



Air pollution has many causes. Among them are

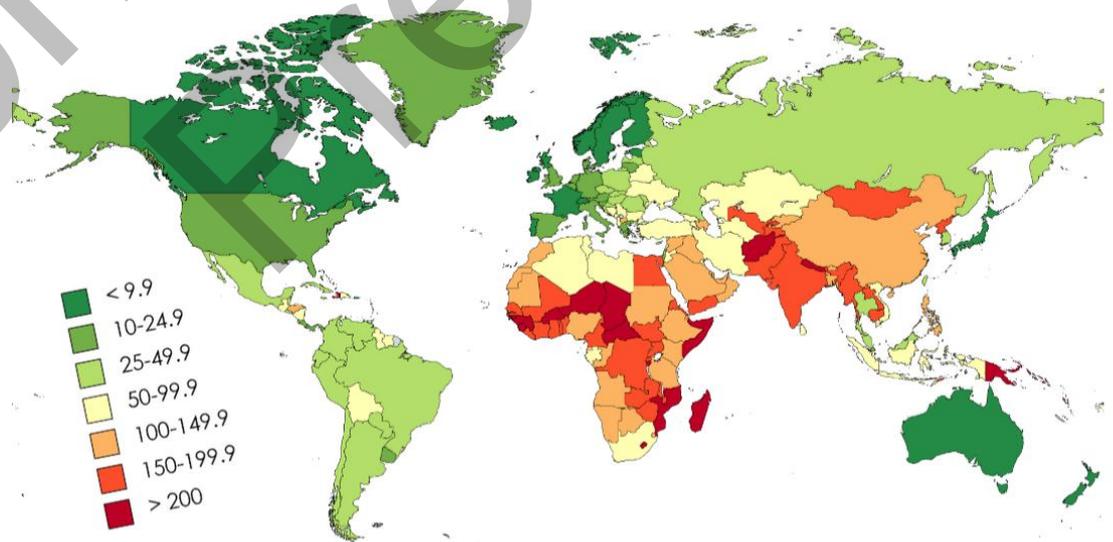
- the **increasing** number of cars on our roads
- growing cities
- the fast **development** of our **economy**
- industrialisation

Air pollution, as we know it today, started with the Industrial Revolution in Europe in the 19th century. In the last few **decades**, it has become the major problem for our **environment**.

Clean air is normally made up of **nitrogen** (78 %), **oxygen** (21%), **carbon dioxide** and a few other gases.

When harmful elements get into the air, they may cause health problems and can also damage the environment, buildings and **soil**. They make the **ozone layer** thinner and thinner and lead to the warming of the Earth's atmosphere and climate changes.

Our modern **lifestyle** has led to dirtier air over the years. Factories, **vehicles** of all kinds, the growing number of people are some things that are **responsible** for air pollution today. But not all pollution in the air is caused by people. Forest fires, **dust** storms and volcano **eruptions** can lead to the pollution of the atmosphere.



Deaths from air pollution per 100,000 inhabitants (2019)

Source: Institute for Health Metrics and Evaluation

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Natural and Man-Made Causes of Air Pollution

Natural	Man-Made
<ul style="list-style-type: none">• Volcanic Eruptions• Wildfires• Forest Fires• Dust Storms	<ul style="list-style-type: none">• Burning of Fossil Fuels• Transportation (cars, buses trucks etc..)• Factories• Chemical and Mining• Waste Treatment• Smoking• Farming

Major Pollutants and Where They Come From

Carbon monoxide is a colourless gas that is **set free** when wood, petrol or coal are not completely burned. It is also in products like cigarettes. Because of it, less **oxygen** enters our blood, and it makes us **confused** and sleepy.

Carbon dioxide is a **greenhouse gas** that gets into the atmosphere when we burn coal, oil or wood.

Chlorofluorocarbons (CFCs) are gases that come from **air-conditioning** systems or refrigerators. When they get into the air, they rise high into the atmosphere (about 20—50 km above the Earth's **surface**). There, they get into contact with other gases and destroy the **ozone layer**. We need the ozone layer because it protects us from the sun's ultraviolet **rays**.

Lead is in paint, batteries and other products. It is very dangerous if it gets into our bodies. In some cases, it can even cause **cancer**.

There are two types of **ozone** that we know of: natural ozone is in the upper part of our atmosphere, but on the ground, people produce ozone too. Traffic and factories cause ground ozone. It is **especially** dangerous to children and older people. It makes them tired, and doctors suggest not going outdoors when there is too much ozone in the air.



Nitrogen oxide causes smog and **acid rain**. It is produced when you burn **fuels** like coal and oil. It can lead to **breathing** problems, **especially** when children go outside in the wintertime.

Sulfur dioxide is a gas that gets into the air when coal is burned in **power plants**. Paper factories and other chemical industries also produce **sulfur dioxide**. This **pollutant** can lead to **lung diseases**.

