



Atmospheric Pollution & Climate Change (APCC) Environmental Information System (ENVIS) Resource Partner

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Articles in Media

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PREFACE

Indian Institute of Tropical Meteorology (IITM, Pune) a Resource Partner to Ministry of Environment, Forest & Climate Change's scheme- Environmental Information System's (ENVIS) on Atmospheric Pollution & Climate Change (APCC). IITM-ENVIS is compiling the news articles in media regarding air pollution and climate change topics, for the year 2020. This book has articles which were published in media showcasing important environmental news events which was happened in 2020-21 and its impact on the environment and human health.

This year the worldwide disruption caused by the COVID-19 pandemic has resulted in numerous effects on the environment and climate. Due to the pandemic's impact on travel and industry, many regions and the planet as a whole experienced a drop in air pollution. Reducing air pollution can reduce both climate change and COVID-19 risks. From areas in North India such as Jalandhar, the Himalayas became visible again for the first time in decades, as air quality improved due to the drop in pollution. This article contains news from different regions of India which shows the impact of pandemic on environment and climate.

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Articles in Media - National

January 2020

India Cold Wave Breaks Records, Shuts Schools and Makes Bad Air Worse

Date: -1-Jan-2020, Source: nytimes.com



Cold and poor visibility in the northwestern city of Amritsar.

NEW DELHI — A brutal cold wave has swept northern India, blanketing streets in freezing fog, intensifying pollution, disrupting hundreds of flights and prompting school closures.

India's capital, New Delhi, experienced its coldest day in December in 119 years on Monday, with the maximum temperature dipping below 49 degrees Fahrenheit (9.4 Celsius),

about 20 degrees below the average for December. Last week, the city broke its longest cold spell in more than two decades, with 10 consecutive days of extreme weather.

Northern India, with its expanses of farmland and desert, is more accustomed to heat waves than dangerous cold fronts, both of which have been linked to climate change.

Centralized heating is rare in the region, and many ill-prepared residents rushed to buy warm clothing as nighttime temperatures hovered around freezing and schools near New Delhi were closed. Over the weekend, patients with pneumonia flooded hospitals, and many adults have complained of near-constant coughs and colds.

In New Delhi and neighboring states, slowing winds have made air pollution worse, India's meteorological department said. In the early hours of New Year's Day, pollution levels in the capital soared to levels more than 20 times what the World Health Organization considers safe.

The fog is often so blinding that drivers cannot see cars slowing down in front of them, causing accidents and highway pileups. In December, hundreds of flights and trains were delayed or canceled because of low visibility.

Last week, six people were killed in the city of Noida, near New Delhi, after their car skidded off the road. Investigators blamed heavy fog.

In neighboring Bangladesh, a prolonged cold spell that started in November has left at least 50 people dead, including 17 children, according to Ayesha Akhter, a medical officer in Dhaka, the capital.

Air pollution 'severe' on 4 of the last 5 days

Date: -2-Jan-2020, Source: thehindu.com

The air quality of the city was in “severe” category on Wednesday and is likely to slightly improve to the higher-end of the “very poor” category by Thursday, according to government-run monitoring agency System of Air Quality and Weather Forecasting and Research (SAFAR).

The pollution has been in “severe” category for four out of the last five days, including Wednesday, according to Central Pollution Control Board (CPCB) data.

On Wednesday, the average level of PM2.5 — deadly respirable particles — was (421.7 ug/m³) more than seven times the safe limit (60ug/m³) as per Indian standards, in Delhi and NCR at 8 p.m., according to the CPCB. But the level is more than 16 times the safe limit (25 ug/m³) set by the WHO.

“Though the meteorological conditions have become favourable for higher dispersion, an additional source of emission in all likelihood has increased emissions on New Year eve from 8 p.m. onwards peaking from midnight to 1 a.m.,” SAFAR said.

“The additional emissions must be most probably due to crackers, but it could be even be vehicular pollution,” said said Vivek Chattopadhyaya, senior programme manager of Clean Air Programme at Centre for Science and Environment, Delhi.

The city’s Air Quality Index (AQI) on Wednesday was 437, up from Tuesday’s was 387 (very poor), according to the 4 p.m. bulletin of the CPCB, which is the average of the last 24 hours.

“SAFAR model now suggests that under the influence of approaching western disturbance, increased surface winds and improved ventilation, AQI is forecast to improve to the higher end of the “very poor” category by January 2. Further significant improvement in AQI towards the middle end of “very poor” to “poor” category is expecting by January 3,” SAFAR said.

Wednesday’s top three air pollution hotspots in the city are likely to be Vinobapuri, Okhla, and Bawana.

Delhi weather: Finally clear skies; air quality improves to 'very poor' from 'severe'

Date: -3-Jan-2020, Source: business today.in



Delhi weather: The visibility at Palam was 400 metres and the visibility at Safdarjung was 600 metres at 8.30 am

Delhi weather: Delhi witnessed clear skies for the third consecutive day on Friday, January 3 with minimum temperature settling at 7.6 degree Celsius. The maximum temperature on Friday was around 23 degrees Celsius. The MeT Department said Delhi was unlikely to see cold waves till January 4.

Meanwhile, the air quality index was recorded in the 'very poor' category after being in the severe

zone for the past two days. The air quality index (AQI) read 390 for the national capital at 8.43 am, according to the Central Pollution Control Board.

The air quality in the neighbouring areas of Faridabad (387), Ghaziabad (343), Greater Noida (370), Gurugram (364) and Noida (391) was also recorded in the very poor category.

The visibility at Palam was 400 metres and the visibility at Safdarjung was 600 metres at 8.30 am.

The weather officials have predicted a possibility of moderate fog on Saturday morning.

Delhi chokes again as air quality hits 'very poor' and 'severe' marks

Date: -4-Jan-2020, Source: theprint.in

New Delhi: The overall air quality in Delhi was in the 'very poor' category on Saturday with the Air Quality Index (AQI) docking at 372, said Centre-run System of Air Quality and Weather Forecasting And Research (SAFAR).

The AQI was in the 'severe' category at 416 in Chandani Chowk while at Mathura road it was at 412. Adjoining Uttar Pradesh's Noida recorded 'very poor' air quality at 378. An AQI between 0-



Overall air quality in the capital was in the 'very poor' category

50 is considered good, 51-100 is satisfactory, 101-200 moderate, 201-300 poor, 301-400 very poor and 401-500 is marked as severe/hazardous.

The PM10 and PM2.5 levels in Delhi touched 261 and 155 respectively.

The SAFAR has advised 'Sensitive Groups' to reduce prolonged or heavy exertion

when the air quality is not good.

"People are advised to take more breaks and do less intense activities. It is advisable for the asthmatics to keep medicines ready if symptoms of coughing or shortness of breath occur. Heart patients, see a doctor, if there are palpitations, shortness of breath, or unusual fatigue," it stated in its advisory.

Air quality stays 'very poor' in city

Date: -5-Jan-2020, Source: thehindu.com

Air quality of Delhi-NCR

Delhi	386	Gurugram	337
Ghaziabad	418	Faridabad	380
Noida	385	Greater Noida	408

Good

0-50

Satisfactory

51-100

Moderate

101-200

Poor

201-300

Very poor

301-400

Severe

>401

AIR QUALITY INDEX AT 4 P.M. YESTERDAY
(AVERAGE OF PAST 24 HOURS) | SOURCE: CPCB

The air quality of the city continued to be in the 'very poor' category on Saturday and may slightly improve over the next few days, said forecasting agency SAFAR.

The Air Quality Index (AQI) on Saturday was 334, slightly down from Friday's 352, as per Central Pollution Control Board bulletin. The average level of PM2.5 was 197.4 ug/m3, over three times the safe limit of 60 ug/m3, in Delhi-NCR at 6 p.m.

"AQI may improve to the lower end of 'very poor' category by Sunday," SAFAR said, adding that air

quality may reach the 'poor' category by January 6.

“Surface winds have picked up and direction has become westerly... The minimum temperature may increase by 2-3 degrees Celsius over the next two days. The increase in ventilation is improving air quality,” SAFAR said.

Increase in temperature and faster winds help disperse pollutants. Vinobapuri, GT Road and Bawana may be the top three pollution hotspots on Sunday.

Air quality remains ‘very poor’, expected to improve today

Date: -7-Jan-2020, Source: thehindu.com

The air quality of the city continued to be in ‘the very poor’ category on Monday and is expected to improve to ‘poor’ category on Tuesday, said government-run monitoring agency System of Air Quality and Weather Forecasting and Research (SAFAR).

