



San Diego County  
Air Pollution  
Control District

*Clean Air for All*

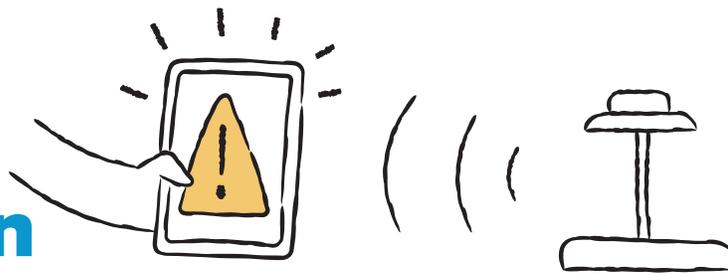
# AIR QUALITY AND



# Community Health

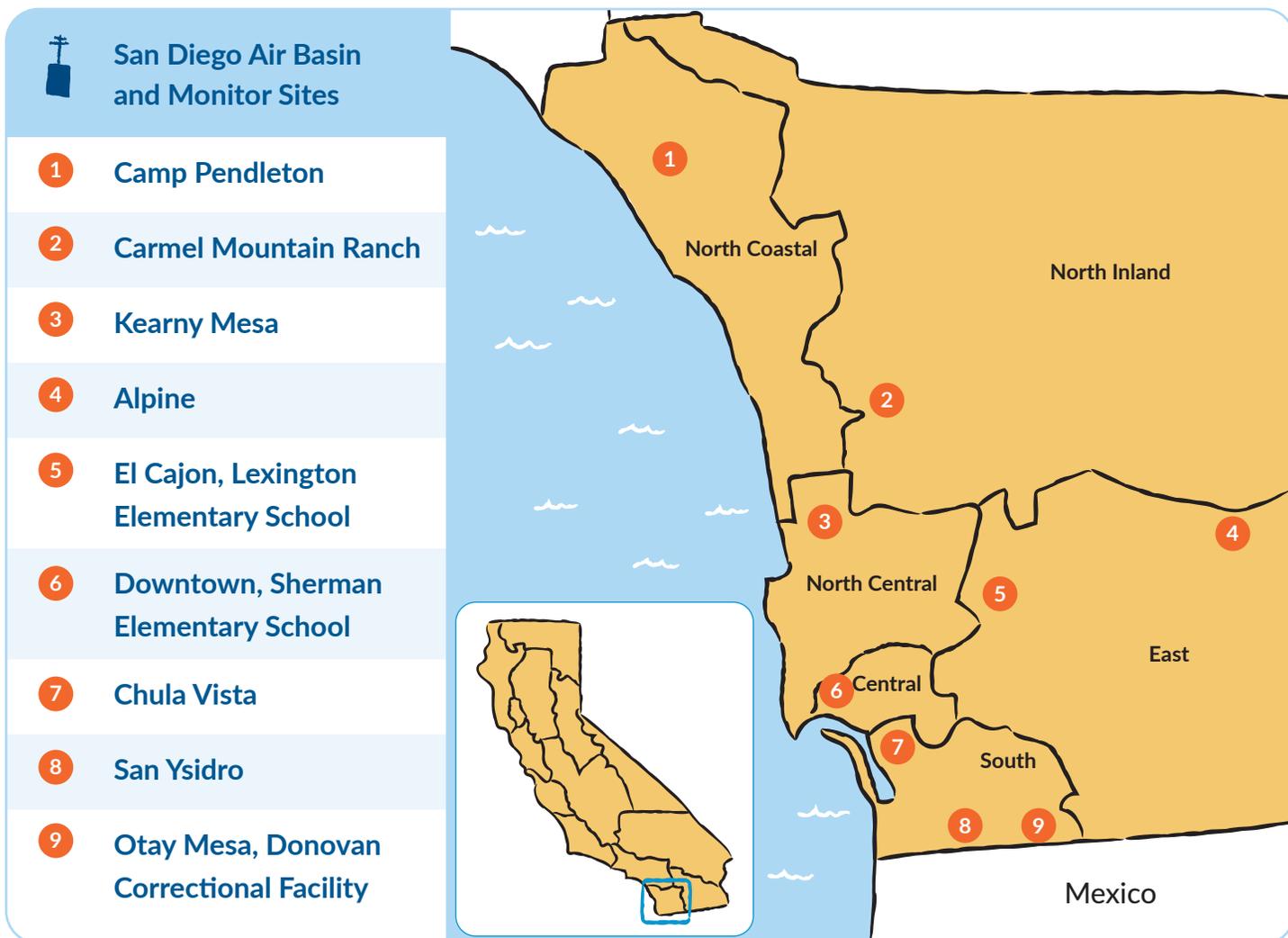
This booklet explains how air quality is monitored in the San Diego County region, the effects of air pollution on health, who is most at risk, and ways to reduce exposure to air pollution.

