

Forum: Environmental Committee

Issue: Measures to prevent mass migration linked to air pollution

Student Officer: Valentina El Kadi

Position: Deputy President

INTRODUCTION

Air pollution is a phenomenon that has been plaguing the world extensively. Its repercussions extend from environmental degradation to health concerns, which result in mass migration of populations. Some major causes of air pollution are the burning of fossil fuels, factory work, industrial and incineration processes, exhaust fumes from cars and other transportation vehicles, indoor air pollution from Volatile Organic Compounds, and agricultural activities.

Environmentally displaced people due to environmental factors is relatively complicated due to the current global climate and the rate in which environmental problems influence migrations. Not only does environmental migration involve both international and domestic displacements due to anthropogenic or natural environmental problems, but the rights of such migrants are ones every human deserves, as reinforced by the Universal Declaration of Human Rights. Environmental degradation - either gradual or sudden - is a phenomenon in which permanent or temporary displacement may take place. Taking into consideration the complex situation, although the environmental aspects do play a predominant role, cultural and socio-economic factors are also interconnected with migration.

Although the burning of fossil fuels, factory work, industrial and incineration processes, exhaust fumes from cars and other transportation vehicles, indoor air pollution from Volatile Organic Compounds and agricultural activities emit large masses of pollutants into the air, they are also a permanent part of business activity and humans' daily lives, and are essential to economic growth. It is certain that there are consequences, however, most people use cars for transportation, millions of people's work is dependent on factory work and/or extraction of natural resources, agricultural activities, incineration of waste, the burning of fossil fuels, and even the manufacturing of those vehicles.

Because there are so many pollutants like Carbon Dioxide (greenhouse gas), Nitrogen Oxide, Sulphur Oxide (which creates acid rain), Carbon Monoxide, Volatile Organic Compounds and other dioxins, it is evident that human activity vastly claims responsibility for influencing

about 4.2 million premature deaths annually, as confirmed by the World Health Organization¹, increasing the amount of air pollution and global warming. Climate change is a consequence of both human induced emissions of the Greenhouse effect, as well as global warming.

Human health problems are linked to air pollution because it has a serious toxicological impact. Both short- and long-term exposure to the aforementioned gases cause a number of respiratory diseases, cardiovascular diseases, skin diseases and possible irritation of the eyes. In addition, to the extensive morbidity (mostly respiratory) and impermanence (due to the diseases influencing cardiovascular and respiratory systems) progression of diseases like lung cancer, asthma and fetal growth (as a result: low birth weight) has also been evident.

The emissions of Greenhouse gases, which result in the Greenhouse Effect and global warming, play a significant role in air pollution. The temperature of the Earth is a balance between the energy it gets from the Sun and the energy radiated by it back into space. Most of the heat that would normally be radiated out into space, is absorbed by gases in the atmosphere and is re-radiated in all directions, with one of those being back to the Earth. This is beneficial, because without this process occurring at night, energy would not be kept in, and the earth's temperature would critically decrease. Nevertheless, greenhouse gases like carbon dioxide, water vapor, and methane do the opposite - they keep energy inside the earth. Due to humans increasing the amount of carbon dioxide emissions, and other greenhouse gases, like nitrous oxide and Chlorofluorocarbons (CFC), the greenhouse effect has profoundly been enhanced.

The reduction of ambient air pollution can be from policies and investments, which support clean energy for household and transport, sustainable use of land and natural resources, generation of power and more effective and sustainable waste management. As air quality affects ecosystems and climates globally, types of polluters, like fossil fuels and CO₂ emissions, which happen to be sources of greenhouse gases, ought to be minimized.

DEFINITION OF KEY-TERMS

Air Pollution

This term refers to pollutants being released into the atmosphere by human induced activities, like industrial processes, exhaust fumes from vehicles, fossil fuel burning, and more. Air pollution is one of the main environmental problems humanity faces today, as it not only

¹ World Health Organization. (n.d.). *Air pollution*. World Health Organization.
https://www.who.int/health-topics/air-pollution#tab=tab_1.

causes detriment to the environment and the world's animals, but also to human health. It is because of air pollution that people decide to migrate to regions with lower rates of air polluting sources.

Fossil fuels

Fossil fuels are non-renewable sources of energy. They are most burned for the purpose of generating energy used in humans' daily patterns, like energy for cars and other related vehicles, light and electricity for domestic and industrial utilization, gas, coal, and oil. Nevertheless, fossil fuel burning is one of the main sources of air pollution, which includes a combination of human-induced greenhouse gas emissions, driving global warming, and climate change being a likely and imminent outcome.

Incinerators

Incineration is a combustion apparatus designed for high temperature operation in which solid, semisolid, liquid, or gaseous combustible wastes are ignited and burned efficiently and from which the solid and gaseous residues contain little or no combustible material.² Since the percentage of human waste in plastic and other waste materials is quite high, the amount being incinerated is proportional to that amount. Consequently, the amount of air pollution incineration causes is large.

