

VOLUME 7 • DECEMBER 2021

EARTH ROOT

COP26

AIR POLLUTION CAUSES & EFFECTS

HOW TO REDUCE AIR POLLUTION

RELATIONSHIP B/W CLIMATE CHANGE & AIR POLLUTION

DELHI SMOG TOWERS AND HOW IT WORKS

CLOUDED BRAINS



About E-magazine

“Earth Root” is an open access e-magazine in the discipline of Environmental sciences published by Earth Root Foundation. The aim of the e-magazine is to provide information and upgradation of knowledge about environmental issues on wider scale and to share ideas and resources to the readers. Using essential knowledge people can lead a healthy life, which is more sustainable and can connect with ongoing efforts for stopping catastrophically the climate change. E-magazine caters to all related environmental aspects ranging from big issues like climate change, renewable energy and pollutants in the atmosphere to the health of human and living beings on Earth. We also take topics of water resources and efforts and measurement to provide optimum use of it; including large scale atmospheric circulation linked with oceans and ecology.

Magazine Particulars

Title	Earth Root
Frequency	Monthly
ISSN	----
Publisher	Earth Root Foundation
Chief Editor	Dr. Vivek Panwar
Copyright	Earth Root Foundation
Starting Year	2021
Subject	Environment
Languages	English
Publication Format	Online
Phone No.	011 49064364
Email Id	info@earthrootfoundation.org ; vivekpanwar@earthrootfoundation.org
Mobile No.	+91 8766317774; +91 9990013202
Website	www.earthrootfoundation.org
Address	456, Pocket B, Sector-13, Dwarka, New Delhi-110078

Editorial Board



DR. VIVEK PANWAR

Editor in Chief

Assistant Professor, Department of Physics & Electronics, Rajdhani College, University of Delhi, Ring Road, Raja Garden, New Delhi – 110015, India

Email: vivek.panwar@rajdhani.du.ac.in

Profile Link: <https://www.rajdhanicollege.ac.in/Base/faculty/173>

PROF. S K DHAKA

Editor

Professor, Department of Physics & Electronics, Rajdhani College, University of Delhi, Ring Road, Raja Garden, New Delhi – 110015, India

Email: skdhaka@rajdhani.du.ac.in

Profile Link: <https://www.rajdhanicollege.ac.in/Base/faculty/159>



DR. NARENDRA SINGH

Editor

Aryabhatta Research Institute of Observational Sciences (ARIES), Manora Peak, Nainital – 263001, Uttarakhand, India

Email: narendra@aries.res.in

Profile Link: <https://www.aries.res.in/people/user-profile/sci/76>

DR. DEEKSHA KATYAL

Editor

Assistant Professor, University School of Environment Management, Guru Gobind Singh Indraprastha University, Sec-16C, Dwarka, New Delhi – 110078, India

Email: deekshakaty@ipu.ac.in

Profile Link: http://www.ipu.ac.in/usem/Assistant_Professors.php



DR. PAWAN KUMAR

Editor

Assistant Professor, Department of Chemistry, Rajdhani College, University of Delhi, Ring Road, Raja Garden, New Delhi – 110015, India

Email: drpkumar@rajdhani.du.ac.in

Profile Link: <https://www.rajdhanicollege.ac.in/Base/faculty/248>

TABLE OF CONTENTS

**COP26 AND DELIBERATIONS ON TO ACHIEVE THE
MILESTONES IN COMING 3-4 DECADES**

2

AIR POLLUTION- IT'S CAUSES AND EFFECTS

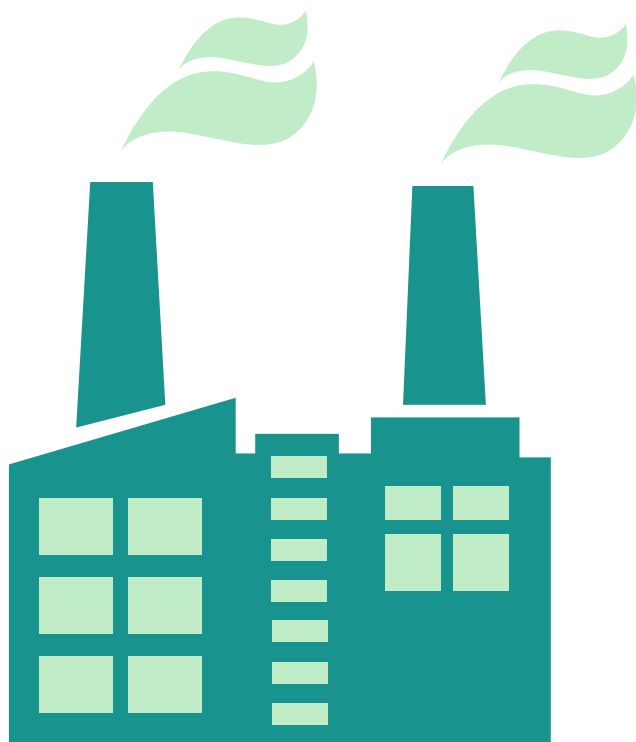
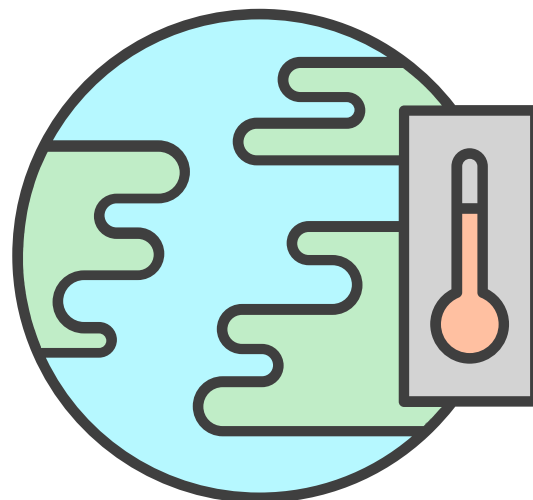
5