# Monitoring *Air Quality* in Our Region

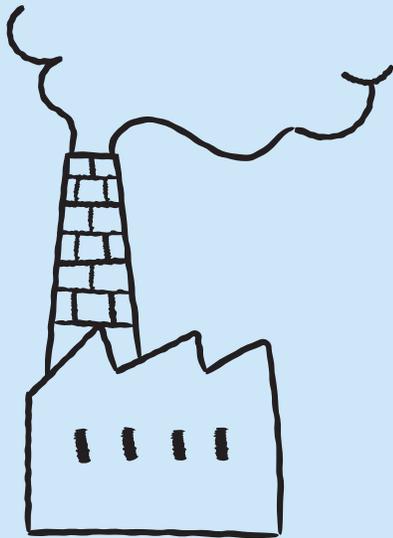


San Diego County, located in southwest California, spans 4,526 square miles and includes two air basins: the San Diego Air Basin (SDAB) and part of the Salton Sea Air Basin.

An air basin is a region with similar weather and geography. Most of the pollution in San Diego County is concentrated in the western part of the SDAB, extending to the mountains in the east. The local landscape and weather patterns influence how pollution spreads. Additionally, San Diego shares an air region with Tijuana, Mexico, forming a “binational airshed.”



The San Diego Air Pollution Control District (SDAPCD) monitors “criteria pollutants” in the San Diego Air Basin. The EPA and California’s Air Resources Board (CARB) set standards for six main air pollutants.



## Criteria Pollutants

**CO**

Carbon Monoxide



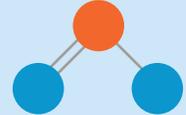
**Pb**

Lead



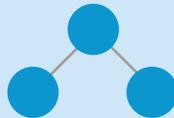
**NO<sub>2</sub>**

Nitrogen Dioxide



**O<sub>3</sub>**

Ozone



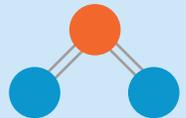
**PM**

Particulate Matter (PM)



**SO<sub>2</sub>**

Sulfur Dioxide



Some communities may experience higher pollution levels than others, particularly lower-income neighborhoods and communities of color. These areas often face pollution concentrations that exceed safe health standards.

**How air quality is monitored in San Diego!**



Scan the QR code to watch a video

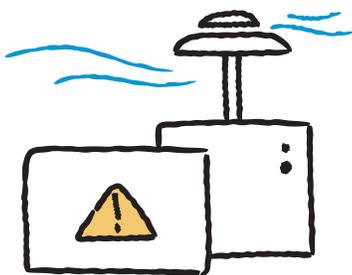
If pollutant levels go above these standards region-wide, the region is considered “nonattainment” and must work to lower pollution. Right now, San Diego County is in nonattainment for ozone and fine particles (PM<sub>2.5</sub>).

The SDAPCD maintains air quality monitoring stations throughout the county. The **Ambient Air Quality Monitoring Network** tracks pollution at a regional scale, while the **Community Air Protection Program (CAPP)** focuses on monitoring harmful pollutants in specific local areas, such as Portside and the San Diego International Border communities. These monitoring networks are essential for assessing San Diego’s air quality and understanding pollution levels across the County of San Diego.