Climate refugee

Climate refugees refer to people who are displaced from where they live due to unprecedented changes in the environment in that region. They may leave due to the health problems that arise with increased amounts of air pollution or due to natural disasters as a result of climate change. Many that live in these climate "hotspots" often find it difficult to recover as they habitually don't have the required resources to adapt to the environment that increases hostility. This may affect impoverished communities more.

Migration

Migration of humans means people moving from one place to another with intentions of settling, permanently or temporarily, at a new geographic region. The movement often occurs over long distances and from one country to another, but internal migration (within a single country) is also possible. People migrating from their home are often in urgent need of humanitarian aid, as air pollution not only makes people migrate because of health problems,

² "Home." *Law Insider*, www.lawinsider.com/dictionary/incinerator.

but also contributes to the emergence of several natural disasters like tsunamis, earthquakes, hurricanes, tornados, extreme temperature, and volcanic eruptions. People that would be affected by such disasters and have no choice but to migrate would have lost all their possessions and home, and refugee and humanitarian agencies would get involved. People that simply choose to leave due to the health risks of air pollution or simply due to comfort, would often not require some sort of humanitarian aid.

Ozone layer

It is a layer in the earth's stratosphere that contains a large concentration of ozone. It's a thin part of the Earth's atmosphere which absorbs most of the harmful ultraviolet light from the sun.³

Aerosol particles

Aerosol particles consist of very finely subdivided liquid or solid particles dispersed in and surrounded by a gas.⁴

Anthropogenic emissions

Greenhouse gas emissions and aerosols produced by human activities are anthropogenic emissions. Human activities primarily entail deforestation, industrial processes, and the burning of fossil fuels.

Smog

One of the two most prevalent sorts of air pollution is smog, which are emissions from combustion fossil fuels that react with sunlight⁵.

Soot

Soot is a byproduct of burning fossil fuels (e.g coal), dust, chemicals, smoke, soil, either as solids or gases.

³ National Geographic Society. (2012, October 9). *ozone layer*. National Geographic Society. <https://www.nationalgeographic.org/encyclopedia/ozone-layer/>.

⁴ "Aerosol." *Aerosol - an Overview | ScienceDirect Topics*, www.sciencedirect.com/topics/earth-and-planetary-sciences/aerosol.

⁵ November 01, 2016 J. M. (2021, April 15). *Air Pollution: Everything You Need to Know*. NRDC. <https://www.nrdc.org/stories/air-pollution-everything-you-need-know#sec3>.

Ecosystem

For an ecosystem to be called as such, it should include a community of animals and plants, as well as other organisms, in addition to abiotic aspects, such as the soil, water, air, rocks and trees.

Sulphur dioxide

“A poisonous gas with an intense smell used in the industry that causes air pollution⁶.”

Carbon Monoxide

It is an odorless and colorless gas which is flammable. It can be released through thermal combustion and is used by humans for various industrial processes. Nevertheless, this air pollutant that arises from industrial activities as such plays a role in climate change.

Volatile Organic Compounds

These have high vapor pressures and are usually made by human-made chemicals which can be used in pharmaceuticals and even paints. Some of the chemicals are harmful to health, either long or short term. The concentrations of these compounds can be found mostly indoors because they are used in household products.

BACKGROUND INFORMATION

Causes of air pollution

Transportation vehicles

Transport vehicles contribute profoundly to air pollution as they emit large amounts of carbon monoxide and nitrogen oxides. Although the European Union (EU) has set maximum limits on how much air pollution is safe for humans, populations in urban areas have extensively surpassed these safety limits, primarily because of the grand number of cars and buses existing in these areas. From an economic perspective, the mass production of cars, vans, trucks, and motorcycles provide plenty of labor opportunities and result in the economic growth of that area. Even the tires, plate glass, machines, engines, and generally all the components used to manufacture such vehicles, help stimulate other industries involved in

⁶ *sulphur dioxide*. sulphur-dioxide noun - Definition, pictures, pronunciation and usage notes | Oxford Advanced Learner's Dictionary at OxfordLearnersDictionaries.com. (n.d.).
<https://www.oxfordlearnersdictionaries.com/definition/english/sulphur-dioxide>.

making them. Even the petrol, used to power the vehicles, gives work to those extracting it and refining it.

Burning of fossil fuels

Coal, petroleum, and natural gas are all types of fossil fuels, which are burnt for energy. Although useful in terms of energy, the burning of such substances causes carbon dioxide (greenhouse gas) to be released as a by-product. The carbon dioxide emissions, which are increased by industrial processes and engine exhaust fumes, re-radiate heat that would normally be radiated out into space in all directions, including the Earth. This process is beneficial when it comes to keeping energy in the Earth's atmosphere at night, because else the temperature would decrease. Nevertheless, greenhouse gases, such as carbon dioxide, do the opposite and energy is kept in the Earth's atmosphere, creating one of the effects of global warming.



ning of fossil fuels

While fossil fuels are burnt, unburnt hydrocarbon particles can be released. Incomplete combustion may lead to carbon monoxide or soot (particulate carbon) being released. This

⁷ "Fossil Fuel Profits Could Drop by \$25T as Demand Falls." *Anadolu Ajansı*, www.aa.com.tr/en/economy/fossil-fuel-profits-could-drop-by-25t-as-demand-falls/1866392.

