7) during the main day of Diwali, which is celebrated by burning firecrackers beginning around 18:00 hours (p. 4). Though the festival shows a positive

correlation with air pollution, this correlation does not equal causation. The Delhi government has been pressured to respond to this issue with regulations yielding clean air (Ghei & Sane, 2018), but without direct establishment of the causal relationship of cultural traditions on air pollution levels,

policies limiting cultural activities—such as burning firecrackers—are not widely accepted.

Accordingly, the contribution of cultural activities to air pollution should be further investigated in order to analyze the “cost-benefit analysis of proposed policy measures to reduce air pollution” (Ghei & Sane, 2017, p.10).

In addition to cultural views regarding air pollution, societal perceptions of the problem based on exposure to pollutants influence efforts to improve the issue. An underlying factor that has been found to impact both exposure and perception of air pollution is education. Research conducted on Chicago residents’ by Katherine King (2015)—Senior Data Scientist affiliated with the United States Environmental Protection Agency—reveals that there are “significant associations of stigmatized social characteristics. . .consistent with the view that neighborhood stigma plays a role in residents’ perceptions of air pollution” (p. 3). In other words, criticized



From AP Images, this picture displays Indian children playing with firecrackers to celebrate Diwali, the Hindu Festival of Lights, in Allahabad, India.

sociodemographic differences affect exposure to harmful air particles and contribute to residential beliefs of air pollution. A study published by the National Public Health Institute, carried out by Tuulia Rotko (2004), found that participants with less than 14 years of education had higher mean exposure to nitrogen dioxide (a component of air pollution) than those having more education (p. 82). This could be a result of a number of factors, but the connection between education level and exposure to air pollution is verified in the body of knowledge. Additionally, King (2015) discovered that “Hispanics and Blacks are disproportionately exposed to potentially hazardous conditions near their residences, including pollution” (p.1), potentially as a result of objectively worse physical conditions of minority communities. Social groups comprised of individuals with various education levels and ethnicities are “differentially exposed to neighborhood conditions which lead to their concern about air quality” (King, 2015, p. 18).

Moreover, awareness and education of air pollution plays a large role in how the problem is perceived and responded to. According to King’s (2015) study, [minorities](#) are generally believed to be “less aware of either the level or consequences of nearby pollution risks, and thus may be both more willing to live in polluted areas and less likely to mobilize against existing and new sources of pollution” (p. 4). This data means that those less educated on the issue of pollution (in this case, minorities) are typically less likely to participate in societal efforts to solve the problem. While this claim has not been explicitly evaluated in the current body of knowledge, links between education and ethnicity have been found to influence attempts at clean air programs on a local scale. Minority communities are often stigmatized and viewed with a cultural bias: that these communities cause social dysfunction due to their lack of participation in clean air efforts (King, 2015, p. 1). Because existing social conditions in different neighborhoods

play “a key role in perceptions of air quality” (King, 2015, p. 13) and the “health effects of air pollution can be reduced only via understanding the factors that influence the exposure, perceived annoyance and concern” (Rotko, 2004, p. 4), local governments should aim to increase awareness and education regarding the issue, mobilizing individuals—as well as larger governments—to take action.

Over time, people have adapted their lifestyles to air pollution as a result of its ongoing effects. A study conducted by Zhang Sheng , PhD, and An Ruopeng, PhD, (2018) in Shanghai, China concludes that “individuals [spend] more time watching television under uncomfortable weather conditions” (p. 9), which is consistent with the idea that pollution levels in China discourage outdoor activities and force residents to [turn to indoor activities](#) (such as watching television). Previous studies on more developed nations—primarily the United States and United Kingdom—support this claim by linking elevated pollution levels to increased indoor leisure behaviors (Sheng & Ruopeng, 2018, p. 9). Based on these findings, it is evident that air pollution can force individuals to accommodate to air pollution levels by adjusting their routines. Another study conducted in Belize—regarding how air pollution impacts lifestyles, which affect reported respiratory and non-respiratory symptoms—shows that “elevated levels of household air pollution exposure are associated with increased reported respiratory and non-respiratory symptoms in adults” (Kurti et al., 2016, p. 7), yet behaviors—such as physical activity—lessened the reportings of these symptoms. As established by the body of knowledge, air pollution can alter lifestyles, causing individuals to spend more time indoors, but modifying individual behavior to participate in increased physical activity can mitigate the negative effects of the problem on respiratory functioning.