# Air Advisories

SDAPCD issues three main types of air advisories based on data from their monitoring network:



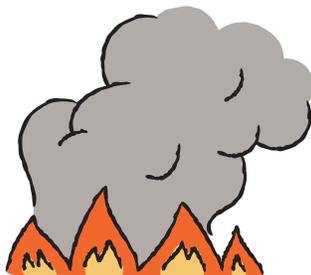
## Air Quality Index (AQI)

The AQI is a color-coded tool created by the EPA to help the public understand air pollution levels, health impacts, and actions to protect well-being. When pollution levels reach the “unhealthy” category (red, AQI 151-200), SDAPCD issues an advisory.

You can check the AQI at SDAPCD’s homepage



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## Smoke

Smoke advisories are issued when fire smoke affects local communities. These advisories provide information about the fire, impacted areas, weather conditions, and steps to reduce exposure to harmful smoke.

You can check out current smoke advisories



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## Odor

SDAPCD monitors hydrogen sulfide, a gas with a “rotten egg” smell caused by decaying matter, as experienced in the Tijuana River Valley. At 30 parts per billion (ppb), where symptoms like headaches and nausea may occur, an odor advisory is issued.

You can check the latest hydrogen sulfide levels



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# What Causes *Air Pollution,* and How Does It *Affect Health?*

## POLLUTANT

## SOURCES

## POTENTIAL HEALTH EFFECTS

### Particulate Matter (PM)

A mixture of solid particles and liquid droplets found in the air. Particles range in size. The most common measurements focus on two sizes – particles less than 10 microns in diameter (also called coarse particles, PM10) and particles less than 2.5 microns in diameter (fine particles, PM2.5).

Combustion of fuels in power generation facilities, industries, or vehicles; Smoke from wildfires; Wind-blown dust from erosion, agricultural activities, roadways, and mining operations

Aggravates asthma, causes lung and heart problems, irritation of the airways, coughing, or difficulty breathing.

### Diesel Particulate Matter (DPM)

Diesel engines emit a complex mixture of air pollutants, including both gaseous and solid material. The solid material in diesel exhaust is known as diesel particulate matter (DPM).

Diesel engines (trucks, ships, trains, buses, and other equipment)

Eye/nose irritation, lung cancer, headaches, nausea

### Black Carbon

Collecting black carbon data is important because, in urban areas not affected by wildfires, black carbon indicates diesel particulate matter sources.

Wildfires, diesel vehicles, fireplaces.

Worsens asthma, decreases lung function, causes heart attacks, airway irritation, coughing, and difficulty breathing.

### Ozone (O<sub>3</sub>)

Ground-level ozone (also commonly referred to as “smog”) is a gas formed by a chemical reaction between two pollutants: oxides of nitrogen and volatile organic compounds. In San Diego County, ozone often builds up at the foothills of the mountains in such communities as Alpine, on hot, summer afternoons.

Pollutants from cars, power plants, boilers, refineries, and chemical plants that react in sunlight.

Breathing problems, coughing, sore throat, and aggravation of lung diseases like asthma, emphysema, and chronic bronchitis.

### Volatile Organic Compounds (VOCs)

Volatile organic compounds (VOCs) are emitted as gases from certain solids or liquids.

Paints, dry cleaners, stored fuel, pesticides, printers, building materials, and furniture.

Eye/nose irritation, headaches, dizziness, and nausea.

### Nitrogen Dioxide (NO<sub>2</sub>)

For communities adjacent to high-traffic areas, freeways, or highways, collecting NO<sub>2</sub> data is important.

Vehicles and power plants.

Irritates airways and worsens asthma.