Acid Rain

Another result of air pollution is **acid rain**. It **occurs** when **sulfur dioxide** and **nitrogen oxide** get into the air. When it rains the water that comes down on us has these dangerous **substances** in it.

Acid rain can also be caused by volcanic **eruptions**. Volcanoes send **poisonous** gases high up into the atmosphere.

Acid rain leads to the **destruction** of forests, lakes and **soil**. Many lakes and rivers have been poisoned over the **decades** and even some types of fish have **disappeared**. Buildings also **corrode** because of acid rain.

The **pollutants** can travel in the air for a long time before they come down to Earth. That's why it's sometimes hard to tell where dangerous pollutants **originate**. Acid rain that destroys forests and lakes in Central Europe may come from power stations in Eastern European countries.

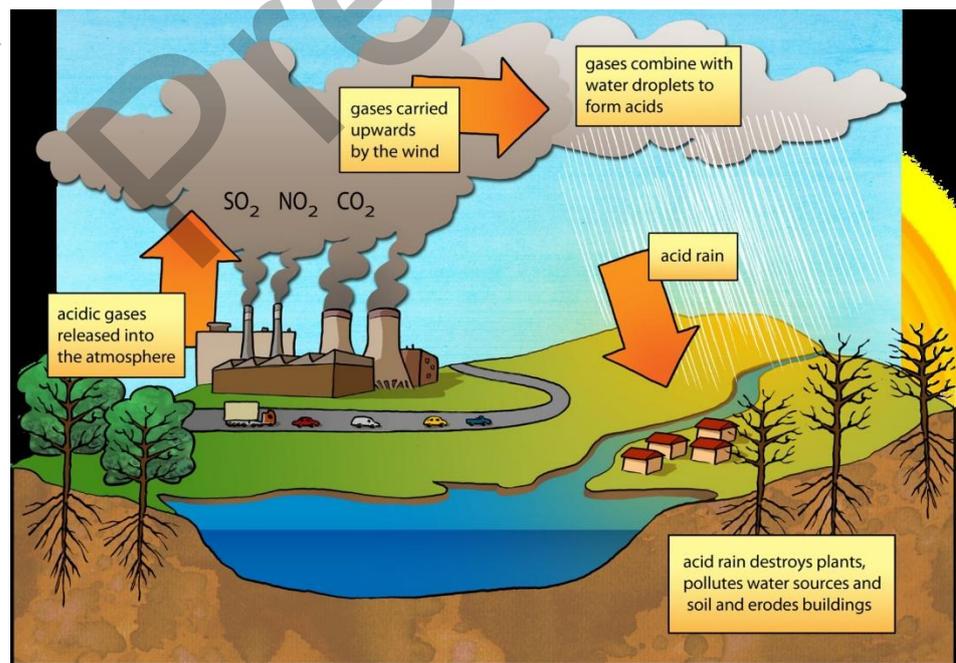


Image: "Acid rain diagram" von [Siyavula Education](#), CC BY 2.0



What Can We Do About Air Pollution?

The job of cleaning up our air is difficult but not impossible. Other forms of energy, like **solar**, wind or **tidal** energy could be used for controlling pollution.

Cities like London have shown that better air quality can be **achieved** in a short time. But we individuals can also help make the air around us cleaner!

- Walk or ride a bike to school or to your friend's home.
- Take a bus or a train to work.
- Organize **carpools**.
- Don't use **spray cans** anymore !
- Make sure that your parents get a pollution check on the car every year!
- Trees give us **oxygen** and take in **carbon dioxide**. They clean the air around us. Take care of them!
- Switch off the lights when you leave the room.
- Only use the number of lights that you really need.
- Don't **overheat** your room during the winter months. It's better to wear a pullover than to be in a room that is too warm.

Smog

Smog is a combination of smoke and fog. It **occurs** when gases from burnt fuel get together with fog on the ground. When heat and sunlight combine with these gases, they form fine, dangerous **particles** in the air.

Smog occurs in big cities with a lot of traffic. **Especially** in the summertime, when it is very hot, smog stays near the ground. It is dangerous for our **breathing** and in smog areas we can't see very well.

Smog was first **discovered** in Great Britain in the 19th century, during the beginning of the Industrial Revolution. At that time people used coal for heating and cooking. Factories also used coal to produce iron and steel. Smoke got together with wet, foggy air and turned yellow. The smog often stayed over cities for many days. It caused **lung diseases** and breathing problems. Thousands of people died in London every year.

Today, cities that have a high population and are located in hot, subtropical areas have the biggest smog problems—Los Angeles, Mexico City or Cairo.

A lot has been done to **prevent** smog. Factories use coal that doesn't have that much **sulfur** in it. And cars are much cleaner today. In some cities, cars aren't even allowed to drive on smog days.



Air pollution caused by a power plant in New Mexico

Image: "[Four Corners Generating Station](#)", by [NPS](#), [Public domain](#), via Wikimedia Commons



Smog in Kuala Lumpur

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