On Monday, the average level of PM 2.5 — deadly respirable particles, which is a chief pollutant — was 147.7 ug/m³ more than twice the safe limit of 60ug/m³, as per Indian standards, in Delhi and the NCR at 10 p.m., said Central Pollution Control Board (CPCB). The level is, however, almost six times the safe limit (25 ug/m³) as set by the World Health Organization.

Under the influence of an approaching Western Disturbance, scattered to fairly widespread rainfall is expected in the city over the next two days.

Also, an increase in surface winds and an increase in the minimum temperature are the forecast for the coming days.

“Under these favourable conditions, air quality is forecast to improve to the lower end of ‘very poor’ to the ‘poor’ category by tomorrow [Tuesday]. Further improvement is expected in case of sufficient rain, towards the lower end of the ‘poor’ to ‘satisfactory’ category by Wednesday,” SAFAR said.

Rainfall washes away pollutants in the air and faster winds help disperse pollutants and clean the air.

The city’s air quality index (AQI) on Monday was 325, slightly better than Sunday’s 330, according to the 4 p.m. bulletin of the CPCB that is the average of the past 24 hours.

Tuesday’s top three air pollution hot spots of Delhi are likely to be Jahangirpuri, Vinobapuri, and Bawana.

Is Delhi's Air Pollution Taking Your Breath Away? Here's What You Can Do About It!

Date: -11-Jan-2020, Source: businessworld.in

Year after year, at this time, the only thing we read or hear about is the severely hazardous air quality that we are forced to breathe in Delhi. This year has been no different. As the capital city gets covered in swathes of smog, and outdoor air does little else for us, except almost choking us, fretting about what the authorities are doing to save our lungs is only natural.

Yet, all hope is not lost. There are a few things we can do, at a personal level, to improve the quality of the air we breathe inside our homes and protect ourselves and our loved ones for at least a few hours each day. While this may not be a long-term solution to the issue, it can certainly prevent us from acquiring serious infections, allergic reactions, having asthma attacks and other similar breathing-related ailments that are bound to occur during the winter.

It's impossible for anyone to completely eliminate all allergens in their homes. However, a few sure-footed steps can go a long way in mitigating exposure at the minimum. Here are some strategies that we can all employ to improve the air quality inside our home:

Take inspiration from Marie Kondo. The celebrated author wasn't kidding when she called it the "Life Changing Magic of Tidying Up". While she may have meant it on a more metaphorical scale, we mean it in actual, physical terms. Cleaning your house up and getting rid of clutter, doesn't only have a calming effect on your mind. It also makes a massive impact on your health. A clean house means less dust, less pollutants and allergens and therefore a healthier you! Get rid of junk or any articles that are basically just gathering dust and create an ambience that's healthier to breathe in for you and your family.

Bid adieu to your indoor planters: Yes, the general understanding these days is that indoor plants purify the air in our rooms and therefore we should all be nurturing those snake plants and peace lilies. And while this practice does hold some merit, we mustn't forget that indoor plants also harbor mold and can act like a breeding ground for bacteria, dust and other allergens. They are best left outdoors at this time when every body's immunity is compromised and we really can't take chances with what's inside our homes, since what's outside them is totally beyond our control.

Invest in a quality Air Purifier instead: Instead of hoping that our plants will cleanse our indoor air and being disappointed in the process, it's advisable to invest in a high-quality Air Purifier. Air Purifiers attack, trap and eliminate all contaminants in the air. They either cycle the air through an internal filtration system or they release charged particles that latch on to the particulate matter in the air. Air Purifiers are one of the best investments you can make to

create a healthy breathing environment for your loved ones and for yourself. They are particularly essential if anyone in your home has a medical problem such as asthma or COPD.

However, do remember to be careful when buying a Purifier. Take recommendations from your friends and family who may already own one and ask them to share the air quality readings in their room after switching on the Purifier for about 30 minutes. This will give you a good picture of the effectiveness of the Purifier. You need to also consider that the Purifier should be the right size for your room and infiltration into your room is curbed. Central Air Cleaners are a really good option to ensure that every inch of your house has healthy, clean air. Many new residential real estate projects in India are coming installed with Centralised Air Cleaning technology. However, if you stay in an already-constructed home, you can always explore your options by reaching out to a known clean air technology brand.

Let only fresh but purified air in: Letting fresh air into our homes is commonly considered an essential practice. The wonderful mix of fresh air and sunlight not only uplifts the spirit, it is also traditionally considered a healthy way to recycle the air in our homes and eliminate unnecessary odors etc. However, with the current air pollution crisis that we're facing, this practice works inversely. Before opening the windows to let some fresh air in, it is imperative to check a trusted air quality index and make sure that the outdoor air quality isn't dangerously poor. Also, we can make sure to eliminate potential air contaminants out by using fans in the kitchen to remove cooking fumes. As you take on your next house remodeling project, consider getting a treated fresh air unit installed in your house. These type of air cleaners take outside air, purify it, and deliver it into your home.

The hazardous conditions outside can by no means be underestimated or escaped. And while we must raise our voice against the poisonous environment we are forced to live in, we must first act with agility on the improvements we can make at an individual level to the air quality in our homes. By adopting the simple practices listed above, all of us can ensure, that at least to a certain degree, the air we are breathing is safer and less perilous to our bodies.

Mumbai: Temperature to gradually drop around Jan 16, 17, says IMD

Date: -13-Jan-2020, Source: in.news.yahoo.com

Mumbai recorded high humidity at 87 per cent. Maximum temperature was also on the higher side, with a day temperature of 33.8 degree Celsius. (Representational Image)

After two days of warm weather, the temperature is expected to gradually drop in northern Maharashtra, including Mumbai, and northern Konkan, IMD said on Sunday. The temperature is likely to go down further around January 16 and 17. According to the 48-hours forecast, the minimum temperature in the city is likely to go down to 18 degree Celsius.



Mumbai news, mumbai city news, mumbai weather, mumbai temperature, maharashtra news, indian express news

On Sunday, minimum temperature recorded at IMD's Santacruz observatory was 20 degrees —2.7 degrees above normal, while the Colaba observatory recorded a minimum temperature of 21 degrees —1.6 degrees above normal. The city recorded high humidity at 87 per cent. Maximum

temperature was also on the higher side, with a day temperature of 33.8 degree

Celsius.

Air Quality Index (AQI) was at 230, under the 'poor' category, due to increased relative humidity and low surface wind speed. AQI forecast for Monday is at 213 (poor). Out of 10 stations where System of Air Quality Weather Forecasting and Research (SAFAR) records air quality, three areas — Malad (312), Worli (308) and BKC (304) —recorded 'very poor' AQI on Sunday afternoon.

Air quality in Delhi dips to very poor, light rains likely today

Date: -13-Jan-2020, Source: indiatoday.in



On Sunday, the maximum and minimum temperatures in Delhi were recorded at 24.3 and 7.1 degrees Celsius respectively.

The air quality in Delhi on Monday plunged to the 'very poor' category, and light rains are likely to hit the city today.

According to the System of Air Quality and Weather Forecasting And Research (SAFAR), the overall AQI docked at 356 at 9 am, which falls in the 'very poor' category.

At Chandni Chowk, the AQI was recorded at 321, 355 in Lodhi

Road, 346 in IGI airport and 331 in IIT Delhi.

An AQI between 0-50 is considered good, 51-100 is satisfactory, 101-200 moderate, 201-300 poor, 301-400 very poor and 401-500 is marked as severe or hazardous.

The India Meteorological Department (IMD) has forecast a generally cloudy sky with the possibility of light rain with maximum and minimum temperatures at 23 and 9 degrees Celsius, respectively.

On Sunday, the maximum and minimum temperatures in the national capital were recorded at 24.3 and 7.1 degrees Celsius respectively.

"Scattered to fairly widespread rain or thunderstorm with isolated heavy falls accompanied with hail or lightning also likely over north Punjab, north Haryana and northwest Uttar Pradesh on Monday," the IMD said in its bulletin.

A fresh western disturbance in quick succession is also very likely to affect the Western Himalayan region and plains of northwest India from January 15 onwards with a peak intensity of precipitation on January 16, the weather agency added.

As many as 15 trains are running late due to low visibility in the Northern Railway region.