### Hydrogen Sulfide (H<sub>2</sub>S)

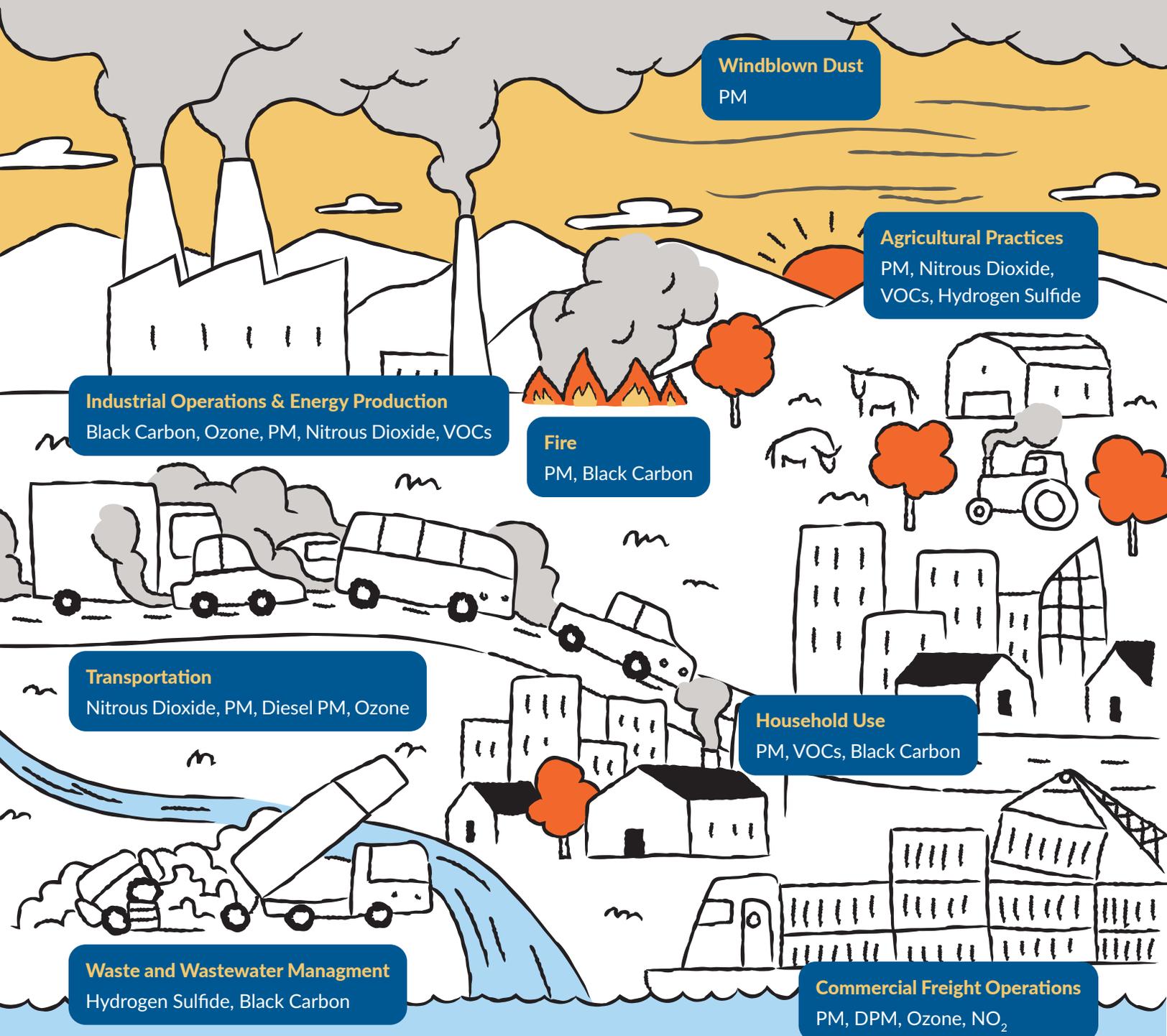
Hydrogen sulfide (H<sub>2</sub>S) is a colorless gas with a strong odor of rotten eggs. The odors in the Tijuana River Valley are primarily due to stagnant sewage water, contaminated and decaying organic material, and environmental conditions that contribute to the creation of hydrogen sulfide.

Wastewater, landfills, petroleum refineries, natural gas plants, and manure.

Eye/nose/throat irritation, breathing issues, headaches, and nausea.