results in negative effects on the environment and human health. Primarily, carbon monoxide binds with hemoglobin (in red blood cells) as a poisonous gas, which obstructs the process of oxygen being circulated around one's body. Prevention of the circulation of oxygen around the body is detrimental for a human, as it puts a strain on the heart, and can even be fatal in large doses. Moreover, it is also often hard to identify if it's being inhaled due to its odorless and colorless nature, putting people living in an area with high carbon monoxide concentration levels in severe risk of experiencing such problems with their red blood cells - a vital component of the blood. In addition, the unburnt particles are also particularly harmful to human health as they may facilitate the development of asthma due to the irritation of one's lung lining. Particulates of smaller size, which may also be released from industrial work and diesel exhaust, can move deep into lung tissue and damage it, often leading to heart diseases and cancer. Furthermore, Sulphur impurities are also contained in some fossil fuels, like diesel fuel burnt in ships or coal burnt in some power stations⁸. When reacted with water and oxygen in the air, acid rain (dilute solution of sulphuric acid) is made. The effects of acid rain are disastrous not only to whole ecosystems - but to buildings and human lives too.

Diesel exhaust

Diesel exhaust is a type of internal combustion engine. Its components have been added to the list of human carcinogens and linked to further damage to human health. Although not as significant as the burning of fossil fuels, diesel exhaust also contributes extensively to air pollution. In addition, Sulphur dioxide is released, which is both corrosive and damaging. Severe risks emerged by Sulphur dioxide and acid rain are degradative wildlife, marine life, plants, and trees.

Nitrogen dioxide emissions

It is estimated that about 70% of nitrogen dioxide concentrations are a result of road transport⁹. The European Environment Agency has estimated that the World Health Organization's and European Union's nitrogen oxide limits set for European urban populations for nitrogen oxide exposition have been exceeded by around 7%. Although not found in fuels, car engines with high pressure and temperature can bring nitrogen and oxygen - found in the air- to react together to make nitrogen dioxide. Nitrogen dioxide is also a cause of acid rain and

⁸ BBC. (n.d.). *Air pollutants - The atmosphere - AQA Synergy - GCSE Combined Science Revision - AQA Synergy - BBC Bitesize*. BBC News. <https://www.bbc.co.uk/bitesize/guides/zym2k2p/revision/7>.

⁹ *Road vehicles and air quality*. Visit the front page! (n.d.). <https://www.transportenvironment.org/what-we-do/air-quality-and-transport/road-vehicles-and-air-quality>.

can also create photochemical smog¹⁰. Smog itself is hazardous - causing asthma and heart attacks.

Extraction of natural resources

The amount of dust released due to coal extraction is unparalleled with anything else. Extensive quantities of dust advance to other populated regions nearby by the wind. People, who are exposed to great amounts of dust, like people who live in/around coal mining regions or work in the mining industry, are the ones who suffer the most from diseases because of the inhalation of coal. Some indicatory diseases are kidney disease, cardiopulmonary disease, and even chronic obstructive pulmonary disease (COPD). Underground mining for coal also allows for large fragments of land and rock to surface. These, when mixed with air or water, can be toxic.