Fresh western disturbance leads to improvement in air quality, Delhi's AQI at 306

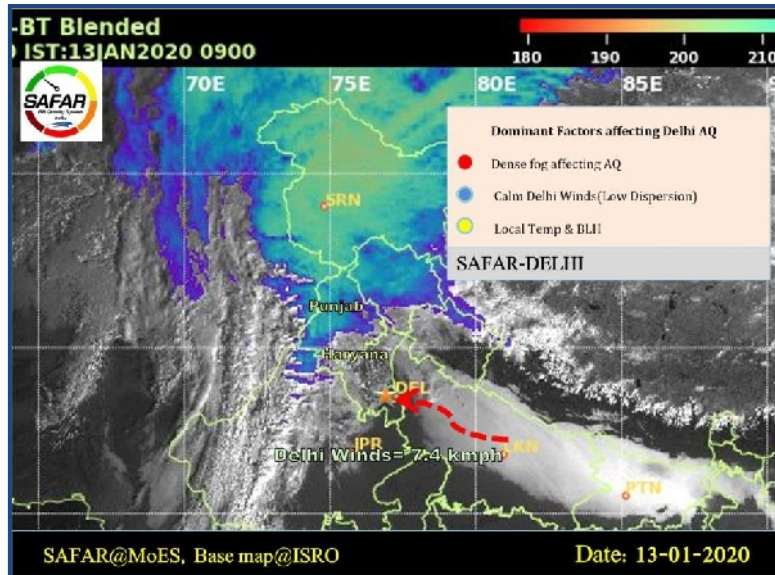
Date: -14-Jan-2020, Source: timesnownews.com



Temperatures continued to dip in Delhi-NCR on Wednesday

New Delhi: The national capital witnessed a slight improvement in air quality with the Ministry of Earth Sciences' air quality monitor recording an overall air quality index (AQI) of 306 on the morning of January 14. This puts air quality in Delhi in the 'very poor' category with the concentration of pollutant particle PM10 at 209 $\mu\text{gm-3}$ and that of PM2.5 at 127 $\mu\text{gm-3}$.

According to System of Air Quality and Weather Forecasting And Research (SAFAR), Chandni Chowk in Old Delhi recorded an AQI of 359 $\mu\text{gm-3}$ followed by Mathura Road with 341 $\mu\text{gm-3}$ and Dhirpur with 326 $\mu\text{gm-3}$. Air quality at the Indira Gandhi International (IGI) airport was pegged at 223 $\mu\text{gm-3}$ on Tuesday morning. Similarly, Noida in Uttar Pradesh witnessed an AQI of 374 $\mu\text{gm-3}$ and Gurugram in Haryana an AQI of 316 $\mu\text{gm-3}$.



Adarsh Nagar.

Meanwhile, AQI in Mumbai and Pune remained in the 'satisfactory' category and Ahmedabad in Gujarat in the 'moderate' category. Over the past few days, glimpses of rainfall coupled with low temperatures have led to fluctuating overall air quality in the NCR. Delhi recorded an overall AQI of 228 on January 11. The air quality deteriorated further on January 12 with SAFAR recording an AQI of 290 and the same going as high as 356 on Monday. Earlier this week, the meteorological department predicted a dip in minimum temperature. Just last month, Delhi recorded the coldest December day in over a century.

Delhi's Air Quality Drops To 'Very Poor' Category After Lohri

Date: -14-Jan-2020, Source: .ndtv.com



Delhi on Tuesday witnessed fog and remained partially cloudy

SAFAR's forecast model predicted improvement in air quality by January 14 followed by a marginal deterioration in AQI on Wednesday. Pollution levels are expected to stay in the upper end of the 'poor' to lower-end of the 'very poor' category. The region is likely to experience fresh western disturbance by January 16. On Wednesday, the top-three air pollution hotspots of Delhi are Vinobapuri, Jahangirpuri, and

New Delhi: The Air Quality on Tuesday dropped to 'very poor' category in Delhi after the bonfire festival of Lohri was celebrated under overcast conditions and scattered showers. According to the Centre-run System of Air Quality and Weather Forecasting (SAFAR), the overall air quality index (AQI) of Delhi was recorded

at 306, slightly better than Monday which was 356, but still

marked as hazardous for breathing. The national capital on Tuesday witnessed fog and remained partially cloudy. The minimum temperature was recorded at 9.4 degrees Celsius, a weather official said. The maximum temperature was likely to hover around 24 degrees Celsius.

Visibility hits rail traffic, 15 trains running late in Northern Railway region

Date: -14-Jan-2020, Source: zeenews.india.com

New Delhi: Movement of several trains in the Northern Railway region has been affected due to fog. At least 15 Delhi-bound trains would be running late on Tuesday (January 14) by about two to six hours due to inclement weather conditions.



Movement of several trains in the Northern Railway region has been affected due to fog.

According to CPRO, Northern Railway, as many as 15 Delhi-bound trains are running late, including Malda-Delhi Jn Farakka Express (13483) by six hours, Chennai-New Delhi GT Express (12615) by 5 hours, Azamgarh-Delhi Jn Kaifiyat Express (12225) by four hours 45 minutes,

Katihar-Amritsar Express (15707) by four hours, and Puri-New Delhi

Purushottam Express (12801).

On Monday, at least 15 Delhi-bound trains were running late by about two to five hours due to severe fog in several parts of northern India.

The trains like Hyderabad-New Delhi Telangana Express (12723), Rewa-Anand Vihar Rewa Express (12427), Chennai-New Delhi Tamil Nadu Express (12621), Howrah-New Delhi Poorva Express (12381) and Dibrugarh Delhi Jn Brahmaputra Mail (15955) were badly affected due to bad weather.

Severe fog on Sunday had delayed the movement of as many as 19 Delhi-bound trains by one to five hours in several parts of northern India. Earlier on Saturday, 26 Delhi-bound trains were delayed due to severe fog.

Notably, the national capital on Monday witnessed fog and `very poor` air quality as it remained cloudy, with the weather office predicting showers during the day.

The minimum temperature was recorded at nine degrees Celsius. A Western Disturbance has given rise to a cyclonic circulation over Afghanistan and Pakistan between 1.5 and 3.1 km above mean sea level, the Met reportedly said.

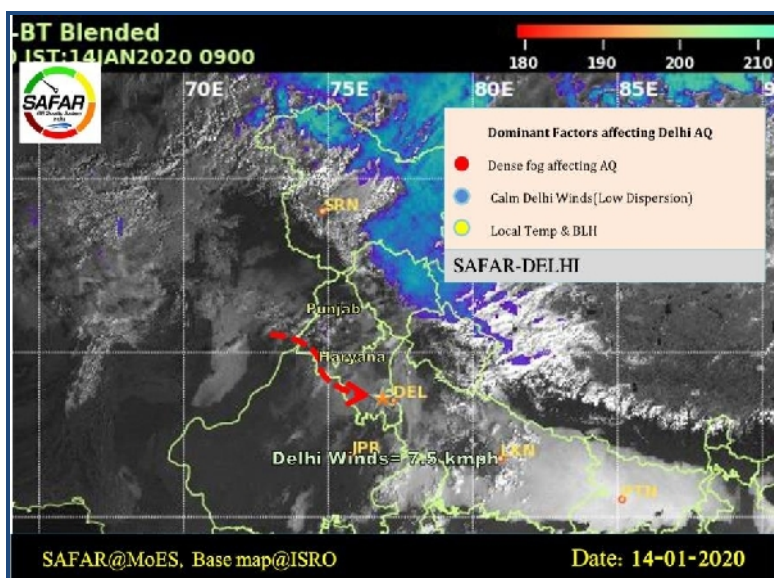
According to the Centre-run System of Air Quality and Weather Forecasting (SAFAR), the overall air quality index (AQI) of Delhi was recorded at 356.

Delhi witnesses considerable improvement in air quality as AQI drops to 215

Date: -15-Jan-2020, Source: timesnownews.com



Temperatures dipped in Delhi on Wednesday



New Delhi: Pollution levels in the national capital dipped on Wednesday with an overall AQI of 215 $\mu\text{g}/\text{m}^3$ as compared to 306 on the previous day. This puts air quality in Delhi in the 'poor' category with the concentration of pollutant particle PM10 at 149 $\mu\text{g}/\text{m}^3$ and that of PM2.5 at 95 $\mu\text{g}/\text{m}^3$.

Experts have asked sensitive groups to avoid prolonged or heavy exertion. In addition, asthmatics have been advised to keep their medicine ready if symptoms of coughing or shortness of breath occur. Heart patients should consult a doctor if they experience shortness of breath or unusual fatigue, said the Ministry of Earth Sciences' air quality monitor System of Air Quality and Weather Forecasting And Research (SAFAR).

Air quality in Chandni Chowk area remained in 'very poor' category with the concentration of PM2.5

at 302 $\mu\text{gm-3}$ followed by Dhirpur with 297 $\mu\text{gm-3}$, Mathura Road with 243 $\mu\text{gm-3}$, and Indira Gandhi International (IGI) airport at 225 $\mu\text{gm-3}$. Meanwhile, Noida in Uttar Pradesh witnessed a higher concentration of PM_{2.5} at 292 $\mu\text{gm-3}$ as compared to PM₁₀. Similarly, Gurugram in Haryana also recorded an AQI of 212 $\mu\text{gm-3}$ with PM_{2.5} being the dominant pollutant particle on the morning of January 15. According to the SAFAR-model, the top three air pollution hotspots in the national capital region (NCR) on Wednesday are likely to be GT Road, Vasundhara and Sahibabad.

