



**INDIAN INSTITUTE OF TROPICAL METEOROLOGY (IITM), PUNE  
ENVIRONMENTAL INFORMATION AWARENESS, CAPACITY BUILDING  
& LIVELIHOOD PROGRAMME (EIACP) PROGRAMME CENTRE RP  
(Ministry of Environment, Forest & Climate Change, Govt. of India)**

# Effect of AIR POLLUTION on PETS



Smoking Air



Vehicle



Plastic  
Smoke

**“PETS HAVE FEW RIGHTS, BUT THEY HAVE EVERY RIGHT TO BE HERE.”**

**- Douglas Williams**

## CONTRIBUTED BY

**Dr. B.S. Murthy (ENVIS Coordinator)**

**Mr. Gaurav Shinde (Information Officer)**

**Ms. Bhagyashri Katre (IT Officer)**

**Mrs. Sapana Taral (Data Entry Operator)**



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# EDITORIAL

Unwanted compounds in the air disrupt the atmosphere's normality and welfare, as well as those of living creatures. Any physical, chemical or biological disturbance to the air might be considered air pollution. When we think of air pollution, mostly we think about damage to humans. We often tend to forget the effect of Air Pollution on Plants and Animals. We've come to realize how badly it affects people and how we can try to prevent it. But what we don't often consider is how it can affect our pets.

They're similar to us in a lot of ways. Humans can deal with respiratory issues and cardiovascular issues as a consequence of air pollution, and those are issues that it's possible for animals to face too. It's only recently that scientists have started to consider how air pollution in our homes could be harmful to our pets. In this document IITM-EIACP tried to highlight this issue.

Dr. B.S.Murthy

# INTRODUCTION

Most people are aware that pollution, in general, is not healthy. Bad air quality can cause respiratory damage and creates a greater risk of cardiovascular diseases. While many scientific studies show the negative effects on the health of humans, there is growing evidence that air pollution is also bad for our pets.

## AIR POLLUTION

Air pollution is a range of airborne pollutants that are harmful to humans, animals, plants and the environment. Pollutants can take many forms including chemicals, gases, solid particles or liquid droplets.



Air pollution comes from a variety of sources including both human-made pollutants and natural sources. Not surprisingly, air pollution is more prevalent in urban areas because the emissions from various sources are more concentrated. This may not apply during seasons when wildfires are more prevalent and smoke can span large swaths of the atmosphere.

Similarly, many types of indoor air pollution that comes from various sources also pose health risks. Some sources of indoor air pollution are natural such as radon gas which is released by the Earth and can build up in homes. Other common pollutants found indoors are due to insulation, mold, or smoking. Needless to say, it would be difficult to completely avoid exposure to air pollution. However, efforts can be made to reduce the harm caused by air pollution.



# NATURAL CAUSES OF AIR POLLUTION



Air pollution isn't always caused by human activity. Some natural disasters can contribute to releasing pollutants into the air.

## 1. Wildfires

Wildfires contribute to air pollution and damage the environment. Smoke from wildfires can travel thousands of miles, causing poor air quality even in the regions that aren't directly affected.

## 2. Volcano Eruptions

When a volcano erupts, it sends huge ash plumes, carbon dioxide, and sulfur dioxide into the air. This can cause respiratory problems in all living things, including animals. Not to mention, volcano eruptions can lead to vegetation, surface water, and groundwater contamination.

## 3. Decay of Rocks and Soil

As rocks and soil enter the decaying state, they release pollutants into the air. These pollutants can include dust, chemicals, and other harmful particles. In this case, pollution harms animals living in caves or other underground habitats, as they constantly breathe in polluted air.

# MAN-MADE CAUSES OF AIR POLLUTION



Although natural causes can highly damage the environment and pollute the air, the damage caused by human activities is far more dangerous.

## **1. Carbon Monoxide**

Carbon monoxide is a gas produced when fossil fuels have either too little or too much oxygen. Especially in crowded cities, carbon monoxide can lead to smog, the greenhouse effect, and acid rain.

## **2. Carbon Dioxide**

While carbon dioxide isn't precisely a pollutant, a high concentration of this gas leads to climate change and global warming.

## **3. Sulfur Dioxide**

Sulfur dioxide is a gas that is produced when coal and oil are burned. Besides causing respiratory problems in animals, sulfur dioxide is the primary contributor to acid rain.

## **4. Ozone**

Also known as trioxygen, ozone is a gas produced when other pollutants react in the presence of sunlight. Unfortunately, this gas produces high levels of smog and acidification that affect the climate.