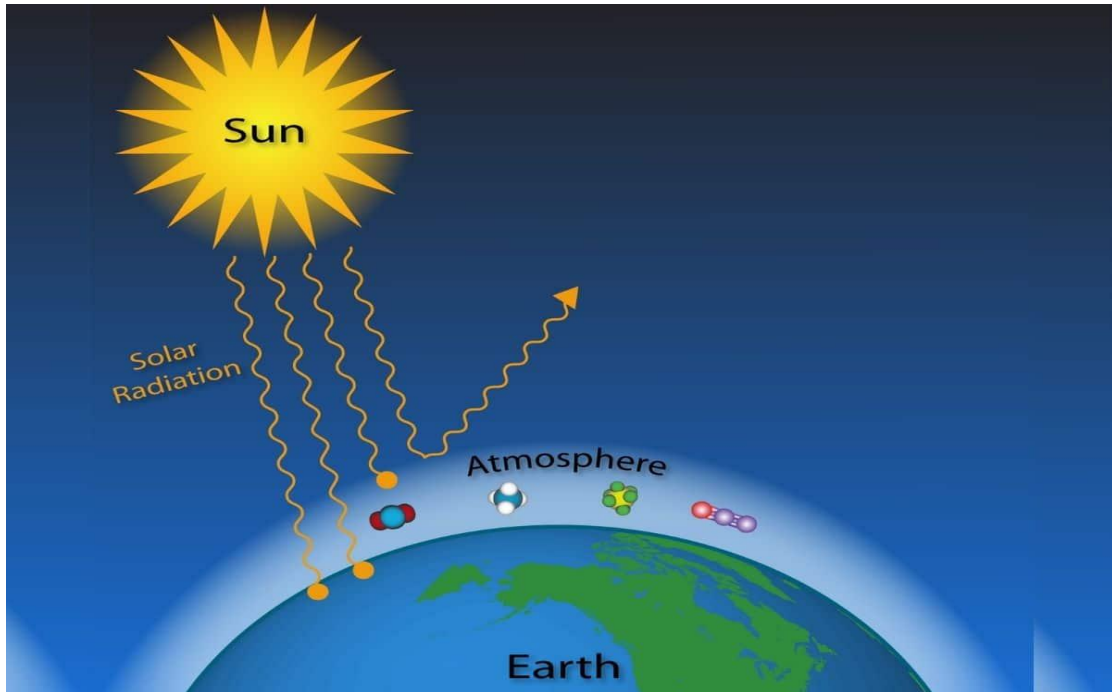
Environmental effects

Air pollution is a circumstance in which several factors contribute to its emergence. For example, transportation vehicles, burning of fossil fuels, diesel exhaust, nitrogen dioxide emissions, extraction of natural resources, natural disasters, incineration processes, and industrial processes in general. Along with air pollution comes menace to the environment, as it facilitates the development of global warming, climate change, and acid rain. Interestingly enough, natural disasters are a cause as well as a consequence of air pollution. This intricately connected relationship between the two is a threat to the environment.

Global Warming

Global warming is perhaps one of the biggest and most detrimental repercussions of air pollution, with a lot of environmentalists having expressed profound concern over it. Due to the large amount of carbon dioxide, methane, and overall greenhouse gas emissions, global warming is considered a direct consequence of air pollution substances. Carbon dioxide, amongst other particles that trap heat into the atmosphere, is released when humans burn fossil fuels, have any kind of industrial activity (factories and companies), extract natural resources, consume meat, and drive vehicles. This incidentally links air pollution and global warming back to human activity. As human induced activities continue to release these greenhouse gases, particles that trap heat increase in atmospheric concentration and build up over time. Inevitably, more detrimental environmental phenomena, like global warming, result.

¹⁰ BBC. (n.d.). *Air pollutants - The atmosphere - AQA Synergy - GCSE Combined Science Revision - AQA Synergy - BBC Bitesize*. BBC News. <https://www.bbc.co.uk/bitesize/guides/zym2k2p/revision/7>.



he greenhouse effect works

However, aerosol particles are mostly compact near their sources. Instead of concentrating into the atmosphere and building up, they don't tend to linger for long in the atmosphere. Regardless of how much these particles are emitted, the concentration in the atmosphere does not build up.

Climate change

Climate change is a consequence of global warming and simply means that as the temperature of the planet increases, the climatic cycles are profoundly irritated. Essentially, the changes in the climatic cycle are catalyzed dramatically. Because of climate change, the melting of glaciers and ice caps, as well as the rising of sea levels, flooding and increased amounts of natural disasters, like tsunamis, surface. Natural disasters are responsible for a large percentage of migration related to the environment, and although migration due to natural disasters does not implicitly mean air pollution is entailed, natural disasters themselves can be traced back as one of the repercussions of excessive air pollution.

¹¹ Collins, Karina. "What Is the Greenhouse Effect?" *NoMorePlanet.com*, 23 Feb. 2021, nomoreplanet.com/greenhouse-effect/.

Acid rain

The burning of fossil fuels is one of the sources of air pollution linked to human activity. Gases like Sulphur dioxide and Nitrogen oxides are released during this burning process and are also released through power plants, boilers, transport, industries, and heating. The very accumulation of such toxic substances form two acids: sulphuric and nitric, which turn into dilute solutions. Eventually, those concentrations become acid rain. The unfortunate repercussions of such rain come at the cost of the environment and landmark surfaces. Surfaces of national, as well as historical artifacts, have been ruined due to the acid rain. The environment also faces reprehensible destruction.

The effects of acid rain are intense on the world's ecosystem, and because all parts of an ecosystem are interconnected, the problem is that if one part is harmed, all of it is negatively impacted, regardless of its overall role in that ecosystem. From a plant to the water supply to the air encompassing it, or even one species of animals and soil, each part is equally important. The effects of terrestrial and marine life are also quite prevalent. With marine life, acid rain inevitably enters any sort of aquatic environment and water source and pollutes it. In places such as lakes and streams, the health of fish and other marine animals is impaired. In terrestrial, acid rain flows through soil.

On the one hand, there are components of ecosystems that are somehow able to handle the acidity of the waters. On the other hand, some don't, and are quite sensitive to the acidity levels. For instance, young animals or plants would be less tolerant and possibly lost as a result of a declining pH. For example, a large majority of fish eggs have an inability of hatching at a level 5 pH, affecting adult fishes, as at levels lower than a pH 5, they would be unable to survive and often die. In lakes, where the level of acidity is extensively high, fish do not populate there. Although some types of fish can handle acidic waters, other plants and animals cannot. For instance, mayflies are unable to tolerate a pH below 5.5 and frogs can handle up to 4 pH¹².