The Ministry of Earth Sciences' air quality monitor further predicts that a fresh western disturbance in quick succession is likely to influence the region by January 16 and AQI is likely to improve even further towards the lower end of the 'poor' category. The air quality monitor further predicted partly cloudy sky with moderate to dense fog in the morning and very light rain/thunderstorms towards the end of Wednesday. Meanwhile, no significant dust transport from neighbouring states in Delhi is expected on January 15.

Light showers in parts of Delhi-NCR, air quality in poor category

Date: -16-Jan-2020, Source: indiatoday.in



The maximum temperature is likely to hover around 21 degrees Celsius, an IMD official said.

The national capital on Thursday morning witnessed fog with the air quality recorded under 'poor' category, along with light showers in various parts of Delhi and adjoining areas.

The minimum temperature was recorded at nine degrees Celsius, an IMD official said.

"The maximum temperature, however, is likely to hover around 21 degrees Celsius," the official added. The sky will be generally cloudy with thunderstorm with hail expected during the day, the official informed. At least 12 Delhi-bound trains were delayed by several hours on Thursday due to fog, railway officials said. The air quality of the national capital was recorded under 'poor' category.

According to the Centre-run System of Air Quality and Weather Forecasting (SAFAR), the overall air quality index (AQI) of Delhi was recorded at 245. Improvement in AQI is due to the "influence of approaching western disturbance, increased wind speed and fairly widespread precipitation," SAFAR said. The Air quality Index may deteriorate slightly on Friday "but will remain within upper end of moderate to poor category," it added.

‘Airpocalypse’ — study says Modi govt should add 231 more cities to national clean air plan

Date: -21-Jan-2020, Source: theprint.in



Women try to protect themselves from heavy smog and air pollution

New Delhi: Pollution levels in as many as 231 Indian towns and cities far exceed the acceptable limits for PM10 and should be included in the Narendra Modi government's National Clean Air Programme (NCAP), a new study has suggested.

Greenpeace India's 'Airpocalypse IV' released Tuesday took stock of pollution levels in 287 cities across the country.

At present, only 102 towns and cities are part of the NCAP — a national-level strategy launched by the environment ministry last year. It lays out city-specific five-year plans to tackle air pollution.

The Central Pollution Control Board (CPCB) had in August last year recommended 20 more cities to be added to the NCAP list, though these are yet to be included.

The new report has found that 231 towns and cities have PM10 levels exceeding the limit of 60 micro grams per metre cube, prescribed by the CPCB's National Ambient Air Quality Standards (NAAQS).

It also noted that NCAP's aim of reducing 20-30 per cent air pollution by 2024 will still not lead to breathable air quality in the country.

"Civil society has been demanding action plans at the city-level since every place has a different reason for increasing pollution levels," Avinash Chanchal, one of the authors of the report, told ThePrint.

To truly curb pollution, however, authorities will need to have a regional-approach rather than city-centric plans, Chanchal added.

Lunglei has cleanest air

Of the 287 cities that the researchers studied, just one — Lunglei in Mizoram — had PM10 levels under the World Health Organization (WHO) prescribed level of 20 µg/m³.

At least 36 cities of West Bengal are highly-polluted and should be included under NCAP. Punjab, Maharashtra, Uttar Pradesh and Orissa respectively had 21, 21, 20 and 15 cities that exceeded acceptable PM10 limits.

Data for the Greenpeace report were recorded by air quality monitoring stations for at least 52 days in 2018.

The report also notes that there are several parts of the country where air quality is still not monitored, and these areas may have highly-polluted cities and towns.

“Polluted air has no political boundaries,” remarked Chanchal.

It is to note that NCAP is not notified under any Act of law and only works as a guiding document. The programme should be legally binding to improve compliance, the report said. The study also suggested interim milestones for cities to track progress rather than having just a five-year target. “We will not be in a position to do anything if air pollution levels are not falling as required,” the study noted.

Delhi Air Pollution: Causes and Effects of Severe Air Quality Index (AQI)

Date: -23-Jan-2020, Source: pagalguy.com



1. Introduction and general summary

We all know what air pollution is. Since elementary grade, books on social sciences and environmental science has taught us that when the amount of harmful and potentially toxic material increases in the air, taking away its purity, it is called air pollution.

These harmful materials can be in the form of gases, solids, and even liquids. They can enter the air through various ways, mostly activities which are performed by humans. Pollution becomes dangerous when it starts becoming detrimental to human life.

Delhi is a Union Territory of India and its capital, which has led to it being called the National Capital Territory of India. Since the last few years, Delhi has not only been topping the list of the most polluted cities in the country, but it is also a regular among the top ten most polluted cities in the world, often appearing among the podium finishers.

According to the Census Bureau of India, Delhi provides residence to 170 lakh people and more. In the last few years, there have been several instances where the sheer degree of air pollution has forced the government to take measures and shut down various colleges and schools because of the immense health hazards the polluted air would cause. People have often been asked to not sleep or spend an entire night in the open areas or outside their homes on various days.

It's hard to believe but this city has even seen a large number of deaths because of the immensely polluted air. The changing conditions of weather don't help the city as they more often than not lock all of those pollutants, keeping them suspended in the air and not allowing them to leave. People have resorted to masks ranging from normal protectors to air purifiers so that they can consume what should be the most basic element of all, oxygen.

Every winter, the air pollution in Delhi rises to unprecedented levels and hits the headlines around the world. In a lot of areas of Delhi, the Air Quality Index (AQI) levels hit a new high, and go to lengths where they are no longer measurable by the devices. Yes, you heard that right. The AQI index becomes higher than what normal devices can measure.

This happens because of the popular Indian festival Diwali, which involves burning of crackers. Another major reason for this is the pollutants which enter the city from up north, from states like Haryana and Punjab. In those states, the burning of the leftover crops take place, resulting in a lot of harmful pollutants rising up into the atmosphere and then due to various air currents, getting concentrated over Delhi.

The government of Delhi, over the years, have taken several steps in order to solve the air pollution problem. However, most of them involve prohibiting one activity or the other (or curbing it in some way) depending on the situations and circumstances at that point of time. This provides only temporary fixes, not even solutions, which lower the pollution levels from absolutely maniacal somewhere conceivable, but still high enough to be dangerous to human health.

The government needs to come up with some sort of a permanent solution, a set of rules, and implement it very soon to prevent the pollution levels from rising. This will require monitoring on a constant basis and asking citizens to take various steps to lessen the pollution levels.

There are various causes of these high level of pollutions in the city, as showcased by innumerable studies done in the city. These causes lead to huge pollution on a large scale which can cause serious hazards to human health and the death of not only humans, but also the other forms of life present in the city.

2. The Causes of the Delhi Air Pollution

As we have already mentioned, there are a lot of causes for the dangerous levels of air pollution in Delhi. We have already touched upon a few of them slightly but here we will look into those reasons and more in detail.

a) Crop burning: Killing nature in two ways with one shot

One of the biggest reasons there is for the pollution is the burning of crops. This burning of crops does not even take place in Delhi. It takes place in the states lying north of the city, Haryana and Punjab, and also Uttar Pradesh. They light fire to the rice stubble after the harvesting has been done every year. Not only does this lead to a lot of wasted plant material, the smoke from all of this mass burning affects the atmosphere in a major way.

All of the smoke is taken to Delhi through the various air currents. The air currents are lined in such a way that a majority of this smoke gets concentrated over the city, getting locked over air which is already badly polluted. Delhi Chief Minister has even made public appeals to the Chief Ministers of these states, asking them to take some measures for them, but they weren't successful enough.

The farmers prefer the burning of the rice stubble so that the cost of removing them is reduced. This also saves a lot of time after the harvest season is over. Burning takes almost no time when compared to manual removal and makes the crop fields ready for harvesting in the next season very easily.

This burning is carried out in the winter months of October and November. And by the time winter properly sets in the country, all of those pollutants get trapped in the air which is now dense, wet, and cold. This leads to the formation of a thick smog around the city.

b) With high standards of living comes high standards of pollution

Delhi is one of the most populated cities in the country with a high amount of population. Along with the high number of people living in the city, the standard of living in the city is also quite high which means that there are more number of vehicles per person.

The emissions and exhausts from vehicles is a huge factor of the air pollution that Delhi faces. The city, because of its high degree of urbanization, also suffers from a lack of enough greenery.