## **5. Lead**

Simply put, lead is a heavy metal found in car exhaust and some industrial emissions. Lead is among the types of pollutants that are extremely toxic to the environment.

## **6. Nitrogen Oxides**

Nitrogen oxide and nitrogen dioxide both come from vehicle engines. So, it's safe to say these gasses are indirect greenhouse gasses.



# INDOOR AIR POLLUTION SOURCES

There are many sources that can be responsible for indoor air pollution, some of which are recognizable due to their odour, but there are many that fly under the radar.

## \* **MOLD**

Mold is a form of fungus which grows from spores that latch onto damp areas in buildings. It digests the materials it lands on, and can grow on many types of surfaces. It is prevalent in moist environments and is most common during the winter months and in more humid climates



As there are many types of fungus that cause mold, it can take on a wide variety of features. Mold may be white, black, green or yellow, and can appear to be slick, fuzzy or rough in texture. Worryingly, mold can release a range of hazardous toxins into the air and can cause many different symptoms—and is a particular concern to babies, children, older adults, and those with existing skin problems, respiratory problems, or weakened immune systems.

## \* **TOBACCO SMOKE**

A major cause of indoor air pollution, environmental tobacco smoke, or second-hand smoke—causes over 40,000 deaths in the U.S. each year. The inhalation of cigarette smoke is particularly harmful to children, increasing the risk of sudden infant death syndrome (SIDS), severe asthma, ear problems, and acute respiratory infections.

Moreover, cigarette smoke contains at least 70 carcinogens, chemicals that have been proven to cause cancers, as well as around 7,000 other chemicals that your body could do without.

When inhaled, these chemicals can cause illnesses such as chronic obstructive pulmonary disease (COPD) and other cardiovascular diseases which lead to heart attacks, as well as other serious complications.

## \* **CARPET**

Carpets act like traps for indoor pollutants, easily absorbing mold spores, and particulates from smoke, allergens, and other harmful substances. Research has found that even some toxic gases can settle into carpets. While some may argue that this trap keeps occupants safe, pollutants caught in carpets can be easily disturbed simply by walking on them.

## \* **HOUSEHOLD PRODUCTS**

Many day-to-day products present in almost every home can cause indoor air pollution. These include:

1. Cleaning agents and disinfectants
2. Paints
3. Glues and solvents
4. Personal care products
5. Air fresheners
6. Candles

These products may emit volatile organic compounds (VOCs), which can cause issues such as eye, nose or throat irritation, headaches, nausea, organ damage, and even cancer in some extreme cases.



## \* **APPLIANCES**

Many homes and offices contain space heaters, ovens, furnaces, fireplaces and water heaters that burn fuels such as gas, kerosene, oil, coal or wood for energy. As combustion can be extremely dangerous, most appliances are rigorously tested to ensure they are safe for use.

However, if the appliance is faulty, it can produce toxic gases such as carbon monoxide, sulfur dioxide, and other compounds including hazardous aldehydes.