Acid rain has a profound impact on plants and trees as minerals and nutrients are removed from the soil, so the trees are unable to seek the necessary nutrients to grow. This is because the acid rain leaches aluminum from the soil. In addition, at high elevations, clouds and acidic fog drain all necessary nutrients from the trees' greenery that are used for tree development. Plants are producers, and as their leaves are brown or completely dead, they lack the chlorophyll necessary to absorb sunlight to carry out photosynthesis and make food. Although the acidity and aluminum in acid rain is quite destructive and significant in one's

¹² Environmental Protection Agency. (2020, May 4). *Effects of Acid Rain*. EPA. <https://www.epa.gov/acidrain/effects-acid-rain>.

understanding, it cannot be denied that another highly prevalent effect of acid rain is the pollution of nitrogen it causes, as it also contains nitrogen. The world's coastal waters, for instance, suffer from nitrogen pollution, and are responsible for the minimization of fish in those regions.

Human health concerns linked to air pollution

According to the World Health Organization (WHO), around 92% of the global population¹³ lives in places with high levels of air pollution. Air pollution is not barricaded at economic or social boundaries. Both MEDC's and LEDC's are both severely affected by high air pollution rates.

Because a large percentage of air pollution results from mining and the extraction of natural resources, human exposure to this dust reverberates in diseases and breathing problems. People that live near these coal mines, as well as the miners who work there will mostly suffer from diseases like cardiopulmonary disease and kidney disease. Because these risks are too much to handle, especially for people who are already vulnerable and susceptible to such diseases, migration is often a solution for many as they have no choice. A place without coal mines, or a rural area with minimal cars and transport infrastructure may be the choice.

Furthermore, incineration methods also contribute vastly to air pollution and unfortunately impact the health of humans. For instance, manufactured products like plastic are burnt in incineration systems and release various unsafe gases, such as hydrochloric acid and sulphur dioxide. Not only does sulphur dioxide cause acid rain, but the carcinogenic chemicals released during incineration processes exacerbate the risk of human respiratory systems, as they are inhaled. One significant aspect of the incineration process is that a substantial amount of Carbon Dioxide (CO₂) is released. The fact that Carbon Dioxide is a Greenhouse gas proves detrimental after a period of time and creates the "Greenhouse effect". Unfortunately, there are limited benefits to the greenhouse effect as it extensively adds to global warming.

In Less Economically Developed Countries (LEDCs), household air pollution is one of the main causes of any sort of related disease and death. Cooking fires emit large quantities of smoke, the inhalation of which has caused 3.8 million deaths¹⁴ that have been traced back to these cooking fire emissions. In addition, the burning of any sort of fuel, primarily coal and

¹³ World Health Organization. (n.d.). *WHO releases country estimates on air pollution exposure and health impact*. World Health Organization. <https://www.who.int/news/item/27-09-2016-who-releases-country-estimates-on-air-pollution-exposure-and-health-impact>.

¹⁴ World Health Organization. (n.d.). *Household air pollution and health*. World Health Organization. <https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health>.

wood, produce a multitude of harmful pollutants that are damaging to human health, such as carbon monoxide, particulate matter, and methane. Particularly, particulate matter has been traced back to severe health concerns as it has been shown that it has the capability of penetrating organs and tissues¹⁵. Respiratory illnesses and cancer are some of the outcomes that can be presented to adults and children alike can be the result of indoor air pollution exposure¹⁶.

Migration

As air pollution increases worldwide, and health concerns are becoming more and more prevalent, people of vulnerable health groups, who do not want to risk their health, are migrating to areas with less air pollution. Instead of living next to a coal mining area, next to a highway where lots of cars pass by or even next to a factory, people migrate elsewhere.

Amongst many, other reasons why air pollution increases migration is due to the knock-on effects air pollution has. As a large majority of gases like carbon dioxide are emitted, the warming of the earth through the global warming caused by such gases is linked to several natural disasters and climate change. People's livelihoods are ruined by natural disasters like tsunamis, which ruin the infrastructure of whole cities and towns, killing thousands, and often displacing everyone there. The five most destructive tsunamis in the modern world were: Sumatra, Indonesia and Thailand, Maldives, Sri Lanka and other countries in 2004 - Maule, Chile and other countries in 2010 - Sendai, Japan and other countries in 2011 - Palu, Sulawesi, Indonesia in 2018 - Sunda Strait, Java and Sumatra, Indonesia in 2018.

The returns of people displaced due to air pollution and general climate has been hindered, as the areas people have been moving from are now potentially dangerous and fragile to facilitate the problem population of people due to the severe climate impacts. Repatriation of refugees has decreased from 1990 onwards from 15 million¹⁷ in the 1990s to about 10 million¹⁸ in the early 2000s. In the recent decade, about 3.9 million¹⁹ people are

¹⁵ World Health Organization. (n.d.). *Household air pollution and health*. World Health Organization. <https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health>.

¹⁶ World Health Organization. (n.d.). *Air pollution*. World Health Organization. https://www.who.int/health-topics/air-pollution#tab=tab_3.

¹⁷ United Nations High Commissioner for Refugees. (n.d.). *Climate Change and the Future of Safe Returns*. UNHCR. <https://www.unhcr.org/protection/environment/5fb28b504/climate-change-future-safe-returns.html>.

¹⁸ United Nations High Commissioner for Refugees. (n.d.). *Climate Change and the Future of Safe Returns*. UNHCR. <https://www.unhcr.org/protection/environment/5fb28b504/climate-change-future-safe-returns.html>.

barricaded from repatriation from their displaced regions. Although the predominant phenomenon influencing these statistics are from conflicts and instability, climate effects are also a major part of this trend.