In the past few years, the population of the city has risen considerably, leading to overcrowding of the public modes of transport. This again leads to people buying their own private vehicles. With relaxed laws regarding the regulation of the exhausts of these vehicles, the rise in the number of vehicles simply has no good side to it.

c) Overpopulation: Where does it stop?

As already mentioned above, the high number of people in a city like Delhi having private cars affects the pollution in a huge way. However, there is more. To accommodate such a huge population, new buildings and housing complexes have to be built all the time. This constant construction leads to a continuous barrage of particles consisting of cement and wood and marble and various other construction materials constantly being released into the atmosphere. These particles are even more dangerous because of their particulate nature and their ability to clog our lungs.

Along with releasing all this particles, the constant need for new construction leads to the chopping of major areas of trees, decreasing the amount of land covered in greenery.

This large number of people also generate a large amount of garbage. This garbage is often dumped or incinerated. Dumping releases a lot of harmful gases into the atmosphere as the waste decomposes and we don't have to mention what burning does.

d) Industrialization: The Usual Suspect

Delhi is a heavily industrialized city. As they always do, industrial exhausts and wastes find their way into the list of causes of air pollution. More so in Delhi, because there are a number of factories in the city as well as out of it. according to quite a few studies, the power plants around the city, including the Badrapur power station, contribute more than 80 percent of this pollution.

e) Diwali: The festival of Lights and Smog

Winter is not a good season for the air pollution in Delhi. This is because along with the crop burning in its neighbouring states, the city also has to deal with the festival of lights, Diwali, which usually falls in the months of October or November. Along with the burning of the crops, the burning of a huge amount of fire crackers can also cause a lot of smoke. Also, this smoke is even more harmful since it is coming from the burning or ignition of explosives.

Diwali, coupled with crop burning causes a heavy smog to descend on to the city and create an environment which is suffocating even for people who have dealt with harsh climates. As said earlier, the coldness, dampness, and the higher density of air during winters makes the situation worse.

3. The effects of the Delhi Air Pollution

There are some obvious effects of the Delhi Air pollution, and some not so obvious ones. They are:

a) Health hazards galore

The number of direct health hazards to humans from the severe air pollution in Delhi is too high. The Indian Medical Association has time and again issued warnings to the general public about the horrible air quality in the city and asked them to not come out of their homes. The association has even declared a state of “Public Health Emergency” a few times in the city. The direct health risks are:

Various respiratory diseases: One of the most obvious effects of air pollution will be on our respiratory system. It causes problems like wheezing, dry cough, breathlessness, soreness in the throat, etc.

Damage to the lungs: Our lungs are our breathing organs. The severe pollution causes threats to the normal functioning of the lungs and reduces their capacity to filter the air. In severe cases, the air pollution even causes lung cancer.

Heart diseases: There are certain gaseous elements present in polluted air which can actually impact the capability of our blood to carry oxygen properly. This can cause malfunctioning of the heart, and even the other organs of the body.

Genetic defects: Constant and long term exposure to these levels of pollution can lead to birth defects among new-borns which persists throughout their lives.

Immediate effects: the short term effects of this kind of pollution is irritation in the eyes, mild to severe headaches, and even asthma is exposed to for a significant amount of time.

b) The lesser you see

One of the major effects of air pollution which we have mentioned in this article before is the formation of smog. Smog is a more poisonous and toxic form of fog, which decreases visibility and poses the same amount of risk as polluted air, if not more.

During the winter season ever year, Delhi hits headlines due to the formation of a smog so dense throughout the city that the visibility reduces to less than a few feet. This situation leads to many road accidents each year, and even leads to the diversion of schedules flights. This causes a lot of harm to the infrastructure of the city and the cars, both private and public.

c) Health over money

If you consider the smog we mentioned above, you will realize that many people would choose not to go to their offices in such conditions, as losing money is better than risking your life. The government themselves order the closing of many institutions. All of this leads to a decrease in the productivity of its people, leading to lesser economic growth. This in turn affects the people more, forming a never ending chain.

4. How can we save ourselves from this rampant problem?

On the personal front, we can do a lot of things so that we do not have to bear the brunt of the severe pollution. We can take the following measures:

We can avoid running or jogging or exercising in the open in the early hours of the day. This will save us from the concentrated pollutants gathered overnight.

We should use a mask whenever we are travelling. This will save our lungs from a lot of trouble.

We should consume fruits which are very rich in vitamin C and also make it a goal to drink as much water as we can.

We should try to keep the air in our homes as clean as possible. We should even air purifiers to solve this problem.

We should try taking public transport as much as possible. This will reduce the number of vehicles on the roads, thereby reducing pollution.

5. The Pollution Levels in Delhi (Some statistics)

From the onset of this article, we have been commenting on the severe pollution levels of Delhi. But just how severe is it? Here are the answers:

a) Air Quality Index (AQI)

The air quality index is a widely accepted index that marks the air pollution in different levels. The level of air pollution is considered normal at a level of 100. However, in Delhi, the average AQI in the entire city usually hovers around the 250-300 mark, falling under the poor range, and sometimes even hazardous.

During the winter months, due to Diwali and crop burning, the AQI levels shoot up to levels like 800, 900, or even further, where even the instruments become redundant in measuring the levels. Some experts have even compared spending an hour out in such levels of pollution to smoking more than 35 cigarettes a day.

b) Poisonous particles

The poisonous articles in the air are a form of particulate matter which toxify the air. These particles are often less than 2.5 microns in diameter, which means that they can easily enter our lungs and affect our system.

c) Sources of pollution

According to various sources, only about 36 percent of the air pollution of Delhi originates from inside the city. Around 34 percent of the air pollution of the city originates from the NCR territory. All the remaining pollution comes from the states which neighbour the city.

6. Control measures which can be taken

While the Government of Delhi has taken several steps at different times, most of them have been circumstantial and temporary. It needs to take certain permanent steps to solve this problem for good. Some of those steps can be:

a) Curbing the number of private vehicles

The high number of private vehicles in the city is a major cause of concern. The Delhi government did try to curb the number of private vehicles by implementing the odd-even rule, which regulated the cars by their number plates. Another thing they can do is to make public transport cheaper, safer, and more time effective. This will give people more incentives to board some kind of public transport instead of taking their own private vehicles.

b) Regulating vehicle emissions

The Supreme Court has recently come down hard on its vehicle regulation standards by saying that any vehicle following the BS4 vehicle standards will not be eligible for sale after the month of March, 2020, as the new BS6 norms are put into place. The BS (Bharat Stage) norms are directly based on the EURO standards which regulate vehicle emissions. However, this does not mean that the vehicles will be illegal to drive. The supreme court, along with various governments, can have the vehicles with the lower BS standards upgraded to higher BS standards.

c) Regulating firecrackers

While the government has banned the sale of all but green firecrackers, this has only increased their demand in the black market. The government needs to implement these regulations harder and come down with stricter laws and penalties for the regulation of firecrackers during the festival.

10 things you didn't know about India's air quality

Date: -28-Jan-2020, Source: timesofindia.indiatimes.com

1. Worsening air quality is a pan-India problem: 76 percent of Indians live in places that do not meet national air quality standards. This means that air pollution in India is not a problem restricted to winters in Delhi or to India's cities; in fact, no Indian state achieves pollution levels at or below the World Health Organisation's (WHO) limits.

2. Air pollution is a leading risk factor for death: One in eight deaths in India was attributable to air pollution in 2017. Additionally, at 1.24 million, the deaths caused by air pollution are more than those caused by diarrhoea, tuberculosis, HIV, or malaria. The health cost of this is as high as USD 80 billion.

3. The elderly are disproportionately affected: About half of these 1.24 million deaths are of people over the age of 70, making the elderly among the most vulnerable to air pollution, in addition to women, children, and low-income communities.

4. The average life expectancy of a child is reduced by at least 2.6 years. Additionally, 10 percent of all under-five deaths in 2016 were caused by worsening air quality.

5. Low-income populations are overexposed to causes of air pollution because they do not possess the financial strength to defend themselves against it. This is because of four reasons:

They typically cannot afford to live in relatively safe or upwind residential areas, away from industry and powerplants.

They cannot afford new technology such as air purifiers and appropriate face masks.

They often have to take up jobs in mining, traffic management, or work as industrial labourers which overexposes them to higher amounts of particulate matter.

They are reliant on polluting fuels such as wood, dung, or kerosene for cooking and heating.

6. It is a public health emergency: New research indicates that air pollution impacts birth weight, child growth, obesity, and bladder cancer. There is growing evidence of the adverse impacts of pollution on cognitive abilities in children.