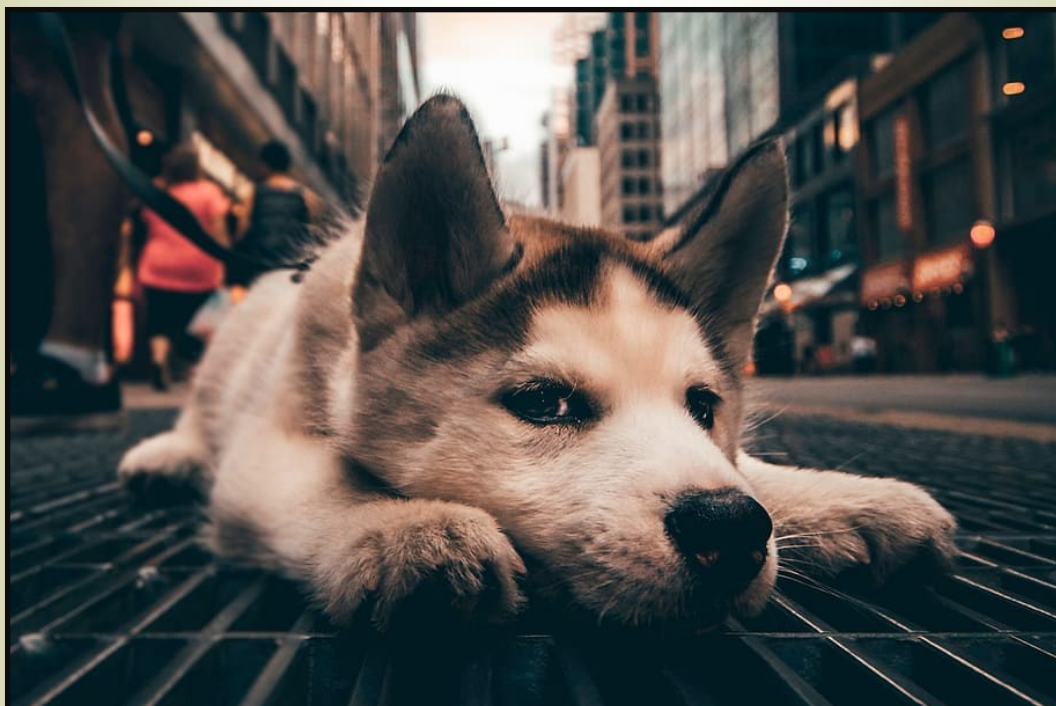
## \* **RADON**

A completely odorless and inert gas, radon can seep up through the ground and diffuse into the air in your building. When it undergoes decay, radon emits radiation which can attach to dust particles and pass into the lungs causing damage.

Although it may seem strange, surveys have shown that radon concentration indoors is an order of magnitude higher than those typically found outdoors.

## \* **PET DANDER**

You might not think of pet dander when you think of indoor pollutants, but for many allergy sufferers, it's an acute irritant that can make some indoor environments vexing. Pet dander is comprised of microscopic flakes of skin shed by household pets, meaning that hairless breeds can cause symptoms like coughing, sneezing, watery eyes, and chest tightness.



# **AIR POLLUTION AND PETS WHAT'S THE CONNECTION?**

When thinking about smog, few of us wonder what the effects of air pollution on animals are. Although they spend their time indoors with humans, pets can still be susceptible to air pollution. According to some studies, pets that live in the city are more exposed to pollutants than those who live in rural areas. Interestingly, it turns out that pets are just as sensitive as humans and their health can also be damaged by the combination of car fumes, emissions, ozone and particulate matter found in the air.

Even though research on the effects of air pollution on our pets is just beginning, there is a consensus on the fact that poor air quality affects our furry friends as well.



**“LIFE IS RARE, DON'T LET IT END DUE  
TO POLLUTED AIR.”**



# HOW ARE PETS AFFECTED BY AIR POLLUTION?

Animals do get affected equally by air pollution. Degrading air quality is something to blame for the ever shortening life spans of our beloved pets.



Continuous and prolonged exposure to degraded air quality can give rise to a variety of lung, throat and nose diseases in your pets, such as bronchitis or even asthma.

Cats that live in a smoky environment are at greater risk of asthma and lung cancer due to their short noses. Nose length aside, cats that live in a smoky household are at higher risk of lymphoma, a cancer of the lymphocytes.

A 2018 study revealed that cats living in houses with higher levels of PM2.5 were at a bigger risk of respiratory disease than cats living in houses with acceptable levels of PM2.5.

Pets are also harmed by outdoor air pollution. A 2009 study showed that dogs exposed to outdoor air pollution were at a higher risk of brain inflammation and the occurrence of proteins associated with Alzheimer's disease in humans.

Animals are affected by air pollution in multiple ways. The list of possible conditions developed in pets exposed to harmful substances includes:

- \* **RESPIRATORY DISEASES SUCH AS ASTHMA**– It's worth mentioning that in the case of animals the aftermaths are noticeable much later and are hard to diagnose. Nevertheless, it's been proven that toxic fumes and smog damage the lungs of pets, as their respiratory systems are much more sensitive than those of humans.
- \* **PROBLEMS WITH FERTILITY** – Air pollutants have a negative impact on the animals' ability to reproduce which may lead to infertility.
- \* **WEAK IMMUNE SYSTEM**- Animals that breathe in polluted air are more vulnerable to various illnesses and infectious diseases.
- \* **ALLERGIES, INFECTIONS, SKIN IRRITATIONS** – Just like humans, animals are likely to suffer from all kinds of allergies and skin issues caused by smog.
- \* **LIVER CONDITIONS** - In order to detoxify itself, liver needs plenty of clean water. As you may guess, wild animals don't always have access to quality sources, and they drink from polluted surfaces. This, in turn, has a negative impact on their liver health.
- \* **ALTERED BEHAVIOUR** - Air pollution can cause animals to change their behaviour in a variety of ways. For example, it can make birds sing less or force bees to abandon their hives. Additionally, air pollution can alter the migration patterns of some animals.
- \* **HIGHER MORTALITY RISK** -

Animals exposed to air pollution have a higher mortality rate. This is because air pollution can cause various health problems, including respiratory problems, heart problems, and cancer. Additionally, this type of pollution can weaken the immune system, making animals more susceptible to diseases.