Similarly, Magdalena Ligus—a professor at the Wrocław University of Economics—analyzes how Polish citizens’ modify their lifestyles in response to air pollution based on individual monetary habits. As seen in China, public outcry over air pollution levels has become so prominent that department stores have even began marketing and selling air purifiers that filter out harmful PM2.5 particles (Hsu, 2018). The findings of Ligus’ (2018) research show that Polish citizens, like Chinese residents, are willing to pay for clean air and clean air products based on individual views of the risks surrounding air pollution. Polish citizens have been found to value mortality and morbidity due to air pollution as the greatest reasons to invest in ways to



The above photograph is of protesters calling for cleaner air during an anti-smog march in Kraków, Poland.

improve residential air quality, promoting the belief that clean air policies “should focus on reducing emissions that cause the strongest adverse health effects” (Ligus, 2018, p. 769) as these are what citizens are most drawn to modifying. Because the body of knowledge

has previously established that severe outdoor air pollution profoundly influences individuals’ daily activities, including health and behavior (Sheng & Ruopeng, 2018, p. 10), investment programs for reducing air pollution should appeal to people’s sense of individual health.

There is a vast array of repercussions associated with air pollution; for this reason, research should continue to be conducted regarding the issue, and action must be taken to prevent an increase. Because it is virtually impossible to control pollutants once they enter the atmosphere, efforts to reduce emissions at the source are critical (Harris, 2018). Further research will add information to the body of knowledge regarding air pollution and its multitudinous

effects, increasing awareness, education, and concern about the problem. Though countries, like China, are taking steps to tackle the crisis, a gap remains between current policies and what needs to happen in order to avoid dangerous impacts to locations, cultures, societies and lifestyles worldwide (Hsu, 2018). As discussed earlier in this paper, clean air efforts should be implemented at the regional and global levels to foster collaboration focused on reducing air pollution.

The future looks grim based on current efforts to reduce and prevent an increase in air pollution levels; however, there is still hope. Although the elimination of air pollution as a whole is impossible, additional efforts to lessen the effects of the issue should be implemented in order to stabilize its current threat to locations, cultures, societies, and lifestyles worldwide. With continued research, individuals will become more educated and aware of the reality of air pollution, and public uproar can galvanize governments to address the severity of pollutant levels. Cooperative international efforts are necessary in order to reduce the amount of air pollution present in the atmosphere, yet global reductions must begin with growing individual concern over the crisis. If individuals are made more aware of the effects of air pollution, they will be able to spark discourse regarding the problem, and local governments will be stimulated to act on the issue: promoting action to be taken worldwide. The journey to global reductions of air pollution is long and strenuous, but movement in the right direction creates a promising, hopeful future for the world, fostering an environment unlike those portrayed in Disney-Pixar's *WALL-E* and the animated retelling of Dr. Seuss' *The Lorax*.

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Project 2: Rhetorical Rationale

The decision to investigate air pollution through a global lens stemmed from my Viral Campaign group. We each chose a different perspective to investigate our issue, and I was drawn to analyzing the connection between air pollution, locations, cultures, societies, and lifestyles worldwide. After determining these subtopics, I gathered sources based on the Annotated Bibliography project (ensuring I had a balance of scholarly and non-scholarly sources) and how the information presented in each source would develop my claim. I collected sources discussing various aspects of each subtopic, which helped during the writing process as I was able to connect data from numerous resources.

Regarding the images present in my paper, I personally chose to utilize photographs as a form of logos and pathos, engaging the audience's emotions through visuals. Every visual used is placed in the paragraph corresponding to the topic, and captions are underneath to provide context. I chose not to include references to the pictures in my paper (for example, "see Image 1") because I personally think the images are able to stand on their own, and their placement—along with captions—provide sufficient information. All images are wrapped by the text, have ½" margins, and are either left or right aligned in order to maintain organization and aesthetic appeal throughout the paper.

The hyperlinks I employ in my paper provide supplemental information if a reader has a question regarding a term/concept used or simply desires to learn more about a specific topic. Each link is embedded in the paper through a key-word or phrase that the audience may read and request additional knowledge on. Because it is generally known that many readers choose not to

click on hyperlinks, I did not hyperlink any information that was pertinent to my claim on air pollution.