7. Rural India is being sidelined: Of the 600-plus air quality monitoring stations the Central Pollution Control Board (CPCB) set up across the country, there are none in rural areas. The lack of adequate monitoring and measurement systems leaves the air quality challenges in rural India uncovered.

8. Efforts aren't reaching the people who need them the most: 49 of the 54 (90 percent) organised citizen mobilisations on air pollution in 2019 occurred in urban areas. ¹ However, 75 percent of the deaths linked to air pollution (in 2015) occurred in rural areas.

9. Information about it is inaccessible: 84 percent of the total media coverage on air pollution is in English. ²

10. India has more polluted cities than any other country: 22 of the 30 most polluted cities in the world are in India, and almost 99 percent of Indians breathe air that is above the WHO's defined safety limits.

February 2020

Modi govt allocates Rs 4,400 cr for cleaner air — big jump from Rs 460 cr in last budget

Date: -1-Feb-2020, Source: theprint.in



New Delhi: The toxic smog that engulfed most of north India in the winter of 2019 pushed the Narendra Modi government to allocate a massive Rs 4,400 crore for clean air initiatives in the Union Budget this year — an increase of Rs 3,940 crore from the amount granted in 2019-20.

In the last Union Budget presented in July 2019, Union Finance Minister Nirmala Sitharaman had allocated Rs 460 crore for pollution control schemes.

“In large cities with a population of over 1 million, clean air is a matter of concern. The government proposes to encourage such states that are formulating and implementing plans for cleaner air in cities with a population of over one million,” Sitharaman said in her speech in Parliament Saturday.

This marks the second consecutive year when the budget allocation for pollution-related schemes has been increased substantially. In the financial year 2018-19, the allocation for such schemes was a mere Rs 5 crore.

Parameters for the “incentives” will be notified by the Ministry of Environment, Forest and Climate Change, the finance minister said.

The total allocation, meanwhile, for the Ministry of Environment, Forest and Climate Change has been increased to Rs 3,100 crore from Rs 2,657 crore in the last fiscal. This figure is over and above the Rs 4,400 crore.

NDC for Paris accord to be implemented from 2021

Despite satellite data showing that the majority of north India remains highly polluted in the winters, most cities do not have sufficient air quality monitors to collect on-ground data.

This data is vital for any city to be included in the National Clean Air Programme (NCAP) — a national-level strategy launched by the environment ministry last year. The programme lays out city-specific five-year plans to tackle air pollution.

Currently, the NCAP lists only 122 cities where air pollution needs to be tackled, but at least 231 cities exceed the acceptable limits of PM10 and need to be included in the NCAP.

PM10 are tiny particulate matter of diameter 10 or less than 10 microns that can enter deep into the lung.

The finance minister, meanwhile, also announced that India's nationally determined contributions (NDC) made in 2015 for the Paris Agreement will be implemented from 1 January 2021.

In the Paris accord, each country submitted "nationally determined contributions", stating the cuts they are willing to make in greenhouse gas emissions, largely through carbon pricing and renewable energy.

"There are yet thermal power plants that are old and their carbon emission levels are very high. The utilities running them will be advised to close them if emissions exceed acceptable standards. The land so vacated would be put to other uses," Sitharaman said.

Air pollution: residents demand action against paper factory

Date: -4-Feb-2020, Source: thehindu.com



Farmers from the Nilgiris district with their identity cards at the Collectorate in the city on Monday.

Fumes from the unit was causing breathing problems to children and senior citizens.

The residents of Muthugoundenpudur near Sultur on Monday demanded District Collector K. Rajamani to initiate action against a paper manufacturing unit, which they alleged was causing air pollution. Submitting a petition at the

grievances redress meeting, the residents of Poolakattuthottam village in Muthugoundenpudur said that fumes from the unit was causing breathing problems to children and senior citizens. The petitioners said that they had submitted similar petitions to Collector on December 3 and January 27, but no action was taken till now.

‘Remove encroachments’

The residents of V.C.P. Thayammal Layout (ward no. 96) on Monday sought removal of encroachments on a site reserved for public purpose. The petitioners claimed that they had proposed to build a compound wall and a toilet for an anganwadi on the land. They requested the Collector to pass orders for clearing encroachments.

Space sought in Uzhavar Sandhai

Alleging that Agriculture Department officials were not allowing them to sell their produce at the Uzhavar Sandhai in R.S. Puram, a few farmers from the Nilgiris district submitted a petition to the Collector. One of the petitioners, P.G. Maadhan, said that farmers from the Nilgiris were allowed to set up shops in the shandy since 1999, but now they were being denied permission.

‘Restore bus routes’

N. Chandran, secretary of Communist Party of India's Pappanaickenpudur unit, petitioned Mr. Rajamani to restore two bus routes – 1A and S12 – on Marudhamalai Road.

CPCB pulls up 14 coal plants

Date: -6-Feb-2020, Source: thehindu.com



Non-compliance by the thermal power plants is an ongoing dispute being contested at the National Green Tribunal through a petition filed in April 2017.

They have not complied with deadline to limit sulphur dioxide emissions

The Central Pollution Control Board (CPCB) has pulled up 14 thermal power plants for not complying with a December 31, 2019 deadline to limit sulphur dioxide emissions.

These are 5 plants in Haryana, 3 in Punjab, 2 in Uttar Pradesh, 2 in Andhra Pradesh, 2 in Telangana

and 1 in Tamil Nadu with a total capacity of approx 15 GW that have missed the deadline.

Phased-approach

To limit particulate matter, sulphur dioxide and nitrous oxide emission from thermal plants, India put in place a phased-approach that directs 440 coal-fired units — responsible for about 166,000 MW of power — to put in place measures to limit pollution by December 2022.

However 11 plants in a 300 km radius of Delhi were to comply by December 31, 2019 because of the poor air quality in the city as well as the surrounding Gangetic plain.

Some of them claimed to have set in place the process for acquiring flu-gas desulphurisation technology where as others said they were yet to award tenders. Only one of these plants has actually implemented technology to limit emissions.

Plea in NGT

Non-compliance by the thermal power plants is an ongoing dispute being contested at the National Green Tribunal through a petition filed in April 2017. There is an ongoing case in the Supreme Court regarding the extensions given to these plants. The 14 plants have been given until the end of this month to explain to the CPCB why they have not complied with the norms and why action should not be taken. The CPCB has the power to impose steep fines or shut a unit under the provisions of the Environment Protection Act.

As per Centre for Science and Environment (CSE) estimates, these norms can help reduce PM emissions by about 35%, NOx emission by about 70%, and SO2 emissions by more than 85% by 2026-27 against a business-as-usual scenario with no pollution control technologies.

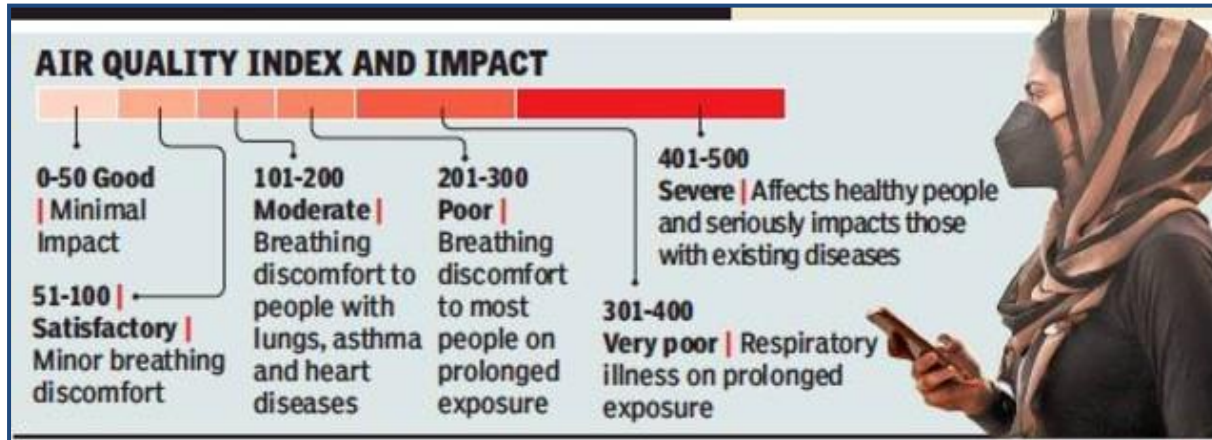
Like Delhi, Chandigarh plans to install air purifier towers

Date: -8-Feb-2020, Source: timesofindia.indiatimes.com



CHANDIGARH : While Chandigarh is in the list of 100 cities identified on the basis of level of pollutants such as NO₂, PM_{2.5} and PM₁₀ by the Central government for pollution reduction, the UT administration has now planned to install air purifier towers on the pattern of Delhi.