CLUDED BRAINS

7

HOW TO REDUCE AIR POLLUTION

8



**DELHI SMOG TOWER & HOW IT
WORKS**

10

**MOVIE RECOMMENDATION-
CHASING CORAL**

11

COP26- A BRIEF INTRODUCTION

12

**THE RELATIONSHIP BETWEEN
CLIMATE CHANGE AND AIR
POLLUTION**

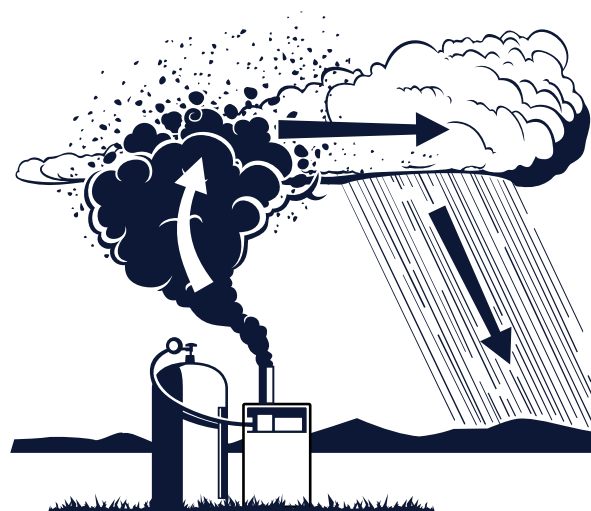
13

P.S. THANK YOU

14

CROSSWORD

15



COP26 AND DELIBERATIONS ON TO ACHIEVE THE MILESTONES IN COMING 3-4 DECADES

Praveen Gawali

Indian Institute of Geomagnetism, Navi Mumbai

The heads of state of almost all the countries of the world gathered together in Glasgow in the first week of November. They have been deliberating and negotiating a number of issues pertaining to climate and its fickle nature. The climate has become quite unpredictable and there are reasons for these “mood swings”. A couple of weeks back, India witnessed an unusual event of two cyclonic systems whirling around the subcontinental landmass in the Arabian Sea and the Bay of Bengal. This created quite a havoc and the brunt of nature’s fury was mostly borne by the southern states offshore of BoB. Climate has become spooky and ferocious.

The reasons for this climatic changes are now well known. The greenhouse gases are populating the atmosphere with an increasing ferocity and severity with the spate in industrialization. Europe witnessed the advent of industrialization with the discovery of the power of steam. The development of other contraptions to speed up the work took the mechanical work to an altogether different level. Efficiency increased and time reduced to do a particular mechanical work. It has now created a vicious circle. More the production, more is the release of heat trapping gases in the world.

The model of wealth creation and generation created over the decades is being adopted by all the countries that are lagging behind economically. The moral and ethical need to uplift the populace materialistically is beyond dispute. The achievement of this goal involves heavy usage of fossil fuels that anomalously pollute the atmosphere, affecting the natural rhythm of all the natural processes taking place on land and sea, and even below.

The realization of the man-made activities affecting the weather pattern and the consumption of unwanted gases, in kind and proportion, has been growing over the years.

The smog that engulfed London for a few days in December 1952 reportedly killed around 12,000 people. It was caused mostly by coal burning and exacerbated by the seasonal weather conditions. It was a defining moment in history which unravelled the harmful effects of our ‘progress’. It also was a wakeup call to initiate mitigation efforts to dampen, arrest or stop pollution of all sorts. Later, many parts of the world started witnessing acid rains, which forced the governments to act against this menace. The scientific community was tasked to find solutions to combat climate change.

Climatic parameters are many and their relationships with one another are very complex. We have the rotation of earth, and the variable energy that is received from the sun, that gives rise to day and night as well as different seasons. We then have different constituents of the atmosphere that come from natural as well as artificial causes.



The churning that goes on in the sea and the conductive currents that transfer the energy from one section of the ocean to another is also quite complex. There are many volcanic exhalations that take place below the sea, and also on land. The quantum of those additions is now being worked out.

The natural disasters also play a major role in global ecology. Can we control these natural processes that add gases and crust to earth? Right now, it is well-nigh impossible.

But, we can control the artificial additions to the atmosphere and the oceans. And this is what the global concerned citizens are looking for. Net-zero emission commitment has been announced by a string of countries by 2050. India aims to achieve it by 2070. What is net-zero? Emission of carbon dioxide has to be zero, or the amount of carbon dioxide (can be taken as a synonym for greenhouse gases) released should be equal to it captured. This is a Herculean task. To achieve net-zero emission will require systemic changes. The transition will depend upon the development of new technologies based on green hydrogen and carbon capture storage. How soon it comes needs to be seen. It will also entail huge expenses and the usage costs for the consumers need to come down in an affordable manner.

