



21st  
December 2024

Subject: **Advisory for Protection and Preventive Measures against SMOG**

### Introduction:

Seasonal smog is a recurring environmental challenge particularly during winter months. This phenomenon, characterized by a dense fog combined with air pollutants, poses significant health risks to the population. The confluence of meteorological factors, such as low temperatures and reduced wind speeds, traps pollutants near the ground, resulting in degraded air quality.

Smog in Pakistan, particularly during the winter months, has become a pressing environmental and public health issue. The country is experiencing a significant increase in smog-related health issues since last decade. Moreover, in 2023, Lahore was ranked as the world's most polluted city multiple times, with air quality index (AQI) readings often exceeding hazardous levels. Similarly in 2024, major cities in the province of Punjab, including Lahore, Multan, Gujranwala, Rawalpindi, and Islamabad, are currently experiencing very unhealthy to hazardous levels of the Air Quality Index (AQI). This alarming situation has serious implications for public health, with unusual upsurge of respiratory and cardiovascular problems.

### Purpose:

This advisory aims to inform and guide health authorities, healthcare providers, and the general public about the potential hazardous impacts of smog and to recommend preventive measures to mitigate its effects on human health.

### Key Factors Contributing to Seasonal Smog:

**Meteorological Conditions:** During winter, temperatures drop, and wind speeds decrease. These conditions trap pollutants close to the ground, leading to the formation of dense fog. This fog, combined with pollutants like vehicle emissions, industrial smoke, and dust, creates the smog that smothers cities.

**Agricultural Practices:** The burning of crop residue, especially in Punjab, is a major contributor to the seasonal smog. Farmers burn leftover stubble to clear fields, releasing large amounts of particulate matter and other pollutants into the atmosphere, which exacerbate air quality issues.

**Industrial Emissions and Traffic:** Major urban centers like Lahore, Multan, and Rawalpindi are not only affected by weather but also by industrial emissions and traffic exhaust. High levels of vehicular pollution, coupled with limited green spaces, contribute heavily to the smog during winter months.

### Health Risks and Implications

The seasonal smog poses several serious health risks, particularly for vulnerable groups such as children, the elderly, and individuals with pre-existing respiratory or cardiovascular conditions:

**Respiratory Issues:** Prolonged exposure to smog can lead to increased incidences of asthma, bronchitis, and other respiratory diseases. Fine particulate matter (PM<sub>2.5</sub>) and toxic gases such as carbon monoxide and sulfur dioxide can irritate the lungs and aggravate pre-existing conditions.

**Cardiovascular Effects:** Studies have shown a correlation between poor air quality and an increased risk of heart attacks, strokes, and other cardiovascular diseases due to the presence of fine particulate matter and other pollutants that enter the bloodstream.

### 1. Children

Due to their developing respiratory systems and higher breathing rates, children inhale more pollutants relative to their body size, making them especially susceptible. Prolonged exposure can



lead to Respiratory issues (asthma, reduced lung function), increased infection susceptibility and impaired lung growth and development.

## **2. Elderly Individuals**

Advanced age increases more vulnerability due to weakened immune systems and organs. Pre-existing chronic conditions, such as heart disease, diabetes, or respiratory issues, can worsen with air pollution exposure, leading to exacerbated chronic conditions (heart disease, stroke, and respiratory infections), and cognitive decline.

## **3. Individuals with Pre-existing Respiratory Conditions**

Those with pre-existing respiratory conditions, such as asthma, COPD, and other lung disorders, face increased health risks due to compromised lung function. Air pollution exposure can Exacerbate breathing difficulties and Trigger frequent and severe asthma attacks, Worsen COPD symptoms, Increase susceptibility to respiratory infections and lung cancer.

## **4. Pregnant Women:**

Pregnant women are vulnerable due to potential health impacts on both mother and fetus. Exposure to smog is linked to adverse pregnancy outcomes, including preterm birth, low birth weight, developmental delays and newborn respiratory problems. Fine particulate matter (PM2.5) can cross the placenta, affecting fetal development and posing long-term health risks.

## **Prevention and control measures**

### **Individual-Level Measures:**

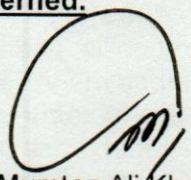
- Limit Outdoor Exposure: Reduce outdoor activities, especially during peak smog hours.
- Wear Air Purifying Respirators: Use high-quality N95 or KN95 masks when outdoors.
- Improve Indoor Air Quality: Close windows and doors, use air purifiers with HEPA filters, and avoid indoor air pollution sources like smoking.
- Stay Hydrated: Drink plenty of water to help flush out toxins.
- Seek Medical Attention: Consult a healthcare provider for persistent or worsening symptoms.

### **Community-Level Measures:**

- Promote Clean Energy Sources: Encourage the use of cleaner fuels and renewable energy technologies.
- Strengthen Environmental Regulations: Implement and enforce strict regulations on industrial emissions and vehicle emissions.
- Promote Public Transportation: Encourage the use of public transportation and non-motorized modes of transport to reduce vehicle emissions.
- Public Awareness Campaigns: Educate the public about the health risks of smog and promote preventive measures.

By addressing the root causes of smog, such as industrial emissions, vehicle pollution, and agricultural burning, all the provinces/regions can significantly improve its air quality and protect public health ensuring a healthier future for all.

**The above 'Advisory' may please be circulated widely to all concerned.**

  
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Chief,  
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31/12/24

**Distribution Overleaf**