In the recently held meeting on the implementation of directions issued by the National Green Tribunal (NGT), UT adviser Manoj Parida has asked officials of the environment department and Chandigarh Pollution Control Committee (CPCC) to explore the idea of installation of air purifier



towers in the city. The officials were asked to prepare a detailed report on the issue and the UT will take a final call.

In Delhi, the equipment was installed by the Traders Association Lajpat Nagar (TALN) with the help of east Delhi MP Gautam Gambhir.

The city's air quality had touched the 'very Poor' category on a number of occasions between October to December 2019.

A senior UT official said they will study the concept and will prepare a comprehensive report. The final decision will be taken by the senior officials, he added.

The Union government had recently directed the UT administration to submit details of steps taken to control air pollution in the city till December 31, 2019.

The UT, in its action plan to control air pollution, had submitted various plans from promoting battery-operated vehicles, green buffers along the traffic corridors and introducing intelligent traffic management system. The action plan was submitted to the Union government last year.

The UT had also submitted that they had already launched extensive drive against polluting vehicles and had even prepared an action plan to widen roads and improvement of infrastructure for decongestion of roads.

The other initiatives mentioned in the action plan includes synchronisation of traffic signals in the city, greening of open areas, and introducing water fountain at major traffic intersections wherever feasible with the use of tertiary treated water.

The UT submitted that the ambient air quality of the city was mainly affected by the construction and demolition waste and increase in the number of vehicles.

The UT had submitted, "There has been an increase of around 60% in the number of vehicles in 10 years with no change in the length of roads. Increase of light motor vehicles (LMVs), basically cars, by more than 100% in the past 10 years in comparison to approximately 48% increase in two-wheelers. This has resulted in more congestion, ultimately contributing to air pollution."

The UT had also stated other factors, too, including road dust re-suspension, horticulture waste, and stubble burning in the neighbouring states, leading to air pollution.

The administration is also working on promoting hybrid and electric vehicles. Two years ago, a team of the transport department had visited Nagpur to study charging stations' set-up.

Nagpur was the first city in the country to have electric vehicle charging stations in place. Chandigarh has the highest density of vehicles in India with around 12 lakh registered ones, including two-wheelers and four-wheelers. The number of vehicles per house on an average is two, which has led to a sharp deterioration in air quality.

To cut down the pollution level, the Chandigarh Transport Undertaking (CTU) will induct electric buses. At present, around 3,000 e-rickshaws are plying on the city roads.

Rs 7L DEVICE

Air purifier tower, which is also called smog tower, was installed in Delhi recently. The tower is 20-ft-tall and erected in Veer Savarkar Marg in Lajpat Nagar Central Market.

Last year, China built the largest smog tower over 328 ft high at Xian in Shaanxi

The tentative cost of the device is Rs 7 lakh. It was procured by Gautam Gambhir Foundation and has been installed with the help of Lajpat Nagar Traders Association

It is cylindrical in design and built like a pole with a big inlet and four outlet units. The giant air purifier is fitted with exhaust fans to suck in polluted air with the help of a big inlet unit. The tower will run on electricity

This smog tower will purify the air within a circumference area of almost 500 metres to 750 metres

A machine fixed inside the tower will remove nearly 80% of the particulate matter i.e. PM 2.5 and PM 10 and help to bring down pollution levels and spew fresh air out through four outlet units

Gurugram: Air quality dips, to remain 'poor' for next two days

Date: -10-Feb-2020, Source: timesofindia.indiatimes.com



According to Met department the air quality saw a dip after the minimum temperature declined to 7 degrees Celsius.

GURUGRAM: The city's air quality continued to linger in the 'poor' levels on Sunday, with the air quality index (AQI) recorded at 242. The air quality, which was in the 'moderate' category till Thursday, saw a decline from Friday. On Saturday, the AQI stood at 222 (poor).

According to the Met department, the air quality saw a dip after the minimum temperature declined to 7 degrees Celsius. The air quality also deteriorated to 'poor' level in other cities of Delhi-NCR. On

Sunday, Delhi recorded the AQI at 285 (poor), Ghaziabad 295 (poor), Greater Noida 276 (very poor), Faridabad 266 (poor) and Noida 290 (poor).

According to the Met department, the maximum and minimum temperatures are likely to remain the same on Monday. "There is a forecast of fog or mist in the morning and later mainly clear sky on Monday. While the maximum temperature is expected to be at 21 degrees Celsius, the minimum temperature will be 7 degrees Celsius," said a Met official.

The maximum temperature, which was recorded at 21 degrees Celsius on Saturday, remained the same on Sunday as well. The minimum temperature, on the other hand, was recorded at 7 degrees Celsius on Sunday, one notch below what it was on Saturday. As per SAFAR's forecast, the AQI is likely to see slight improvement but will be in the 'poor' level, between 225 (poor) and 256 (poor), in the next 48 hours.

Meanwhile, Delhi's maximum and minimum temperature is set to rise by 3-4 degrees over the next 72 hours owing to an approaching western disturbance.

The Met department said it will lead to a rise in mercury across the plains.

U.S. to monitor air quality in N. India

Date: -10-Feb-2020, Source: thehindu.com

The United States will monitor air quality in multiple locations across North India to help control pollution level, its embassy said in a statement on Monday. The initiative will cover both urban locations and rural areas and is aimed at helping local communities take remedial measures to deal with the issue of increasing air pollution.

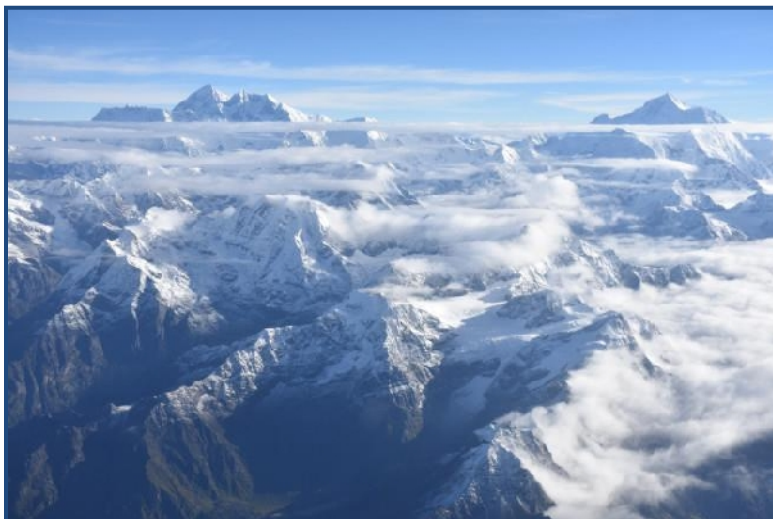
The move came months after the U.S. mission distributed 58 low-cost air-quality monitors and 14 weather stations to the Society for Indoor Environment, an Indian NGO which will be a partner in this project.

The low-cost monitoring is expected to help understand the reasons behind the recent smog-related pollution in North India that was partly blamed on stubble burning in Punjab and Haryana.

“These units will be set up in educational institutions in select second and third-tier cities, as well as rural areas, across North India. The air quality and weather data acquired from these devices will be used to analyse the trends of pollutants outside the major urban centres and build environmental awareness and capacity within smaller communities,” the U.S. Embassy said in the release. To run the “low-cost monitoring units”, host institutes will be trained in installing and operating the equipment and in collection and analysis of the collected data.

Heavy Metal Pollution From the Industrial Revolution Turns Up in Himalayan Snows

Date: -11-Feb-2020, Source: discovermagazine.com



Even in the remote Himalayas, the Industrial Revolution made itself felt

In the 1760s, British business owners swung open the doors to a cutting-edge innovation: factories. But behind those harbingers of industrialization lay coal, the fuel for their furnaces, pumps and engines.

As revamped manufacturing practices spread around Europe through the 19th century, the polluting byproducts of coal-

powered engines spread even farther — possibly to the peaks of the tallest mountain range on Earth.

Samples from the Himalayan glacier Dasuopu dating back to the Industrial Revolution contain unusually high levels of metals like iron, lead and uranium. A team of researchers analyzing the ice sample think the presence of these metals indicates that coal-burning byproducts of the Industrial Revolution — the epicenter of which lay about 6,400 miles from Dasuopu — spread all the way to this frigid location almost 24,000 feet above sea level.

Sooty Mountains Majesty

The finding, published in the Proceedings of the National Academy of Sciences, adds to our understanding of when and how human choices began affecting the planet at large. “To evaluate the current levels of contamination and pollution, it is important to define when humanity first started to have large-scale impacts on our planet,” writes study co-author Paolo Gabrielli, a paleoenvironmental researcher with the Ohio State University, via email.