For this to happen, the coal mining and excavation need to be stopped progressively that is now being used for the production of electricity and other forms of energy. I don't want to give any figures here (they are easily available on net), but it is expected that coal usage will be the highest at around 2040. From this height, the coal usage is expected to come down drastically, to the tune of 99%. If, and only if, the coal usage is stopped completely will the target of zero emissions by 2070 met. Just to keep the big picture in perspective. Our country's solar energy generation capacity today is almost 50 GW. C

The share of this source has to go up to 1700 GW by 2050 and further to 5600 GW by 2070. The wind based energy generation capacity of India currently is 39 GW. This has to be increased to 550 GW by 2050 and 1800 GW by 2070. Nuclear generation capacity now is 7 GW, which need to be increased to 68 GW by 2050 and then to 225 GW by 2070. Similar targets need to be achieved by other nations as well. The percentage of non-conventional energy source has to replace the percentage usage of fossil fuel source.

The preceding, in any case, are the matters for the governments to look into and implement. What can we, the lay population, do? We also should be shifting from the conventional to the unconventional. We have to adopt a new lifestyle that is dependent on solar and aeolian forms of energy for cooking our food. The transportation module also needs overhauling. Electric vehicles are now set to replace the ones in vogue. For net zero emissions the usage of electric or battery driven vehicles has to go up to almost 80% of the total transportation. The rest of the vehicles should use green hydrogen. This will lead to concurrent decline in crude consumption.



The Need To Conserve Energy

Energy conservation is one of the most important things you can do to reduce your carbon footprint. Leaving your electricals on standby needlessly uses up energy — hit the off switch, and you could see huge improvements, most noticeably in your energy bills!

The 200 odd countries that assembled at Glasgow in the very first week of November pledged some action to the world community to achieve the goal of reining in the temperature rise. The primary goal of all the nations is to keep the global temperature rise of 1.5 °C and well below. However, the models worked out by the climate experts indicate the earth will warm by about 2.4 °C and there is every possibility of climatic uncertainties of ever-increasing magnitudes. This is a very serious matter and the world leaders are well aware about it. Maybe the next meeting at Egypt will see fresh initiatives to curb the warming.

One of the most important outcomes of the COP26 is the mention of phasing down (and not the phasing out) the usage of coal. It has been revealed that the governments give out subsidies to the tune of almost 6 trillion dollars (4500000000000000 rupees). It is proposed to cut down the subsidies. The amount spent on subsidies is quite huge. But it is necessary. In a similar vein, adaptation to new technology and new ecological scenario will need resources. The adaptation strategies will require innovation and building new technologies. This will basically be achieved by high income countries and the low income group will lag behind. Hence, the high income countries will have to come forward and help the low to medium income group countries. It was decided to help these countries by offering 100 billion dollars every year for technological upgradation and adaptability measures.

However, this is just not enough to arrest global warming. The COP26 decided to stop deforestation and bring more and more land under the shade of trees. They also have pledged to bring down the methane exhalations.

Get ready folks. Major changes are coming our way!!



Source: IndianExpress.com

AIR POLLUTION - IT'S CAUSES AND EFFECTS

Rahul Patel

Delhi School of Economics, University of Delhi

Air pollution refers to the release of pollutants into the air which is detrimental to human health and the planet as a whole. According to the World Health Organization (WHO), each year air pollution is responsible for nearly seven million deaths around the globe. Air pollution can be classified into two sections — invisible and visible air pollution. Visible air pollution, as the name suggests, can be visible. Smog is an example of visible pollution. Invisible air pollutants are less noticeable, but they can be more deadly, for example, sulphur dioxide, carbon monoxide and nitrogen oxides.

Causes

1. Burning of Fossil Fuels:

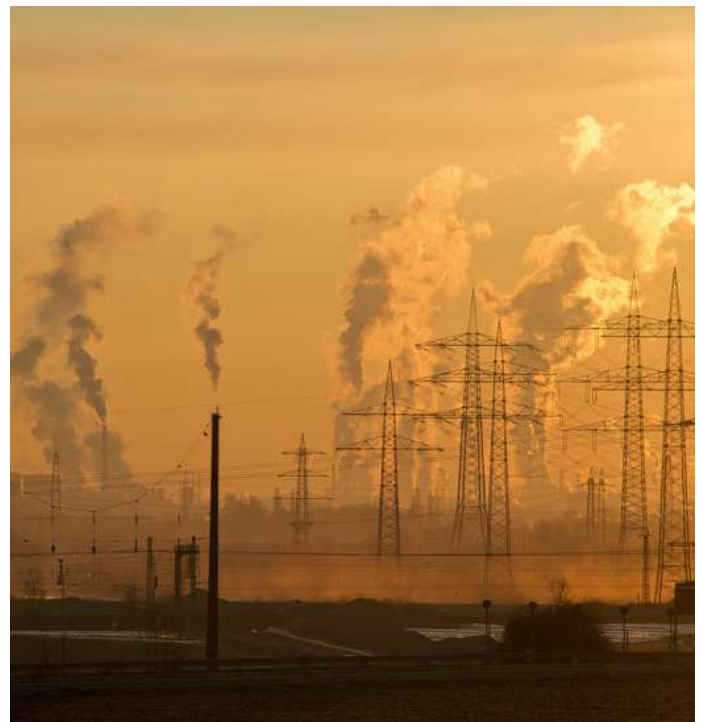
Burning of fossil fuels such as coal, oil, petrol to produce energy for electricity or transportation, which releases carbon monoxide in the air, leading to respiratory illness.

2. Industrial Emission:

Industrial activities emit particulate matter 2.5 and 10, nitrogen dioxide, sulphur dioxide, and carbon monoxide leading to effects associated with one's health, ranging from irritation in the eyes and throat to breathing issues, chronic illness.

