

Efforts to Address Air Pollution

by Sophia



WHAT'S COVERED

In this lesson, we will cover the topic of efforts to address air pollution. We will explore the history of federal efforts to address air pollution and U.S. policy surrounding air pollution mitigation, such as the Clean Air Act. We will also discuss improvements in air quality that have been made as a result of regulation. Specifically, this lesson will cover the following:

1. Historical Background: Federal Efforts

Since the beginning of the industrial revolution, pollution has been a human and environmental health problem, yet little has been done at the federal level to address it until recent years.

In 1948, over a period of five days, a warm pocket of air trapped colder air over Donora, Pennsylvania. This led to a thick smog from nearby zinc and steel smelting factories, and 40 people died as a result. Half the town of Donora—about 14,000 people—experienced respiratory and cardiovascular health problems.

As a result of this event and many others that led up to 1970, the United States declared the first Earth Day in response to increased public awareness of environmental issues caused by human activities.

Until the late 1960s and early 1970s, states had primarily dictated air pollution regulation, but as public concern steadily grew, the federal government began to step in.

2. Clean Air Act

In 1970, the U.S. Government approved the Clean Air Act, which charged the Environmental Protection Agency (EPA) with identifying air pollutants from stationary and mobile sources that may reasonably be anticipated to have negative impacts on public health and welfare.

2a. Pollutant List

The initial list of pollutants that the EPA came up with included the following:

- Sulfur dioxide
- Nitrogen oxides
- Total suspended particulates (This was changed in 1987 to PM10 to represent particulate matter that is 10 micrometers or less.)

- Carbon monoxide
- Ozone

By 1987, lead was added to this list as well, and in 2007 the U.S. Supreme Court ruled that greenhouse gases were also to be covered and managed by the Clean Air Act.

2b. Regulation by Source

The Clean Air Act sets limits to the amount of air pollutants that can be emitted from mobile and stationary sources, as well as from regions. The following table summarizes some important source types and the limits mandated by the Act.

Type of Source	Clean Air Act Mandated Limit
Mobile	By 1975, automobile manufacturers must cut emissions by 90% in all new cars.
Stationary	The EPA must set performance standards for all major categories of stationary sources.
Regional	Regional limits must be met for ambient air quality in all regions and counties. Note that these limits do not vary by region, which makes it difficult for areas with higher amounts of pollution.

Over time, standards have been updated to add newer sources of pollution. These standards are even stricter than past standards were for older sources at the time of passing the Clean Air Act.

2c. Setting Standards

Based on the Clean Air Act, the U.S. EPA sets the national standards for pollutants and their allowed levels. The EPA standards are geared at protecting public health and welfare against any known negative effects of listed pollutants.



An important organization to note is OSHA, or Occupational Safety and Health Administration, which regulates permissible levels of indoor air pollutants in places of work. There are currently no regulatory agencies that manage air pollution in residences.

3. Improvements in Air Quality

As a result of regulation, improvements in air quality have been made. There has been a reduction in certain regulated pollutants, despite increases in energy use, vehicle miles traveled, and economic activity.

These improvements after regulation and/or technology advancement can be attributed to the following:

- Smaller cars
- More efficient engines
- Improved gas mileage
- Decreased emissions from energy plants and factories

Levels of nitrogen oxides, sulfur dioxide, carbon monoxide, lead, and particulate matter have all decreased. Unfortunately, there has not been significant progress in ground-level ozone reduction.



DID YOU KNOW

Only 15% of the U.S. population (about 50 million people) lives in areas with air pollution levels above ambient air quality standards.



SUMMARY

In this lesson, we learned about the **history of federal efforts to address air pollution in the United States**. We learned about policy and regulations that have been passed to manage air pollution. The **Clean Air Act** included a **pollutant list**, which is **regulated by source**, and **set standards** for allowed levels of pollutants. We also learned about current **improvements in air quality** that have resulted from those efforts.

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