Climate refugees

Extreme weather events, environmental degradation, rising sea levels and cyclones are responsible for about 20 million²⁰ people migrating annually. People who do migrate due to their climate are often known as a “climate refugee”. Climate change compounded by air pollution affects people in domestic regions more commonly, rather than reaching a point of displacing people internationally. In this case, the criteria used in the 28 July 1951 Convention relating to the status of refugees, alternatively known as the 1951 Refugee Convention, can be applied with regards to refugee laws. People affected by climate change or natural disasters that are forced into migration and displacement have the right to call themselves refugees and receive basic rights and assistance. Nevertheless, the UNHCR has not endorsed the term “climate refugee” but uses the term “persons displaced in the context of disasters and climate change.”

Uninhabitability

Experiencing climate impacts is common in a plethora of nations, and about 1 degrees Celsius²¹ is the temperature of current warming levels, which is largely above pre-industrial ones. The risk of regions being deemed uninhabitable later on is a risk climate change renders. The magnitude of climate impacts and the socio-political system’s ability to respond to such impacts heavily determines how habitable it will be.

MAJOR COUNTRIES AND ORGANIZATIONS INVOLVED

Bangladesh

According to an IQAir research of 106 countries in 2020, Bangladesh is ranked first as the country with the worst air quality, and its air quality was at unhealthy levels²². There has

¹⁹ United Nations High Commissioner for Refugees. (n.d.). *Climate Change and the Future of Safe Returns*. UNHCR. <https://www.unhcr.org/protection/environment/5fb28b504/climate-change-future-safe-returns.html>.

²⁰ United Nations High Commissioner for Refugees. (n.d.). *Climate change and disaster displacement*. UNHCR. <https://www.unhcr.org/climate-change-and-disasters.html>.

²¹ United Nations High Commissioner for Refugees. (n.d.). *Climate Change and the Future of Safe Returns*. UNHCR.

²² *Air quality in the world*. IQAir. (n.d.). <https://www.iqair.com/us/world-air-quality>.

also been an estimate of about 13-22% of regional deaths being traced back to the health effects of excessive exposure to air pollution.

Pakistan

In addition to water and noise pollution, natural disasters and pesticide misuse, Pakistan is home to high air pollution levels, as well as ranking high in the list of countries that extensively experience substandard quality of their air. This has also been confirmed by the Environmental Performance Index (EPI), which provides summaries of the sustainability state of each nation globally. Unfortunately, the citizens of Pakistan are subject to alarming issues like global warming and climate change caused by deforestation and carbon emissions. As the population grows and the economy expands, their environmental problems are getting worse. There have been several attempts by a plethora of NGOs; however, environmental degradation in Pakistan is still prevalent today.

People's Republic of China (China)

China is one of the largest air polluters in the world, and also happens to be responsible for big changes in Chinese migration rates. Statistics have shown that approximately 2.8%²³ migration in a country can be influenced by a 10% air pollution increase. The rapid industrialisation of China has led to political and socio-economic problems in the country. Although Chinese leaders have presented measures for the intent of improving air quality, obstacles are being faced as an equal balance between environmental welfare and economic growth seems unable to be achieved. One main reason why the air quality is unhealthy is because the main energy sources used to facilitate the growth is coal. More specifically, 76.2%²⁴ Energy in China was powered by coal in 1990. Coal still accounts for about 57.7%²⁵ in 2019. With such high rates of air pollution, people populating more urban regions in China migrate to the countryside to escape all the risks and discomfort caused by air pollution.

Peru

²³ "The Effect of Air Pollution on Migration: Evidence from China.",
<http://econ.msu.edu/seminars/docs/migrationmain.pdf>

²⁴ *Is air quality in China a social problem?* ChinaPower Project. (2021, February 26).
<https://chinapower.csis.org/air-quality/>.

²⁵ *Is air quality in China a social problem?* ChinaPower Project. (2021, February 26).
<https://chinapower.csis.org/air-quality/>.

Peru is a Latin American country which suffers from high rates of ambient particulate matter air pollution. Peru's particulate matter concentration stands at about 30.8 micrograms per cubic meter. As a country that from approximately 1970-1990s, dealt with severe political violence, such as armed conflicts. Displacement of about 12,000 families from Lima due to these conflicts was prevalent and common. Recently, although migration for economic reasons has been occurring, the poor conditions and rising prices of properties in Lima is also why people migrate. Although this is not directly associated with air pollution, shantytowns to shelter all those migrants have resulted in hazardous living conditions, like no access to water or electricity. Migrants in Peru are often subject to health disparities as a result of these conditions.

Republic of Chile (Chile)

The Southern part of Chile, particularly the city of Coyhaique, in 2020 was considered the most polluted city in Latin American. This find is based on the concentration of fine particulate matter, which is about 33.3²⁶.

Sweden

Sweden is considered to be one of the least air polluted countries in the world, having a score of 2.8/10²⁷. While deaths traced back to air pollution are about 0.4 per 100,000²⁸ per capita per annum, 68.9%²⁹ of the country is composed of forest areas. Although their kg of waste is about 446.505 kg, they are still doing a good job when it comes to managing their air pollution metrics.