3. Transportation:

Vehicles emit carbon monoxide, hydrocarbons, nitrogen oxide, and particulate matter. When vehicle pollution is high in the atmosphere, it creates a hole in the ozone layer, contributing to smog and causing various health issues.



4. Open Burning of Garbage Waste:

Exposure to open burning of garbage waste can pose serious health risks, including cancer, liver issues, impairment of immune system, reproductive functions; it can also affect the developing nervous system.

5. Construction and Demolition:

With the rise of population in the city, construction and demolition is a part of the development phase. Raw materials such as bricks and concrete cause haze and foul air which is hazardous for people especially, children and elderly citizens.



Effects

1. Respiratory and Heart Problems:

Air pollution creates several respiratory and heart conditions like asthma, chronic bronchitis, emphysema, heart attacks, and strokes along with cancer, among other threats to the body. Several million are known to have died due to the direct or indirect effects of air pollution.

2. Child Health Problems:

Exposure to high air pollution levels during pregnancy causes miscarriages, premature birth, autism, asthma, and spectrum disorder in young children. It also has the potential to damage early brain development in a child. Children are at a greater risk of short-term respiratory infections and pulmonary diseases in areas exposed to air pollutants.

3. Global Warming:

Another direct effect is the immediate alterations that the world is witnessing due to global warming. With increased temperatures, an increase in sea levels, and melting of ice from colder regions and icebergs, displacement, and loss of habitat have already signaled an impending disaster.

4. Acid Rain:

Harmful gases like nitrogen oxides and sulphur oxides are released into the atmosphere during the burning of fossil fuels. When it rains, the water droplets combine with these air pollutants, become acidic, and then fall on the ground in the form of acid rain, causing great damage to humans, animals, and crops.

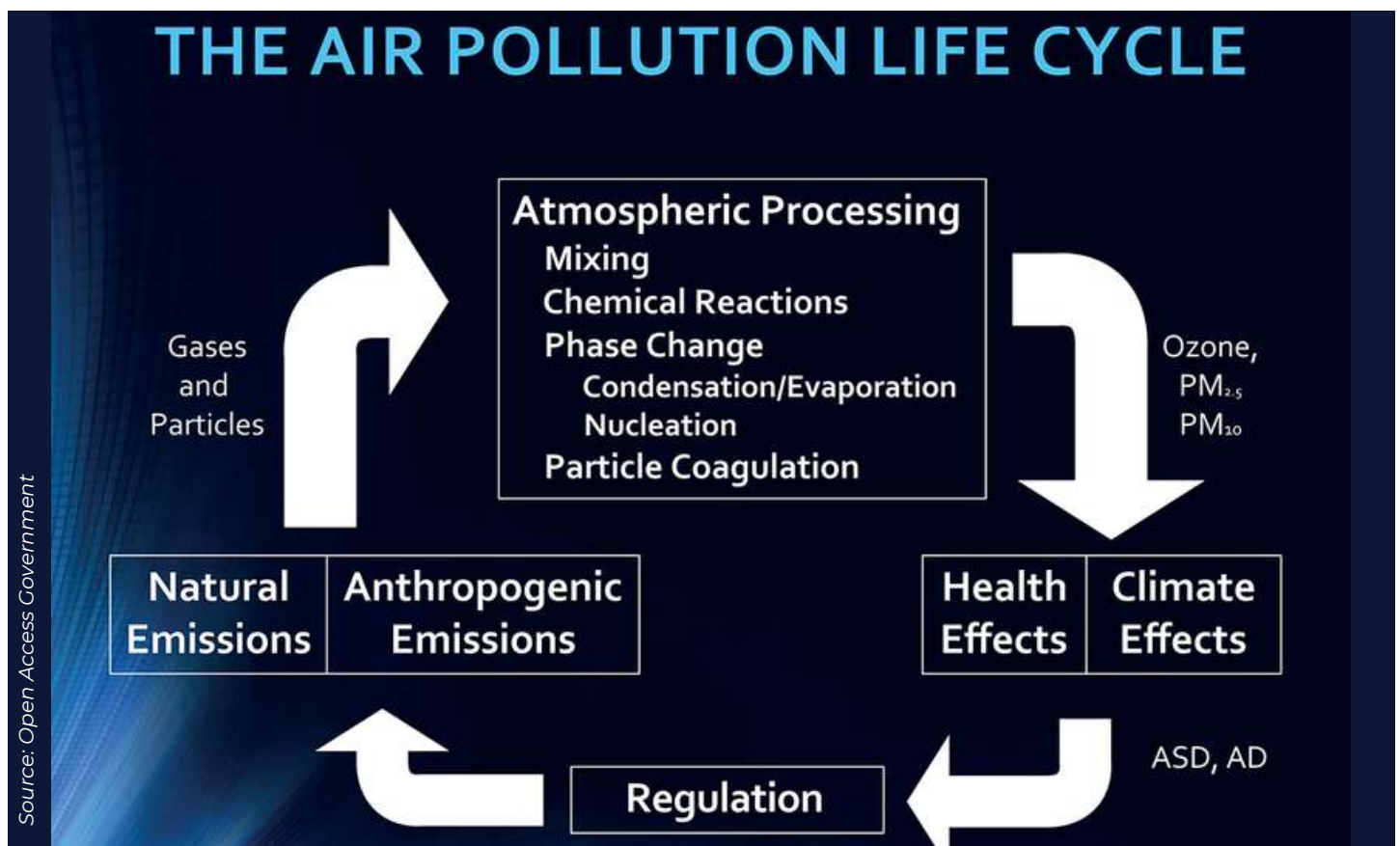
5. Effect on Wildlife:

Toxic chemicals present in the air can force wildlife species to move to a new place and change their habitat. The toxic pollutants deposit over the surface of the water and can also affect sea animals.