### \* **SMOG AFFECTS THE HEALTH OF PET**

Smoggy days are bad not just for you, but for your furry friend too! Smog causes severe ailments because of the quality of air they breathe in. It may cause breathing troubles leading to suffocation. This can be fatal for our pets in periods of intense and prolonged exposure.

### \* **PASSIVE SMOKING AFFECTS PETS**

Passive smoke from cigarette smoking is an air quality problem for our dog and pets. A recent study showed that pets in smoke-free homes have healthier lungs than their counterparts living in smoke-prone homes. The passive smoking is detrimental to their lung health as they tend to spend most of their time on the floor.

### \* **INDOOR ACTIVITIES CAN CAUSE CANCER**

Certain indoor activities like cleaning with artificial chemical cleansers and smoking cause adverse effects on your pet's health. These contain carcinogens which can be directly attributed to causing illnesses like mesothelioma, lung, bladder and nasal cancer in your pets.

### \* **OUTSIDE POLLUTION AFFECTS OUR PETS**

Outside pollution also affects pets. In a survey, it has been observed that dogs in areas of high-pollution levels show increased inflammation of the brain than those living in areas with a relatively low pollution. Pollution may even cause your pet to acquire certain Alzheimer-like illnesses.



## \* USING PESTICIDES CAN BE DEADLY FOR DOGS

It has been observed that the use of artificial pesticides in personal farms can prove to be deadly to dog. According to a study, around 30% of the dogs living in homes with artificial pesticide use are diagnosed with canine malignant lymphoma which is a form of cancer. It has also been observed that around 70% of these dogs do actually have a chance of acquiring this deadly disease.



## \* INDOOR POLLUTION DECREASES PET'S LUNG CAPACITY

It has been found that houses with owners who smoke and pollute the air from burning wood are detrimental to the health of pets. Cats and dogs in such houses are more prone to catch health problems like asthma and decreased lung functionality.

## \* USING ARTIFICIAL ROOM FRESHENERS AFFECTS PETS

While we may want our houses to smell good at all times, this comes with a price. If we go for artificial fresheners containing aerosols, these contaminants aren't good for pet's health and result in various illnesses of the heart and lungs.





# PRECAUTIONARY STEPS TO PROTECT PETS

By recognizing the source of poor air quality, we can take steps to protect our entire family, including our furry family members from negative effects of air pollution.

## 1. VENTILATION IS THE KEY



Well, we can't run away from the very air we are breathing but we can definitely infuse some habits and home add-ons to minimize the effect of air pollution on dogs, cats and furry rabbits.

Ensuring sufficient ventilation is one of the simplest and most effective ways to ensure that you are

breathing 'good' air. Keep the windows open to facilitate a natural exchange of indoor and outdoor air.

Make sure that you run exhaust fans in your kitchen and bathroom to remove fumes from cooking and steam, respectively. A well ventilated Green Home can help us and our pet breathe in air that is detoxified.

## 2. SMOKING? A NO-NO FOR INDOOR AIR QUALITY

Environmental Tobacco Smoke (ETS) is one of the most crucial and dangerous contributors to indoor air pollution. Cigarette smoking releases a substantial amount of breathable particulate matter into the air. These suspended particles make your indoor air unbreathable and toxic for smokers as well as non-smokers.



So smoking indoors should be avoided and make your place a cigarette-free zone and do not allow anyone to smoke those vicious buds indoors. Use organic cat loungers and dog beds.

However, nothing can be better than quitting this habit altogether.

### 3. WELCOME THE RIGHT WAY!

A small change, such as using microfibre doormats at your doorstep, can magically improve the indoor air quality. Even better, make your home a shoe-free zone.



Ask your relatives and friends to remove their footwear outside the home. The footwear can infiltrate your place with outdoor pollutants.

### 4. FILTERS FOR THE RESCUE

Regularly changing the filters of your air conditioner is a simple yet effective solution to improve the indoor air quality. Filters trap the air pollutants onto their surface, and choked filters can be detrimental to the air quality. Using car cabin filters can also prove fruitful to improve the indoor air quality of your car and save it from turning into a gas chamber.

If you have central heating, ventilation, and air conditioning (HVAC) system installed at your place, then you should give pre-filters a try to absolve the problem of indoor air pollution.





## 5. KEEP IT NATURAL

A simple way to improve your indoor air quality is by avoiding the use of any artificial odor. Air fresheners, deodorants, and scented laundry detergents release airborne pollutants called volatile organic compounds (VOCs) into your indoor air.

These compounds degrade the quality of your indoor air and lead to many health-related disorders, including cancer. This makes natural odor the best choice for a healthy living.