# What are the sources of *Air Pollution?*

Outdoor air pollution affects urban and rural areas and is caused by multiple factors:



**Windblown Dust**  
PM

**Agricultural Practices**  
PM, Nitrous Dioxide,  
VOCs, Hydrogen Sulfide

**Industrial Operations & Energy Production**  
Black Carbon, Ozone, PM, Nitrous Dioxide, VOCs

**Fire**  
PM, Black Carbon

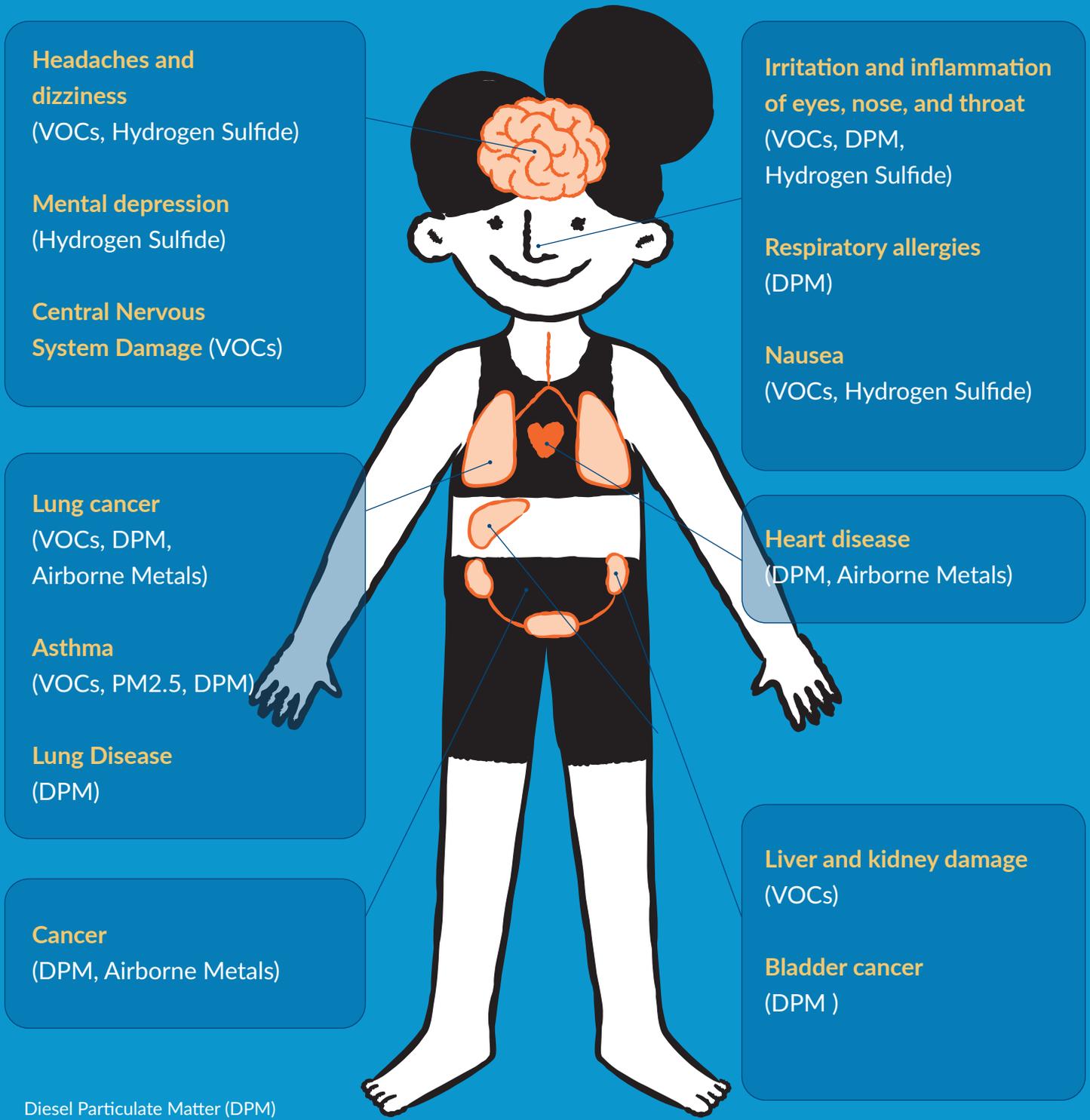
**Transportation**  
Nitrous Dioxide, PM, Diesel PM, Ozone

