

United Nations Environment Programme
Topic: Air Pollution and Improving Air Quality

Air pollution, including particulate matter and gasses, has far-reaching impacts. It both causes and exacerbates a wide range of health conditions, and is responsible for an estimated seven million premature deaths each year. Particulate matter refers to airborne particles of liquid or solid matter with a diameter of ten microns or less. Most other air pollutants are gasses including carbon monoxide, carbon dioxide, ground-level ozone, nitrogen dioxide, sulfur dioxide, and methane. Ground-level ozone, toxic to plants, reduces agricultural productivity and is harmful to ecosystems. Other pollutants, including nitrogen and sulfur, also threaten ecosystems and biodiversity. Most pollutants that impair air quality also contribute to climate change. For these reasons and others, air pollution has a significant economic cost.

Globally, the main sources of air pollution include energy generation (25%), industry (21%), and transportation (14%), primarily polluting the air by burning fossil fuels, such as coal, oil, and natural gas. In addition, agriculture accounts for about a quarter of air pollution (24%) as it produces methane and other pollutant gasses. Detrimental practices associated with agriculture, such as stubble burning and deforestation, also contribute to air pollution. Other sources include wildfires and burning solid waste, usually in landfills. Beyond air pollution outdoors, indoor air pollution also poses a concern and can come from cleaning products, mold, dust, and appliances that burn natural gas. Around one billion people worldwide lack regular and reliable access to electricity, leading them to rely on air-polluting combustion technologies for heating, lighting, and cooking.

There are several key issues to consider surrounding air quality, pollution, and regulation. Currently, much of global industry and transportation infrastructure relies on burning fossil fuels for power. The transition from fossil fuels to renewable energy requires financial investment as well as cooperation from private companies, governments, and individuals. As a result, this transition can pose economic challenges in states that are still developing their energy or industrial infrastructure. Furthermore, some states emit far more air pollution than others. As of 2017, the top six carbon dioxide emitters produced 70% of the world's carbon emissions. Many key air pollutants come from several different sources. Without addressing each source, any solution will likely be less effective. While air pollution typically has its most significant impact near its source, pollutants can be carried for long distances in the atmosphere, affecting other faraway states. Many states also lack robust systems for monitoring air quality, monitoring only in large cities and lacking the funds to acquire and maintain costly monitoring equipment. The United Nations Environment Programme must decide on appropriate ways to address the issue of air pollution and improving air quality. This discussion may include consideration of how air quality data should be shared, both in terms of the public and the scientific community.

Focus Questions:

1. What is the role of air quality standards and regulations?
2. How can or should the global community expedite a transition to renewable energy sources and sustainable agricultural practices?
3. What are the different air quality challenges faced by rural versus urban communities? How can these be addressed?

4. To what extent is air pollution a national issue to be addressed individually by member states versus a global issue requiring international action and cooperation?