## 6. CLEANLINESS IS NEXT TO GODLINESS

Keep your place clean to breathe clean air. Brooming can stir more dust and degrade the indoor air quality by keeping the pollutants suspended in the air.

Mopping is an economical and more effective method of cleaning than dusting or brooming. Moreover, using microfiber dusting cloth traps more dust than a cotton rag while mopping.

## 7. HANDLE CHEMICALS WITH CARE

It is not advisable to clean homes with chemical solvents rather the use of natural preparations that consist of white vinegar and baking soda should be encouraged.

All the household chemicals must be sealed after use. We use a lot of chemicals that vaporize upon exposure to air, such as vinegar, kerosene, petrol, varnish, nail paint remover, etc.

Such compounds are called volatile compounds. Their leakage can result in the release of harmful toxins in the indoor air and degrade its quality. Therefore, you should make sure that they are sealed and stored safely after use.

Paints are a source of VOCs. Freshly painted rooms result in the release of these compounds in the indoor air, which can be detrimental to human health.



One must opt for wall and floor coverings and other furnishings that are made with eco friendly elements. Use paints that have a low volatile organic compound density. So make sure that you schedule indoor painting when your place is the least occupied. Also, buy the quantity of paint as per requirement and store any leftovers in a closed, dark space.

## 8. CODE GREEN

The most eye-pleasing, economic, and effective solution to indoor air quality problems is indoor plants. Having indoor plants by your study table, bedside, or a mini-garden on your balcony is one of the most promising solutions. These will eliminate the traces of some dreadful toxins and provide you with fresh and pure oxygen.



Some of the indoor plants that require minimum maintenance and best results are- Peace Lily, Kimberley Queen Fern, Dragon Tree, Red Emerald Philodendron, Spider Plant, Aloe Vera, Philodendrons, Massangeana cane (sucks formaldehyde from air), Pothos (clears the air of carbon monoxide and formaldehyde), Anthuriums (frees the air of ammonia), 'Song of India' (absorbs toxins like xylene), Parlor Palm and Phalaenopsis orchids. Use of less toxic chemical pesticides should be promoted in our gardens.

## 9. PET THEM RIGHT

Believe it or not, but having pets contribute to decreased indoor air quality. Pet dander is one of the sources of indoor air pollution. However, it can be controlled if you take the right care of the beloved members of your family. Bathe them at regular intervals and wash their bedding to reduce allergy-causing dander. Also, try to not let them sleep on your bed and vacuum their trail often.

## 10. DRY IT ALL

High humidity makes the indoor air equally deplorable. High humidity is one of the arch-nemesis of indoor air. It facilitates the growth of mold and mildew in the indoor environment. High humidity also helps bacteria and viruses to flourish, which makes you more susceptible to infections. So, make sure to keep your household environment dry and disease-free!

## 11. COVER YOUR TRASH



Uncovered or overflowing waste is equally toxic for the indoor air quality. Bacteria, insects, pests, and vermin thrive on uncovered waste. They also provide a larger surface area for pollutants to settle. So, always keep your waste covered.

## 12. CONTROL THE SOURCE

With regard to pets, controlling the source may be more difficult. Especially when compared to swapping a gas stove for an electric stove for example. Pets are a part of the family. And they should be treated as such! In order to reduce the amount of dander floating around your home, groom your furry friends regularly.

If you must allow them in the bedroom or the living room, prevent them from lounging on the bed or the couch. Vacuum carpets, sweep floors and dust regularly. And, separate blankets and towels that belong to your pet. Overall, it's important to keep your home as clean as possible to reduce dander.

## 13. TACKLE THE OUTDOOR POLLUTION

It is important to be well informed of the air quality in one's area on a day to day basis.

The days when atmospheric pollution reaches the red mark it is advised for pets to stay indoors or at least away from the high traffic areas.

While walking the dog, make sure you stay away from high traffic zones as these tend to be laden with foreign toxic particles. Opt for open spaces away from busy roads.







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**“An Pet’s eyes have the power to Speak a great language”.**  
**-Martin Buber**

All queries and feedback addressed to:

**Environmental Information Awareness,  
Capacity Building & Livelihood Programme (EIACP)  
Programme Centre Resource Partner**

**INDIAN INSTITUTE OF TROPICAL METEOROLOGY**

Dr Homi Bhabha Road, Pashan, Pune,

Maharashtra 411008, India

Call us: +91-20-2590-4212

Website: [www.iitmenvis.nic.in](http://www.iitmenvis.nic.in) | E-mail: [iitm-env@nic.in](mailto:iitm-env@nic.in)