United Nations High Commissioner for Refugees (UNHCR)

The UNHCR has continuously provided assistance and protection to displaced individuals and refugees that have been affected by climate change. Moreover, the UNHCR has also provided assistance with regards to strengthening their resilience to future disasters. It has held conventions, such as the Convention relating to the status of refugees on the 28th of July, 1951 and the 1967 Protocol.

²⁶ Alves, B. (2021, April 12). *Most polluted cities in Latin America 2020*. Statista. <https://www.statista.com/statistics/1029132/latin-america-air-pollution-city/>.

²⁷ *Mapped: Europe's Most and Least Polluted Countries*. GreenMatch. (n.d.). <https://www.greenmatch.co.uk/blog/2018/11/mapped-europes-most-and-least-polluted-countries>.

²⁸ *Mapped: Europe's Most and Least Polluted Countries*. GreenMatch. (n.d.). <https://www.greenmatch.co.uk/blog/2018/11/mapped-europes-most-and-least-polluted-countries>.

²⁹ *Mapped: Europe's Most and Least Polluted Countries*. GreenMatch. (n.d.). <https://www.greenmatch.co.uk/blog/2018/11/mapped-europes-most-and-least-polluted-countries>.

International Organization for Migration (IOM)

The IOM has a principle that migrants and society in general benefit through migration. It acts with partners in the international community to help operational challenges regarding migration to be met, spread awareness on issues surrounding migration, stimulate socio-economic development through migration and uphold the well-being of migrants.

TIMELINE OF EVENTS

DATE	DESCRIPTION OF EVENT
Enacted first in 1963	Clean air act is put into force
March 22nd, 1985	The Vienna Convention for the protection of the Ozone layer is signed and ratified
8th July, 1985	Protocol to the 1979 Convention on Long-Range transboundary Air Pollution on the minimum 30% reduction of Sulphur Emissions or their Transboundary Fluxes
January 19-21 st 1992	Nyon conference on “Migration and the Environment” takes place
9 May, 1992	United Nations Framework Convention on Climate Change is adopted
April 1996	The international Symposium for the “Environmentally Induced Population Displacements and Environmental Impacts Resulting from Mass Migrations” takes place in Switzerland.
25th June, 1998	Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, alternatively known as the Aarhus Convention is signed and ratified
July 2001	74th session for the making of a Strategic Framework for a policy on Migration in Africa

	takes place in Zambia. Its purpose is for the African heads of state to take it into consideration.
19 September 2016	New York Declaration for Refugees and Migrants takes place

RELEVANT UN RESOLUTIONS, TREATIES AND EVENTS

Vienna Convention on the protection of the ozone layer

This multilateral environmental agreement of 1985 issues frameworks for an international decrease of chlorofluorocarbons (CFC), as they contribute to the ruining of the ozone layer. It included provisions such as urging for international agencies to be adopted for the purpose of evaluating the harmful effects of a diminished ozone, as well as to promote policies, which serve the purpose of monitoring the making of substances, which are harmful and negatively impact the ozone layer. The Vienna Convention also incorporates an educational feature, which promotes knowledge on the impacts/ effects of the ozone layer by conducting of climate and atmospheric research.

United Nations Framework Convention on Climate Change

This international environmental treaty addressed climate change and took place in the Earth Summit (UN Conference on Environment and Development) in 1992. The MEDCs were urged to adopt national policies and take measures corresponding to the policies with regards to reducing climate change. To do this, they had to report their steps towards the aim of reduction of anthropogenic emissions of greenhouse gases. The MEDCs were supposed to turn in their inventories to this convention's secretariat, but severe criticism surfaced as the key signatories were not adhering to this regulation, and criticism over it being unsuccessful with regards to the reduction of CO₂ emissions had prevailed.

The 1951 Convention relating to the status of refugees and the 1967 Protocol

This document outlines the rights of refugees and the State's legal obligations to protect them.

UN resolution adopted by the General Assembly on 19 September 2016 - New York Declaration for Refugees and Migrants

The resolution of the New York Declaration for Refugees and Migrants was aimed to address the question of the movements of large scale by migrants and refugees. It adopted the political declaration to support countries that experience a large-scale movement of migrants and refugees. This resolution was also conceded by the essence of a Comprehensive Refugee Response Framework. Member states agreed to their obligations regarding the utmost respect for refugees' and migrants' human rights, supporting countries that shelter refugees in an international responsibility, and protecting refugees. Moreover, it called for the UNHCR's proposal of a "global compact on refugees" to be included in the report to the GA in 2018.

Comprehensive Refugee Response Framework

The framework on which the New York Declaration for Refugees and Migrants of 2016 was based, the Comprehensive Refugee Response Framework outlines its objectives to enhance refugee self-reliance, help host countries and communities deal with refugee crisis, and support the safe return of refugees to their countries of origin with dignity.

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

There have been several attempts aimed at combating air pollution, as well as the mass migration linked to it. Nevertheless, some have been more effective than others.