Now there's emerging evidence that polluted air is also detrimental for one's brain.



Researchers have discovered over the last decade that excessive levels of air pollution can harm children's cognitive ability, raise the likelihood of cognitive decline in adults, and even lead to depression.



CLOUDED BRAINS

Rajasvee

Kamala Nehru College, University of Delhi

Do you remember those cold winter mornings, when you would step out of your house and be surrounded by the fog, not being able to see anything clearly because of which you had to walk really carefully? Now, how would it make you feel if this were to happen to your brain, where it would be covered in “fog” and you’d have to be really careful to do things so much so it would affect you a great deal? It’s food for thought, isn’t it?



This fog has now become smog, and it's not news to us, but it should be. The air pollution is getting worse day by day and not much is being done to handle the situation. The air quality in Delhi, India reached 500 due to which the government had to impose a lockdown. Now, we are quite familiar with the repercussions of air pollution, of how it affects our physical health and can result in inflammation. Recent researches, however, suggests that air pollution not only affects physical health but also largely influences our mental health and cognitive functions.

Even though the amount of research being done to study the impacts of air pollution on mental health is comparatively low, the results and findings are crucial. It has now gained more attention over the past decade, rightfully so.

Some researches suggest that constant exposure to dirty air can result in a decline in mental health, cognitive functions like memory, depression, anxiety, and in extreme cases suicide.

Research conducted by Jenifer Weuve and Melinda Power is evidence of the fact that people living in areas exposed to more air pollution do show signs of cognitive decline. Furthermore, Randy Nelson's study on mice shows that mice that were exposed to dirty air exhibited depression-like symptoms. Not only this, some other findings through a means of MRI, showed that due to air pollution and exposure to particulate matter and black carbon, it can through the lungs enter into the brains via the bloodstream. Due to which the endings of the neurons in the brain can be affected.

This all is proof enough that we need to actively work towards reducing air pollution since it's high time now.

Source: APA Organization

DID YOU KNOW

Air pollution is India's second-largest public health risk after malnutrition.



HOW TO REDUCE AIR POLLUTION

Sarthak Mishra

Freelance Content Writer

Air pollution is the undesirable presence of impurities in the atmosphere. Air pollution can be defined as the contamination of the atmosphere with anomalous concentrations of harmful substances. It is a serious health and environmental concern since it can cause several life-threatening respiratory diseases and also disturb the ecological balance. Air pollutants are fine particulate matter that is released in the atmosphere as the by-product of different human activities. Some typical air pollutants are sulphur dioxide, carbon monoxide, nitrous oxides, ammonia, chlorofluorocarbons (often abbreviated to CFCs), and methane. According to the World Health Organization (WHO) in 2019, based on the concentrations of PM2.5 emissions, India, was ranked the fifth most polluted country. Also, 21 among the top 30 polluted cities were in India. Below discussed are some ways through which air pollution can be reduced in India

Recycle Everything

You can recycle almost everything, from batteries to paper to cars. Before you throw it away, take a minute to find out if you could recycle it instead.



Replacing diesel and gasoline-powered vehicles with electric vehicles:

A decade ago, it was extremely troublesome to change your fossil fuel-driven car with an electric vehicle. Purchasing an electric car was too expensive. In 2021, there are some good electric/hybrid vehicle options. In the coming years, this market is only going to increase.

Make use of Renewable Energy: Renewable energy is a much cleaner version of power generation. Technology has made such great progress in the last few decades. There are many affordable options and programs available for the residential use of renewable energy nowadays. Like solar power can save a ton of energy for you and, on top of that, it could also end up saving you a lot of cash in the long run as well.

Eliminating uncontrolled diesel, emissions:

A key development in preventing harmful emissions has been the Diesel Particulate Filter (DPF), which traps soot particles. All new diesel cars in the EU have been fitted with this technology since 2011. Retrofitting older diesel vehicles with systems that reduce nitrous oxide emissions is a viable solution to today's air pollution challenges.

Preventing crop burning: Stubble burning is the intentional burning of crop residue. This burning causes emissions of harmful gases in the atmosphere. The current machine used for crop harvesting leaves behind a large residue. Improvements should be made in the technology used in such machines so that minimal residue is left behind. The use of machinery like Happy Seeder to remove the stubble should be promoted. The government should make these machines available and economically viable for farmers.

Avoiding the burning of garbage: Due to the lack of systematic waste collection, waste burning is a widespread practice in India. The only way to deal with this is by ensuring the municipal corporation work properly.



Source: Medium.com

To stop air pollution, we need to harness scientific and social expertise to develop and promote eco-friendly technologies in construction, energy, water management, industrial production and transportation. Scientific innovations need to be complemented by legislative change as well as by change in social behaviour.



GO LOCAL

Grow your own vegetables as it is a great way to cut down your carbon footprint and be eco-friendly.

Buy local things, from clothes to food, the closer to home these products are made and bought, the less carbon is created with their transportation. Not only that, but you'll be supporting the local things.