**Household Use**  
PM, VOCs, Black Carbon

**Waste and Wastewater Management**  
Hydrogen Sulfide, Black Carbon

**Commercial Freight Operations**  
PM, DPM, Ozone, NO<sub>2</sub>

# Potential Health Impacts of *Air Pollution*



**Headaches and dizziness**  
(VOCs, Hydrogen Sulfide)

**Mental depression**  
(Hydrogen Sulfide)

**Central Nervous System Damage** (VOCs)

**Irritation and inflammation of eyes, nose, and throat**  
(VOCs, DPM, Hydrogen Sulfide)

**Respiratory allergies**  
(DPM)

**Nausea**  
(VOCs, Hydrogen Sulfide)

**Lung cancer**  
(VOCs, DPM, Airborne Metals)

**Asthma**  
(VOCs, PM2.5, DPM)

**Lung Disease**  
(DPM)

**Heart disease**  
(DPM, Airborne Metals)

**Cancer**  
(DPM, Airborne Metals)

**Liver and kidney damage**  
(VOCs)

**Bladder cancer**  
(DPM )

Diesel Particulate Matter (DPM)  
Volatile Organic Compounds (VOCs)  
Particulate Matter (PM)

# Who Is Most Affected by Air Pollution?



According to the World Health Organization, air pollution is one of the biggest environmental health risks, causing around **7 million deaths** world-wide each year. Certain groups are at higher risk to the impacts of air pollution.



## *Children*

Their lungs and airways are still developing, and they spend more time outdoors.



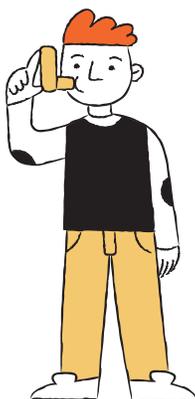
## *Seniors*

Aging reduces lung capacity, and many seniors have chronic illnesses.



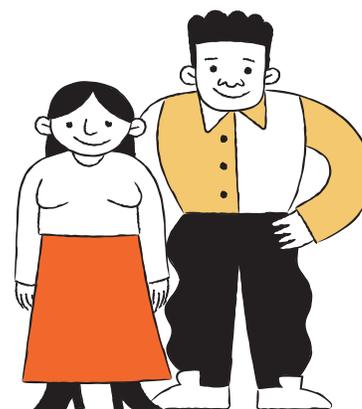
## *Pregnant People*

Air pollution can affect fetus development, increasing risks of high blood pressure, premature birth, and low birth weight.



## *People with Chronic Conditions*

Those with conditions like asthma and COPD are more vulnerable.



## *Communities of Color*

These communities often live and work near sources of pollution, facing higher exposure levels.



**While air pollution affects everyone, some communities face higher risks due to systemic issues** such as inadequate infrastructure investments, unjust land use, transportation planning, and policies that expose residents to higher pollution levels. Specifically, low-income communities, along with Black, Indigenous, and people of color<sup>1</sup>, often experience higher exposure to air pollution. These communities are sometimes referred to as communities facing environmental injustices, or environmental racism.

## Environmental Racism

is a form of environmental injustice where policies, practices, or regulations disproportionately impact individuals, groups, or communities based on race or ethnicity.

### This can result in

- Placement of polluting industries in specific neighborhoods
- Increased exposure to air pollutants and disproportionate health impacts
- Passage of unjust policies with inconsistent enforcement

Studies consistently show that these communities<sup>2</sup> are more exposed to pollutants like fumes, toxic dust, ash, and hazardous substances from industrial facilities or vehicles traveling on nearby freeways. As a result, residents face elevated risks of cancer, heart disease, mental health challenges, and respiratory problems.

These hazardous facilities and freeways are not accidental but are the result of deliberate land use, transportation planning, and policy choices made by planners and elected officials.

