Rahbar International

Sunday, November 30th 2025

Smog in Pakistan: Causes, Health Impacts and Efforts to Combat it.

Published on November 12, 2024

Document Date: Sun, Nov 30 2025 03:34:22 pm

Category: ,English,Pakistan - ,Snippets

Show on website : Click Here

(By Ahsan Ansari)

Smog, a mixture of smoke and fog, became a significant public health issue in the early 20th century, particularly in industrialized cities. The term "smog" originated in London, where dense smoke from coal-burning industries mixed with fog to create a toxic haze. The infamous "Great Smog" of 1952 in London, which caused thousands of deaths, highlighted the deadly impact of industrial air pollution. Over time, smog became a global issue, especially in rapidly urbanizing regions, worsening due to increased vehicle emissions, industrial growth, and agricultural practices like crop burning. In recent years, cities in countries like China, India, and Pakistan have experienced increasingly severe smog episodes, causing significant public health concerns.

In Pakistan, smog has become a growing problem, especially in major cities like Lahore, Karachi, and Islamabad. Air pollution has been an issue in the country for decades, but smog has worsened in recent years, particularly in winter. The problem traces back to the 1990s, when rapid urbanization, industrialization, and a rising number of vehicles began to deteriorate air quality. It wasn't until the mid-2000s that smog as a phenomenon gained national attention, especially in northern Punjab, where dense winter fog combined with industrial emissions and other pollutants created hazardous air conditions.

Lahore, the capital of Punjab, has suffered from some of the worst smog episodes in Pakistan. Each year, the city struggles with heavy air pollution, particularly between October and December, when temperature inversions trap pollutants near the ground. These inversions prevent the pollutants from dispersing, exacerbating the smog. The main contributors include industrial emissions, vehicular exhaust, agricultural burning, and dust. Additionally, smoke from crop residue burning in neighboring Indian states worsens the situation. In 2017 and 2018, Lahore's air quality reached hazardous levels, with particulate matter (PM2.5) reaching alarmingly high concentrations, making it one of the most polluted cities globally.

The causes of smog in Pakistan are multifaceted. The rapid increase in the number of vehicles in urban areas has significantly contributed to smog, as many vehicles still use outdated technologies that emit high levels of nitrogen oxides (NOx) and particulate matter. Industrial emissions, particularly from factories, brick kilns, and power plants in Punjab, release large amounts of sulfur dioxide and other pollutants, contributing heavily to smog formation. Crop burning, particularly rice stubble, is another major contributor to seasonal smog, especially in autumn. The practice releases vast amounts of smoke and particulate matter into the atmosphere, which lingers and worsens air quality. Moreover, weather conditions, such as winter temperature inversions, trap pollutants close to the ground, preventing their dispersion. Dust

from construction activities and dust storms also contribute to the rising pollution levels, especially in cities like Karachi and Rawalpindi.

The health impacts of smog in Pakistan are both alarming and severe. Smog contains fine particulate matter (PM2.5), ground-level ozone, and other pollutants that can cause a range of short-term and long-term health issues. Respiratory conditions, such as asthma, chronic bronchitis, and chronic obstructive pulmonary disease (COPD), are among the most common effects of smog exposure. Pollutants irritate the respiratory system, leading to an increase in hospital admissions, particularly among vulnerable groups like children, the elderly, and those with pre-existing lung conditions. Long-term exposure to smog has also been linked to an increased risk of cardiovascular diseases, including heart attacks and strokes. Fine particulate matter can penetrate the bloodstream, causing inflammation and contributing to arterial damage. Studies show that long-term exposure to air pollution raises the risk of heart disease, a problem seen not only in Pakistan but across the globe.

Smog is also responsible for thousands of premature deaths in Pakistan each year, mainly due to respiratory infections, lung cancer, and cardiovascular diseases. Short-term exposure can cause eye irritation, sore throats, coughing, and sneezing, while long-term exposure can exacerbate conditions such as conjunctivitis and other eye infections. Children, whose respiratory systems

are still developing, are particularly vulnerable to the harmful effects of smog. Long-term exposure can stunt lung growth, lead to respiratory infections, and increase the likelihood of developing asthma. Older adults, particularly those with pre-existing conditions, are also at heightened risk. Additionally, emerging research suggests that chronic exposure to air pollution may have mental health implications, contributing to depression, anxiety, and cognitive impairments.

Beyond health concerns, smog has substantial economic and social consequences in Pakistan. The growing number of smog-related illnesses puts increasing pressure on the healthcare system, raising treatment costs for respiratory and cardiovascular diseases. The government and private healthcare sectors face growing expenses related to hospitalizations and medications for these conditions. Smog also leads to lost productivity, as people are forced to miss work or school due to illness. Those affected by respiratory conditions are often unable to work at full capacity, resulting in economic losses. The impact on children's health is particularly concerning, as respiratory issues can cause them to miss school, affecting their education and long-term prospects. The increasing burden on healthcare systems and the negative impact on education strain the country's social welfare programs, exacerbating economic challenges.

In response to the growing smog crisis, several measures have been proposed or implemented to address the issue, although enforcement remains weak. The government has introduced regulations to control vehicle emissions, including mandatory emissions testing and the promotion of cleaner technologies in transportation. Environmental organizations have established air quality monitoring stations in major cities like Lahore and Islamabad, but monitoring remains limited and inconsistent, with a need for more robust systems. Public awareness campaigns have been launched to educate the public about the health risks of smog, urging citizens to reduce vehicular emissions, adopt cleaner fuels, and reduce the practice of crop burning. To address the agricultural contribution to smog, the government has provided subsidies for machinery that can manage crop residue without burning. These efforts aim to encourage more sustainable farming practices. Additionally, urban planning initiatives, such as increasing green spaces in cities, are being considered to improve air quality and help mitigate the effects of smog.

Despite these efforts, smog in Pakistan remains a serious public health crisis. While some progress has been made in addressing the causes, more comprehensive policies, stronger enforcement, and increased public awareness are essential to effectively combat the issue. Long-term solutions will require a commitment to cleaner energy sources, sustainable industrial practices, and better

agricultural methods. The challenge is substantial, but the health, economic, and environmental impacts make it an urgent issue that requires immediate action. Only through a coordinated effort can Pakistan hope to reduce smog levels and safeguard the health and well-being of its population.

Email: aahsan210@gmail.com