DELHI SMOG TOWER AND HOW IT WORKS

Nirupama Sai

Sri Venkateswara College, University of Delhi

Air pollution continues to remain a nuisance in most metropolitan cities, damaging the health, movement and functioning of people depending on its severity. Recently, Smog towers were installed in the capital region of Delhi — one in Connaught Place and the other in Anand Vihar. Due to the city's pollution problem, several methods to reduce the pollution were devised and among them, smog towers were touted as something that could alleviate the problem.

These towers came into existence as a result of a Supreme Court Order to the Central Government back in 2019. These towers which cost approximately 20 crores each supposedly filter out 80% of the particulate matter in the air, as stated by the Environment Minister of Delhi, Mr Gopal Rai.

Though these claims can be contested, there are some basics we ought to understand about the smog towers. Both the towers are identical in height (24 m) and are equipped with 5000 High-efficiency Particulate Air (HEPA) filters. These filters can theoretically remove at least 99.97% of dust, pollen, mould, bacteria, and any airborne particles with a size of 0.3 microns (μm). It is designed to process 1000 cubic metres per second.



Source: Tennews

These towers were designed by the University of Minnesota but were modified by IIT Bombay and IIT Delhi to be more accommodative of the Indian weather. These towers suck air from the top and then this air is circulated through the filter, after which it is pushed out from the bottom by means of 40 large fans installed therein. These towers make use of the down draft cleaning system. The towers also have eight sensors that are located on each side of the square structure and are responsible for tracking pollution levels at the inlet and outlet. Control rooms are also attached to the towers and have screens that monitor the level of pollution at inflow and outflow, and can control the speed of the fans through which the air is pushed out.

According to officials at the Delhi Pollution Control Committee, the filters of these towers will need to be changed every three to four months. Now, the fact of the matter is that will these towers be useful in combatting air pollution? The answer is ambiguous, riddled with uncertainty. Since there is no data to support the claim that these towers can in fact reduce air pollution, the public is sceptical regarding its installation.

Air is dynamic in nature and flows in all directions, and many scientists claim that it is practically impossible to 'filter out' polluted air. Experts also agree that this is nothing but a makeshift arrangement, and whether it's going to be of use in fighting against Delhi's perennial air pollution woes is only something time can tell.

CHASING CORAL

Gauri

Sanjay Ghodawat International School, Maharashtra

The movie Chasing coral shows us the magic of the ocean. We are human beings who are always fascinated by the confounding beauty of the sky above us but, we ignore the breathtaking charm of the ocean that is beneath us. The film makes us realize there is so much more to explore within the garden of corals. It gives us a virtual tour of the ocean that is awaiting to extinct if not taken care of. A coral is an animal with lots of polyps on it.

Coral is the basis of the ecosystem. Small marine organisms, starting with sea dragons, are dependent on corals for their existence. If they go extinct, the entire planet will be in danger. Corals might look very simple from the outside, however, they are sophisticated in quite a way. The movie brings to notice the corals, which are turning white due to the rise in temperature caused by global warming.

In recent years, Florida lost 80-90% of corals, while 29% of the Great Barrier Reef died in 2016. That's a lot in one year! Industries release carbon dioxide, and it goes up in the air, blocking sunlight to enter. The same sunlight enters the ocean, increasing 93% of heat in the ocean.

The movie displays the process of soft corals turning into rock faces, the beauty is lost, many creatures lost their habitat. The team working for this movie worked on the cameras and technology to exhibit to the world the significance of ecosystem.



Source: imdb.com

The movie makes us ponder upon the harm we have caused to our planet. Coral occupies 1 % of space on the planet, out of which 50 % has been lost over the last 30 years. The movie urges us to take the necessary steps to establish again the Manhattan of ocean.



Plastic seems to have found its way into every single aspect of our lives. However, giving it up isn't as difficult as you might think — bring a canvas bag with you when you go shopping, buy your fruit and vegetables, loose and stop buying bottled water.

COP26- A BRIEF INTRODUCTION

Ritika

GGDSD College, Chandigarh

The 2021 United Nations climate change conference usually referred to as COP26 was held at SEC Centre in Glasgow, Scotland, United Kingdom. It happened to be the 26th climate change conference, from 31 October to 13 November 2021. The main highlight of the conference was the promise made by 110 leaders across the world. All the leaders promised to “end deforestation by 2030”. The conference was conducted in order to discuss the ways to reduce the effect of climatic changes. The pledge against deforestation included 19.2 billion dollars of private and public funds. A similar vow was taken, back in 2014 with an aim to “end deforestation by 2020” which somehow seemed to fail miserably. Deforestation contributes a lot in the climatic changes because forest inhale harmful carbon dioxide and exhale oxygen to us. UK Prime Minister Boris Johnson said, “end the rule of humanity as nature's conquerors and instead become nature's custodian”.

The countries who signed the pledge included Canada, Brazil, China, Russia, Indonesia, The US, the Democratic Republic of the Congo and the UK. All the signing countries cover around 85% of the world's forest. The governments of 28 countries also promised to remove deforestation from their global trade of various agricultural products and food. Around 30 of the world's biggest financial companies like — Schrodgers, Aviva and AXA pledged to not invest in activities related to environment. The UK and India launched a fund to help the small states and small island states to prepare them to deal with disasters relative to climatic changes.

The Prime Minister of India announced to achieve net-zero carbon emission by 2070 in the COP26, demanding around one trillion dollars to meet the finances required. Prime Minister Narendra Modi also raised the Nationally Determined Contribution (NDC) to achieve around 450 giga Watt non-fossil energy capacity, 2500 giga Watt by 2030.