### Environmental Justice<sup>3</sup> aims to address and reverse these outcomes by fostering communities with better:

- Quality of life
- Health outcomes
- Environmental and economic stability

Environmental Justice ensures that people of all cultures, races, ethnicities, and socioeconomic backgrounds are fairly protected from environmental and health hazards while having equal access to decision-making processes in the development and enforcement of environmental laws and policies<sup>4</sup>.

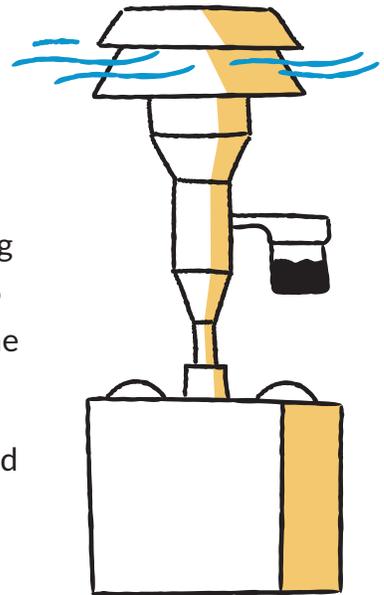
# Actions to Take

## ✓ Check the Daily Air Quality Index (AQI) to Inform Your Daily Activities

The San Diego Air Pollution Control District (SDAPCD) uses monitoring stations to measure outdoor air quality. The monitoring data is used to identify the Air Quality Index (AQI). The AQI tool was developed by the U.S. Environmental Protection Agency (EPA), provides insights into:

- How clean or polluted the air is and its potential health impacts; and
- Recommended actions for sensitive groups to protect themselves.

The AQI tracks pollutants such as:



GROUND-LEVEL OZONE (O<sub>2</sub>)

PARTICULATE MATTER (PM<sub>2.5</sub> AND PM<sub>10</sub>)

SULFUR DIOXIDE (SO<sub>2</sub>)

NITROGEN DIOXIDE (NO<sub>2</sub>)

CARBON MONOXIDE (CO)

## How the AQI Works

The AQI works like a yardstick, from 0 to 500. A lower number (0-50) means good air quality, while a high number (over 300) means dangerous air. AQI is divided into six color-coded levels, each with its own health guidance. For example, an AQI over 150 is “unhealthy” for everyone, not just sensitive groups.



**Check your community's current AQI**  
Scan the QR code or visit [sdapcd.org](http://sdapcd.org)

0-50

51-100

101-150

151-200

201-300

300-500

Good

Moderate

Unhealthy for  
Sensitive groups

Unhealthy  
for everyone

Very Unhealthy

Hazardous



## Install Indoor Air Purifiers

Most people spend a significant amount of time indoors, so maintaining good indoor air quality in homes, schools, and workplaces is essential. Indoor air pollution can result from:



Building materials



Gas appliances



Cooking and cleaning products



Furniture



### Outdoor pollutants

such as car exhaust and hydrogen sulfide from untreated sewage, can also impact indoor air quality.

In-home air purifiers, particularly those with high-efficiency filters, may improve indoor air by reducing pollutants and odors. When choosing an air purifier, consider these features:

1

#### Type of Filter

Select based on your specific air quality concerns (e.g., dust, smoke, odors).

2

#### Clean Air Delivery Rate (CADR)

Match the CADR to the room size.

3

#### Certification

Ensure the purifier is certified by the California Air Resources Board (CARB).

### EPA Tips for Effective Use of Air Purifiers

- Choose a comfortable room where everyone can gather. A room with an attached bathroom is helpful if available.
- Close windows and doors to prevent outdoor pollutants from entering.
- Use fans or set your air conditioner to recirculate to maintain cool air. If possible, use a MERV 13-rated filter or higher.



## Take Individual Action to Reduce Air Pollution and Greenhouse Gas Emissions

Climate change increases extreme weather events, which in turn worsen air quality by raising pollutants such as ground-level ozone and dust. For instance, more frequent and severe wildfires, driven by climate change, can spread smoke over long distances, reducing visibility and causing breathing problems, especially for individuals with asthma, COPD, and other lung issues.

Warmer and wetter conditions also contribute to indoor air problems, such as:

MOLD

DUST MITES

OTHER ALLERGENS

These issues can exacerbate allergies and respiratory conditions, like asthma.

