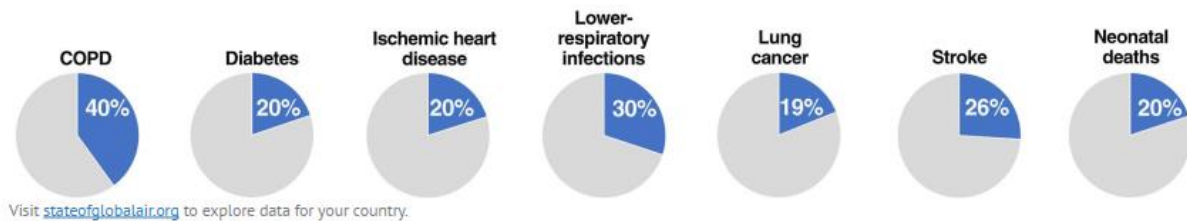


Air Quality & Health

Air pollution is the biggest environmental health risk factor and second largest risk factor for non-communicable disease as per WHO. It is responsible for 12% of deaths globally including nearly half a million neonatal deaths. Air pollution is a major contributing factor for seven of the top ten leading causes of death globally, namely: Chronic obstructive pulmonary disease (COPD), ischemic heart disease, lower-respiratory infections, stroke, lung cancer, diabetes and neonatal deaths. ([Read more](#))



In Nepal, air pollution leads to 42,100 deaths every year, out of which 19% are in under five children and about 27% in adult above 70 years of age. It reduces the life expectancy of an average Nepali by 4.1 years. The data on the major causes of death in Nepal also shows that air pollution is a major contributor to the top five causes of death, namely COPD(66%), ischemic heart disease (34%), stroke (37%), Lower respiratory infection (47%) and neonatal deaths (22%).

Pollutants like PM2.5 (particles smaller than 2.5 micron or approximately 20 times smaller than human hair) are known to be able to reach deep into the lungs when breathed in and is even able to infiltrate the blood stream through the alveoli of the lungs. As a result, it is able to impact every organ and system within the human body.

How to protect yourself from Air Pollution

In order to protect yourself and your loved ones from the impacts of air pollution, one can take the following measures:

1. **Wear a mask when travelling outdoors:** Masks have been shown to be highly effective in preventing PM2.5 from entering the body. A study on the efficacy of masks has shown that N95 masks block 98.9% of PM2.5 particles. Similarly surgical and cloth masks also block 78.6% and 60% of PM2.5 respectively.
2. **Stop burning waste:** Waste burning releases a lot of particulate matter and black carbon, which is harmful for our health. Burning of plastic wastes in particular release extremely toxic gases such as dioxin and furans which are known carcinogens.
3. **Use electrical stoves:** Recent studies have shown that even gas stoves release harmful gases such as nitrogen dioxide and formaldehyde. It showed that gas stove use has been linked to one in eight cases of childhood asthma.
4. **Prioritize public vehicles:** Emissions from vehicles are a major contributor to air pollution in Nepal. According to the Department of Transport Management, vehicle registrations are increasing at a rate of 12% per year, which exacerbates the air pollution in Kathmandu Valley. Prioritizing public vehicles would be a collective step towards reducing air pollution and thus improving health outcomes.

5. **Stop smoking:** Smoke from cigarettes release particulate matter that not only impacts the smoker, but also the people around them, especially children. Breathing in smoke from cigarettes is known to be worse than breathing in car exhaust.

WHO Air Quality Guidelines

The WHO Air quality guidelines are a set of evidence-based recommendations of limit values for specific air pollutants developed to help countries achieve air quality that protects public health. The first release of the guidelines was in 1987. Since then, several updated versions have appeared and the latest is the 2021 update in response to the real and continued threat of air pollution to public health. WHO updates the Air Quality Guidelines on a regular basis so as to assure their continued relevance and to support a broad range of policy options for air-quality management in various parts of the world, especially taking into account the breadth of new health studies that have been published in the meanwhile. The WHO Air quality guidelines recommend levels and interim targets for common air pollutants: PM, O₃, NO₂, and SO₂.

Recommended 2021 AQG levels compared to 2005 air quality guidelines

Pollutant	Averaging Time	2005 AQGs	2021 AQGs
PM _{2.5} , µg/m ³	Annual	10	5
	24-hour ^a	25	15
PM ₁₀ , µg/m ³	Annual	20	15
	24-hour ^a	50	45
O ₃ , µg/m ³	Peak season ^b	-	60
	8-hour ^a	100	100
NO ₂ , µg/m ³	Annual	40	10
	24-hour ^a	-	25
SO ₂ , µg/m ³	24-hour ^a	20	40
CO, mg/m ³	24-hour ^a	-	4

µg = microgram

^a 99th percentile (i.e. 3–4 exceedance days per year).

^b Average of daily maximum 8-hour mean O₃ concentration in the six consecutive months with the highest six-month running- average O₃ concentration.

Note: Annual and peak season is long-term exposure, while 24 hour and 8 hour is short-term exposure.

[What are the WHO Air quality guidelines?](#)

Air Quality Life Index (AQLI)

The Air Quality Life Index, (AQLI), converts air pollution concentrations in various locations into their impact on life expectancy. From this, the public and policymakers alike can determine the benefits of air pollution policies in perhaps the most important measure that exists: longer lives.

Through the interactive platform developed by the Energy Policy Institute of University of Chicago, users can learn not only how polluted their community is, but also how much longer they could live if their community complied with World Health Organization guidelines or national standards.

[The Index - AQLI \(uchicago.edu\)](http://uchicago.edu)

State of Global Air

Published by Health Effects Institute (HEI) and Institute of Health Metrics and Evaluation (IHME) of University of Washington, the State of Global Air presents the latest data on air quality and health from around the world. The website provides country and city wise data on ambient air quality (PM2.5 and ozone) and household air pollution (proportion of population using solid fuels) as well as number of deaths attributable to these pollutants and cause specific burden on health. The data is updated annually and the summary is published in a report and in factsheets.

[Home | State of Global Air](#)

DOE, 2023: Status of Air Quality in Nepal Annual Report, 2021

This report published by the Department of Environment under the Ministry of Forest and Environment analyzes data on particulate matter (PM2.5, PM10 and TSP) from 17 air quality monitoring stations installed by the Government of Nepal in various parts of Nepal.

Kathmandu Valley Air Quality Management Plan, 2020 (in Nepali)

The Kathmandu Valley Air Quality Management Plan, 2020 (KVAQMP), which was passed by the cabinet in February 2020, envisions a Kathmandu Valley with clean and health air where citizens' right to live in a clean and healthy environment is ensured by preventing and controlling air pollution.

[स्वागतम् | वातावरण विभाग \(doenv.gov.np\)](http://doenv.gov.np)