The Vienna convention

The Vienna Convention created a panel of governmental atmospheric experts - the "Meeting of Ozone Research Managers"- with the purpose of evaluating climate change and the depletion of ozone research, as well as providing the Conference of Parties with an accompanying report. The Conference of Parties also uses the data provided to them by the latter people mentioned and present new policies that aim to limit CFC emissions.

The Clean Air Act

This act is a US Federal law, limiting the national air pollution by moderating how much sulfur dioxide, carbon monoxide and particulate matter are released into the air. It also has emissions standards for the control, elimination, and reduction of hazardous air pollutants, particularly in industrial facilities. Also, in 1970, the clean air act required the EPA to create a list of hazardous air pollutants and national standards to pair with each one. It gave them the legal authority to regulate pollution from cars and other forms of transportation. EPA and the State of California had led the national effort to reduce vehicle pollution by adopting increasingly

stringent standards.³⁰ As stated by an official United States Environmental protection agency, several believe it has been an immense success, as 90% of sulphur levels have been reduced since the regulation. It has also been supported that passenger vehicles that are new to the market are much cleaner (99%) compared to the 60's with regards to tailpipe pollutants. However, it has not been considered the most effective in the American industry, but a step in the right direction.

Convention relating to the status of refugees of 28 July 1951

This convention was endorsed by the UN conference of Plenipotentiaries on the Status of Refugees and Stateless persons. The resolution 429 (V) was adopted by the General Assembly on 14 December 1950, and with that, this conference was convened pursuant by it.

Organization of African Unity Convention Governing the Specific Aspects of Refugee Problems in Africa 1969

Alternatively known as the 1969 Refugee Convention, the Organisation of African Unity Convention Governing the Specific Aspects of Refugee is a legal instrument that entails protection of refugees in Africa.

POSSIBLE SOLUTIONS

Air pollution, although detrimental, can be combated. Solutions are based on mitigating the adverse effects of air pollution and protecting the world's environment and human health from air pollution induced problems. The problem of migration due to air pollution should also be solved. Below are some solutions to both migration due to air pollution and air pollution itself, which shall be thoroughly discussed and debated upon.

Using sustainable means of transportation

Clean vehicle and fuel technologies are an affordable means of transportation, help with minimizing air pollution caused by vehicles exhaust fumes, and are also widely available. These clean air vehicles use less oil, making them fuel-efficient, helping generate fewer emissions. Moreover, tailpipe emissions can be completely abolished through the use of electric cars and trucks.

³⁰ Environmental Protection Agency. (2021, April 7). *History of Reducing Air Pollution from Transportation in the United States*. EPA. <https://www.epa.gov/transportation-air-pollution-and-climate-change/accomplishments-and-success-air-pollution-transportation>.

Limiting any business activity linked to air pollution

Business activities such as agricultural work, mining, burning of fossil fuels, and incineration/industrial processes all contribute profoundly to air pollution being such a big problem in today's world. If businesses were to limit the amount of agricultural work and mining, or simply find sustainable alternatives, humans would not be as responsible for air pollution.

Limiting air pollution in corporations

There is a plethora of policies, either state or federal, which aid with business emissions control. To make an even bigger change, new policies should be implemented for companies. For instance, the UN or federal government officials shall decide on a fixed number of emissions each company can be allowed to reach, putting into force a new policy. Along with that, the establishment of a stringent penalty could be established. That penalty could be a fine that would have to be paid if the limit were to be breached. Alternatives to economic sanctions are the closing down for a specific period of time, as well as the exposure of negative Corporate Social responsibility (CSR), which would persuade large corporations to comply with such UN and government policies.

Law protecting environmental migrants' and refugees' rights

The establishment of a legal framework regarding the human rights of environmentally displaced people is vital. For instance, in situations involving armed conflict, displaced people are protected by International Humanitarian Law (IHL). However, people displaced due to air pollution are not protected by such law, and the only resolution that protects environmentally displaced people is the New York Declaration for Refugees and Migrants, adopted on the 19th of September 2016. This unbalance showcases the urgent need of the adoption of environmental-targeted legislation.

Individual responsibility

Each individual has the responsibility of protecting the earth. A simple way to do so is by minimizing transportation from cars and motorcycles. Since those two vehicles are examples of air polluters due to their exhaust fumes, trying to reduce them in a society may result in the greater good of that society, particularly in more urban areas. The replacement of cars by

bicycles and public transport is a simple, yet effective solution. Switching to electric cars -as alternative to diesel ones- is also gaining widespread recognition in MEDCs, like the UK. For instance, in London, most taxis and cars are electric, minimizing the soot in the air. Electric cars have a dual benefit: they minimize the impact of air pollution, and they create less noise.

Public transport

Member states must ensure access to public transport to everyone. This includes the availability of good-conditioned public transportation like buses, trains, and trams. Especially in times of a pandemic, where public health is at risk, providing clean seats and limits to how many people entering one bus or one train is vital. This way more people will be encouraged to take the bus or train, instead of using their cars. Since a sustainable way of transportation is the use of bicycles, providing safe tracks for bicycle users will encourage more people to switch to them. In the Netherlands and some other nations, bike tracks are extremely common as well.

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