Taking action to reduce air pollution also decreases greenhouse gas (GHG) emissions, which benefits both the environment and public health.

In 2021, San Diego County launched the Regional Decarbonization Framework (RDF) to combat climate change and cut GHG emissions. The RDF outlines initiatives to reduce emissions across various sectors, including:



Buildings



Transportation



Energy



Food



Land use



The ultimate goal of the RDF is to make the region Carbon-Free by mid-century.



For more actions to reduce greenhouse gases (GHG), check out the OSEJ “Let’s Get There Playbook.”

Scan the QR Code

# Steps you can take to *Reduce Pollution* in your *Home and Community*

## TRANSPORTATION ACTIONS

### Carpool or Work from Home

Reduce driving by sharing rides or working remotely.

### Use Public Transportation or Bike

Opt for buses, trains, or bicycles for nearby trips.

### Drive Smart

#### Combine Errands

Plan trips to complete multiple tasks at once.

#### Reduce Car Weight

Remove unnecessary items to improve fuel efficiency.

#### Use Navigation Apps

Find the quickest routes and avoid traffic.

#### Obey Speed Limits

Drive within speed limits to enhance fuel efficiency and safety.

## HOME IMPROVEMENT ACTIONS

### Switch to Electric Heating

Use electric water and space heating instead of gas.

### Be Energy Efficient

- Turn off lights when leaving a room.
- Unplug electronics when not in use.
- Set the AC to 72-75°F.
- Use LED bulbs, which consume less energy and last longer.

## CUSTOMER-SIDE AND GRID SUPPLY ACTIONS

### Recycle and Repurpose

Give new life to items like clothes, books, and electronics through recycling or creative reuse.

### Choose Renewable Energy

Opt for the highest renewable energy plan from your electric provider.

### Compost Food Scraps

Use compost to enrich the soil for plants and trees.

# Healthy Homes Actions

Here are some things to know:

## Improving Ventilation

Poor ventilation in older homes can result in mold growth and make breathing difficult. Here are some ways to improve ventilation:

### **Avoid Using a Gas Oven for Heating**

Gas ovens can release harmful pollutants.

### **Install Carbon Monoxide Alarms**

Place alarms near sleeping areas for safety.

### **Open Windows Regularly**

Let moisture out and dry wet surfaces to prevent mold.

### **Clean and Dust Frequently**

Regularly remove dust and particles to maintain air quality.



### **Seek Support to Quit Smoking**

Keep smoke away from children and others with respiratory sensitivities.

### **Choose Non-Toxic Cleaning Products**

Minimize harmful chemical exposure.

### **Use an Air Purifier**

A good air purifier helps clean indoor air effectively.

## Endnotes

- 1 Harvard School of Public Health. (2022, January 12). News. Retrieved from Harvard School of Public Health: <https://www.hsph.harvard.edu/news/press-releases/racial-ethnic-minorities-low-income-groups-u-s-air-pollution/>
- 2 Natural Resources Defense Council. (n.d.). What is Environmental Racism? Retrieved from NRDC: <https://www.nrdc.org/stories/what-environmental-racism>
- 3 Natural Resources Defense Council. (n.d.). What is Environmental Racism? Retrieved from NRDC: <https://www.nrdc.org/stories/what-environmental-racism>
- 4 California Legislative Information. (n.d.) Code of Planning and Land Use, chapter 1.5, article 4. Retrieved from; [https://leginfo.ca.gov/faces/codes\\_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=1.5.&article=4](https://leginfo.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=1.5.&article=4)



## About

### **San Diego County Air Pollution Control District, Office of Environmental Justice**

The San Diego County Air Pollution Control District (SDAPCD) is the lead agency partner advancing the Environmental Justice Partnership.

SDAPCD is a local agency responsible for monitoring and regulating air quality in San Diego County. It oversees pollution from stationary sources such as factories, gas stations, and landfills.

The SDAPCD Office of Environmental Justice (OEJ) partners with communities heavily impacted by air pollution to co-develop and implement strategies for improving air quality.



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**Air Pollution Control District**

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