**UN CLIMATE
CHANGE
CONFERENCE
UK 2021**

IN PARTNERSHIP WITH ITALY

Source: Wikipedia



Invest in Eco-friendly Technology

Make sure that the tech you have got is as energy-efficient as possible. This way, you're consuming much less energy, also it is a bonus because you can save money, and reducing your energy output.

THE RELATIONSHIP BETWEEN CLIMATE CHANGE AND AIR POLLUTION

Aamiya Rana

Kamala Nehru College, University of Delhi

While most people are aware, there is a clear and direct relation between air pollution and climate change. Air pollution is the presence of substances in the atmosphere that are harmful to the health of humans and other living beings, or cause damage to the climate or to materials. Air pollution and climate change both are very serious and relevant issues. Although they may seem to be two very different issues, climate change and air pollution are closely interlinked, so by reducing air pollution we also protect the climate. Air pollutants include more than just greenhouse gases—principally carbon dioxide but also methane, nitrous oxide and others—but there's a big overlap: the two often interact with each other. As the quality of air degrades and causes air pollution, there are also simultaneous changes in the climate around.

Air pollution was one of the main reasons for prolonged rains in Delhi in September this year. It is time we take issues like climate change extremely seriously. Studies have shown that cutting SLCP (short-lived chemical pollutants) emissions is key along with limiting greenhouse gas emissions to achieve the Paris Agreement of limiting the global temperature to less than 2°C.

When carbon-based fuels are burned, incomplete combustion causes the emission of carbon dioxide (CO₂) and other pollutants, including particulate matter (PM) (aerosols), which include particles that can cool or heat the Earth's climate by reflecting or absorbing the radiation of the sun.

One type of PM, namely black carbon (BC), remains in the atmosphere for a relatively short time (one week), but strongly absorbs solar radiation. BC emitted from domestic burning of solid fuels, particularly indoors, and high emitting diesel engines is likely to give to climate warming. Black carbon is responsible for about 15 percent of the current excessive warming of global temperatures.

In addition, short-term reductions in black carbon can potentially delay the impact of global warming by about 10 years. A recent analysis suggests climate change policies may have to include a 'pollution safety margin' which accounts for the warming impact of many air pollutants. Available evidence proposes that policies to reduce the harmful effects of air pollutants could accelerate climate change over the coming decades by cutting emissions that currently contribute to cooling the climate. It is extremely important to put restrictions on the air pollution levels and regular checks on the emissions of harmful pollutants to make sure that climate change is under control.



P.S. Thank You

Deepika

Earth Root Foundation, New Delhi

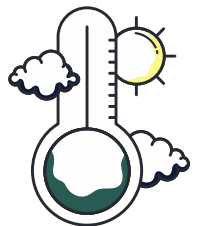
Hey, dear humans,
Thank you! For your painstaking efforts,
Your contributions will always be remembered,
Forever, on my black heart, engraved in golden letters;



My dark clouds go far and wide,
Exploring places with your invite,
Spreading pollutants like PM 2.5,
Breathing flavoured air, will surely rock your life!



Leaded petrol and various oxides,
Are very nutritious, gives me healthy life,
Burning fossils, crackers and parali,
Hope your lungs have a very happy diwali!



I shall return the favour since I had fun,
Asthma, strokes, COPD & acute lower respiratory diseases,
These gifts won't discriminate between aged and young,
I am air pollution, my home, your lungs!

