



# TACKLING FOREST FIRES AND AIR POLLUTION: LEVERAGING SOLUTIONS ON THE ROAD TO COP30

## 1- FOREST FIRES AS A MAJOR SOURCE OF AIR POLLUTANTS AND SHORT-LIVED CLIMATE POLLUTANTS

Forest fires are among the leading sources of air pollutants, including black carbon, tropospheric ozone, and nitrogen oxides. Some of these are also short-lived climate pollutants (SLCPs), notably black carbon, a fine particulate produced by the incomplete combustion of organic matter. Once released, black carbon accelerates climate warming by absorbing sunlight and reducing the reflectivity of snow and ice. Additionally, it severely degrades air quality, contributing to respiratory and cardiovascular illnesses.

Tropospheric ozone is another greenhouse gas and air pollutant with significant effects on human health, as well as impacts on forest photosynthesis and carbon uptake, and reducing crop productivity. Forest fires across tropical regions like the Amazon and Cerrado are not only altering ecosystems but also amplifying climate and public health risks through this potent pollutant. Super pollutants are responsible for half of the global warming (IPCC AR6 2021) and tropospheric ozone alone corresponds to 0.23°C warming to date (Clean Air Fund, Clean Air Institute, Clean Air Task Force, Hill Consulting, 2024). Furthermore, the suffocating smoke from forest fires is far more hazardous than previously thought, with deaths from short-term exposure to fine particles having been underestimated by 93% (Alari et al, 2025).

## 2- IMPACTS OF FOREST FIRES ON THE ENVIRONMENT, HEALTH AND THE ECONOMY

In 2024, Brazil experienced one of its worst forest fire seasons in over two decades, with a significant rise in fire hotspots across the Amazon, Cerrado, and Pantanal. Hospitalizations for respiratory illnesses in Brazil increased by 27% during that period, especially affecting children and the elderly (Moreira et al 2024). Major cities like Manaus and Porto Velho faced critical air quality emergencies, while smoke led to school closures and health alerts. Neighboring countries such as Bolivia and Peru also reported severe impacts, including visibility hazards and air pollution-related deaths, highlighting the cross-border nature of forest fire smoke. Moreover, Amazon fires between June and August this year produced greenhouse gas emissions 60% higher than in the same period last year (Climate Observatory, 2025), with an alarming current scenario where the Amazon rainforest is now emitting more CO<sub>2</sub> than it absorbs.

The impacts go beyond climate and health, also affecting the local and national economy. For instance, ozone is a critical phytotoxic compound with significant impacts on crops such as soybean, deeply affecting the agribusiness sector. Total economic losses due to ozone damage (for staples such as wheat, soybean and maize) could amount to \$35 billion annually by 2030 (Clean Air Fund, 2024). Addressing tropospheric ozone would boost global food security by raising the yields of staple crops that sustain billions of people. In urban areas, the increased need for health treatments for diseases related to air pollution, especially for children and the elderly, has substantial social and economic impacts.

### 3- DISPROPORTIONATE IMPACTS ON INDIGENOUS PEOPLES, RIVERINE COMMUNITIES, AND LOW-INCOME URBAN POPULATIONS

The burden of forest fire smoke is not evenly distributed. Indigenous peoples, riverine communities, and low-income populations are among the most affected, often living closest to fire-prone areas with limited access to healthcare or protective infrastructure. These groups frequently rely on resources from natural ecosystems for their livelihoods, making them especially vulnerable to both the direct and indirect consequences of forest fires. Moreover, indigenous people in the Amazon Basin are twice as likely to die prematurely from smoke exposure due to wildfires than the broader South American population (Bonilla et al 2023). In urban areas, low-income neighborhoods are more likely to suffer from inadequate housing, poor air filtration, and limited access to information on air quality alerts, deepening existing environmental and health inequalities.

### 4- EXAMPLES OF ACTIONS AT POLICY AND COMMUNITY-BASED LEVELS

In response to worsening air quality from fires, several initiatives have emerged. At the policy level, states like Acre and Mato Grosso have adopted early-warning systems and stricter burn bans during dry seasons. Regulatory improvements include enhanced monitoring of air pollutants and penalties for illegal deforestation-linked fires. Community-based solutions have also shown promise: indigenous-led fire brigades and participatory forest management efforts have helped reduce fire outbreaks. At the same time, local health units in some areas now provide emergency air quality guidance and distribute protective masks. However, broader and better-resourced strategies are needed to scale these successes nationally.

### 5- OPPORTUNITIES FOR THE COP-30 FORESTS AGENDA TO INCLUDE AIR QUALITY, HEALTH, AND SUPER POLLUTANTS

COP30 presents a pivotal opportunity to elevate the link between forest fires, air quality, and health in the global climate agenda. Integrating black carbon, tropospheric ozone and other super pollutants into the forest track can help highlight the co-benefits of reducing forest fire emissions—not only for climate mitigation, but also for public health and social justice. By explicitly addressing the human impacts of air pollution from forest fires, Brazil and other forest countries can advance a more inclusive and ambitious agenda. This includes securing climate finance for air quality initiatives, resilience-building in affected communities, and equitable solutions to reduce fire risk. It is crucial to integrate black carbon, tropospheric ozone and other super pollutants into the forest track, alongside decarbonisation efforts. While CO<sub>2</sub> reduction remains essential for long-term climate stabilization, short-lived climate pollutant (SLCP) mitigation delivers fast-acting benefits within decades, buying critical time for deeper decarbonization.



Take a look at the following reports with more information about the impacts of black carbon and tropospheric ozone on climate, environment, health and the economy:

**THE CASE FOR ACTION  
ON BLACK CARBON**



**THE CASE FOR ACTION ON  
TROPOSPHERIC OZONE**



#### ABOUT THE CLEAN AIR FUND & CEBRI COLLABORATION

Clean Air Fund and CEBRI are collaborating to raise awareness of the importance of integrating air pollution into climate discussions at COPs and beyond. The aim is to highlight the impacts of super pollutants on human health, the environment, and the economy, and to discuss ways to tackle the issue.

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