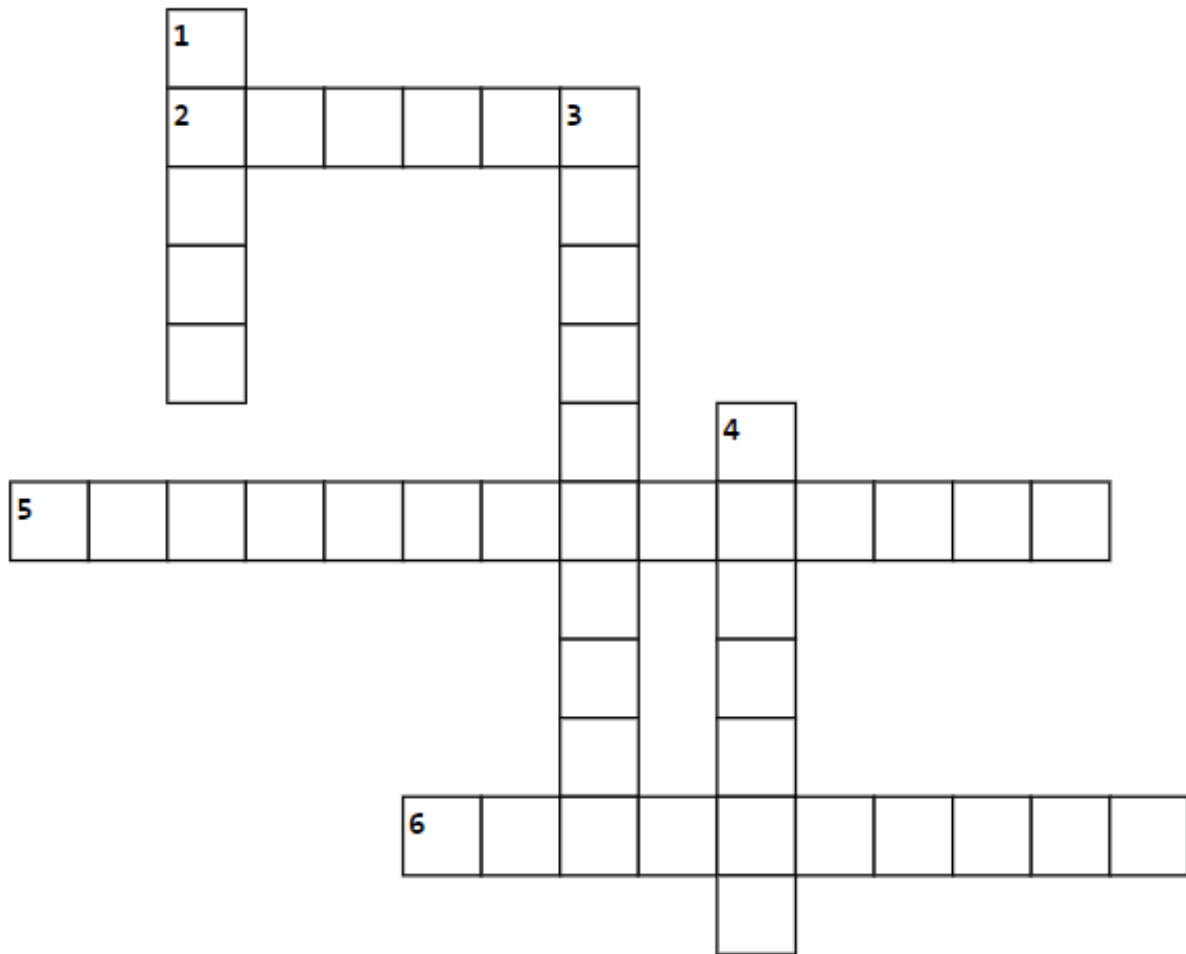


Switch to renewables

Changing your energy supplier to one that's 100% renewable is great for the environment. Anyone can do it, switching is simple and hassle-free, plus all the electricity you use when on a 100% renewable tariff is effectively zero carbon!



CROSS WORD



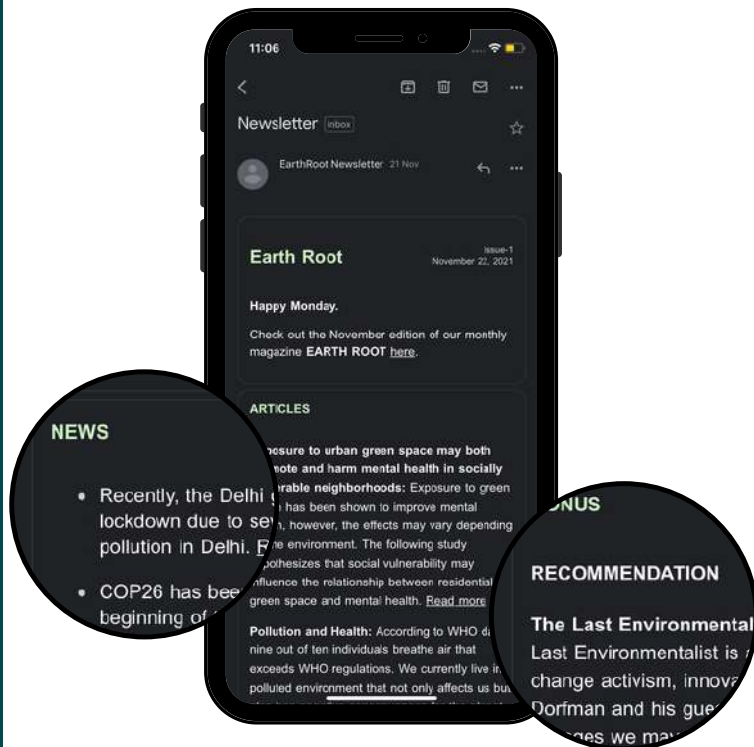
Across

2. Air pollution can cause us to have upper respiratory disease.
5. The quality of absorbing or attracting moisture from the air.
6. Methane CO2 hydrogen and fluorine are what type of gasses

Down

1. A naturally occurring radioactive gas that can cause lung cancer.
3. The atmosphere in big cities is polluted mostly by?
4. A well known sensitive indicator of air pollution.

BIWEEKLY NEWSLETTER



The Earth Root Foundation recently launched its weekly newsletter. The newsletter features the most recent environmental news and updates, from podcasts to recent field studies from around the world, as well as fascinating facts.

CREDITS

EDITOR-IN-CHIEF
EDITORS

: DR. VIVEK PANWAR
: PROF. S K DHAKA, DR. NARENDRA SINGH, DR. DEEKSHA KATYAL, DR. PAWAN KUMAR

ASSOCIATE EDITOR & GRAPHIC
DESIGNER

: RAJASVEE

CONTENT WRITERS

: DEEPIKA, GAURI PATIL, SARTHAK MISHRA,
NIRUPAMA SAI, RAJASVEE, RITIKA SEN, RAHUL PATEL,
SUHAB AKTAR BARBHUIYA, KRITI SINGH, VANSHIKA,
VANIKA, AMIYA RANA

OTHER TEAM MEMBERS

: MANSHI, KALPAK MANOHAR PIMPALE, DUMMU
UDAY KIRAN, MITANSHI GUPTA, KISHLEEN KAUR,
NIKITA SAHNI, PRANALI PRABHAT PATKAR, VANIKA
DHOUNDIYAL

Publisher

Earth Root Foundation

456, Pocket B, Sector-13, Dwarka, New Delhi-110078
www.earthrootfoundation.org | info@earthrootfoundation.org | +91 8766317774



@earthrootfoundation



@EarthRootFound1



Earth Root Foundation



Earth Root Foundation