The Dasuopu ice is one of many samples that might preserve evidence of human industry. For example, lead from Roman manufacturing shows up in Greenland. Mining, smelting and burning release byproducts into the air and water, and weather patterns can carry the material far away from factories and into snow deposits.

In places like the Alps or the Himalayas, layers of snow melt and solidify year after year, leaving chronological stripes in the ice. When researchers drill down and extract an ice column, or core, they can determine which molecules were present in each year's snowfall.

The Dasuopu core is the highest-elevation ice sample that researchers have taken. Generally, the higher the elevation, the less likely the ice will be contaminated by nearby modern manufacturing, a problem that lower-altitude ice samples may have. “Ice extracted at very high elevation can in fact be more representative of continental [and] hemispheric atmospheric processes,” Gabrielli says.

Gabrielli and his team focused on a 470-foot-long segment of the ice core that corresponded to the years 1499 through 1992. Chemical analysis showed 23 different metals in trace amounts. The team found higher-than-normal levels of elements like cadmium, nickel and bismuth starting in the late 1700s. These elements appear in coal soot.

Starting around the same time, written records suggest that the vast majority of coal consumed in the world likely came from Western Europe and the U.K., Gabrielli says. The team also thinks that some of the zinc appearing in the ice came from forest burning in Europe, which may be linked to the need for expanded infrastructure.

Because their analysis is based on comparing the core samples with existing historical records, the researchers say they can't rule out other, undocumented industrial processes contributing to the trace metal deposits.

Those deposits are not at toxic levels. If released from the ice, however, the heavy metals could accumulate in plants and animals — a process that might eventually harm an ecosystem. It's a possibility, Gabrielli says, that needs more research.

But the presence of coal byproducts in the supposedly-pristine snows of Earth's tallest mountain range is a stark reminder that the pollution we create doesn't always harm just the places where it's produced.

Supreme Court lifts ban on overnight construction in Delhi-NCR as pollution level drops

Date: -14-Feb-2020, Source: theprint.in



Laborers are silhouetted as they work at a construction

New Delhi: The Supreme Court on Friday lifted the ban on construction activities in Delhi-NCR between 6 pm and 6 am.

A bench of the top court comprising Justice Arun Mishra and Justice Deepak Gupta altered its earlier order in this regard. The top court had banned the construction works from 6 pm to 6 am in view of the increasing

pollution in the national capital.

The Supreme Court has lifted the ban after the pollution level reduced.

The top court had said in its order that construction work can be done in Delhi-NCR from 6 am to 6 pm. It further ordered that the construction work will continue to be completely banned at night.

However, the Supreme Court on Friday lifted the ban on construction work in the night.

Earlier, the Supreme Court allowed construction works during the day time in December.

Many projects in Delhi-NCR were affected due to the ban on construction work. In view of the bad air quality in November, the court banned construction works in Delhi-NCR. Due to this, many were directly and indirectly affected. The workers were the most troubled.

Delhi's air quality turns 'very poor', thunderstorm likely by Wednesday

Date: -17-Feb-2020, Source: timesofindia.indiatimes.com

NEW DELHI: The pollution level in the national capital on Monday stood in the "very poor" category as the Met forecast thunderstorm with lightning by Wednesday.

The overall Air Quality Index (AQI) was at 303, said the Centre-run System of Air Quality and Weather Forecasting And Research (SAFAR). Major pollutants such as PM 2.5 and PM 10 in the city docked 123 and 234, respectively.



The India Meteorological Department (IMD) recorded moderate fog in isolated parts over Delhi and visibility at 500 metres in Palam area at 5am with the minimum temperature at 9 degree Celsius. The IMD also predicted thunderstorm accompanied with lightning at isolated places over Jammu Kashmir, Ladakh, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Chandigarh, Western Uttar Pradesh and Delhi, in the

next three days.

SAFAR further stated that there will be a significant increase in respiratory problems and people may experience health effects on Monday. It advised the sensitive group of people, having health issues, to avoid all Physical and outdoor activities and remain indoors. "If asthmatics, keep relief medicine handy," said SAFAR.

It also suggested to do wet mopping to reduce dust and avoid using vacuum cleaning of the room. "Masks known as N-95 or P-100 respirators may only help if you go out," said SAFAR.

High-level meeting to chalk out action plan to tackle air pollution in Delhi

Date: -18-Feb-2020, Source: thehindu.com



Environment is among key departments the Aam Aadmi Party will be focussing in the next five years.

Newly appointed Delhi Environment Minister Gopal Rai has convened a high-level meeting of officers on February 20 to chalk out an action plan to tackle air pollution in the national capital.

Rai, who was given the charge of the crucial environment department in the new AAP government, said reduction in pollution levels will be among the top priority of the Arvind Kejriwal dispensation.

An official said that top officers of the environment department have been asked to give a presentation of their plan on how to reduce pollution levels, especially in winter months, in the city.

“The new environment minister has called a meeting of top department officers on Thursday to chalk out the plan to deal with city’s pollution,” the official said.

Rai, who was given the charge of environment department by Chief Minister Arvind Kejriwal on Monday, has a challenging task at hand as Delhi’s pollution level hovers around “severe” category, especially in winter.

Environment is among key departments the Aam Aadmi Party will be focussing in the next five years.

In its ‘guarantee card’ released in the run up to the recent assembly elections, the Aam Aadmi Party had promised to reduce pollution levels in Delhi by three times.

Mumbai: At 281, AQI noses towards extreme end of 'poor' range

Date: -18-Feb-2020, Source: timesofindia.indiatimes.com



On Sunday the AQI was 175 and it shot up to 279 early Monday morning

MUMBAI: Despite high temperatures, the city recorded a maximum air quality index (AQI) of 281 on Monday morning - the worst since January 2019. This score is considered 'poor' for air quality. The forecast says it will deteriorate further to 283.

On Sunday, the AQI was 175 and it shot up to 279 early Monday morning. It rose to 281 during the day, eventually dropping to 270.

According to the System of Air Quality and Weather Forecasting and Research (Safar), an AQI between 201 and 300 is considered 'poor'.

Among 10 locations monitored, the least polluted was Bhandup with an AQI of 148, while the most polluted was Navi Mumbai at 347 followed by Bandra-Kurla Complex at 322. Five places recorded an AQI in 'very poor' category. An analysis of last year's air quality has found that on days when pollution levels crossed the 300-mark last year, it was only in January.

"The winds are very calm winds so local emissions are getting accumulated, resulting in higher pollution levels...", said Gufran Beig, project director, Safar.

‘Will propose third party audit to address issue of air pollution’

Date: -19-Feb-2020, Source: thehindu.com

The Environment Department of the government will propose quarterly third party audit of air pollution in the city, increase public involvement, add more locations to list of air pollution hot spots to address the air pollution in the city in the meeting with Chief Minister Arvind Kejriwal on Wednesday, said officials on Tuesday.

"The Delhi Pollution Control Committee[DPCC] does not have the manpower or resources to take stock of the ground-level situation across the city and that is why we think that it will be better if a third party does it for us. Also, there will be better documentation if we have more people working on it. It is up to the Chief Minister to take a call on whether to go ahead with it

or not,” a senior DPCC official said. If the plan is approved, the government will then float a tender to hire an organisation to do the audit. “We would also propose in the meeting that there should be better public involvement in solving air pollution like the government had done in the fight against dengue. We are already in touch with an agency, which is ready to do pro-bono work on developing different creatives. We then plan to take it to people through newspaper and television advertisements,” the official said.

‘Individual effort’

The plan is to convey people what can be done on an individual-level to reduce air pollution. In 2019, the Delhi government had run an extensive campaign on how to prevent dengue with Mr. Kejriwal and other Ministers featuring in videos and photos and through advertisements in different mass communication channels.

“We would also propose to add more areas to the list of air pollution hot spots in the city and better monitoring of these areas, followed by a strong escalation mechanism,” the official said.

Real-time study

The officials will also discuss with the Chief Minister about a real-time source appropriation study being done by the University of Washington in St. Louis, on identifying what are the causes of air pollution.

“The study started last March and we will discuss how to go ahead with the results generated from it and how to use it in formulating future plans,” the official added.

Delhi’s air pollution is a failure of democratic governance

Date: -19-Feb-2020, Source: eastasiaforum.org



The world is becoming increasingly urbanised, with half its population now residing in urban areas. Agglomeration economies incentivise firms to locate in urban areas while the urban–rural wealth gap, coupled with the lack of employment opportunities in rural areas, leads villagers to flock to cities.

There is much to celebrate about

urbanisation but the continued and almost unchecked pace of urbanisation poses serious policy challenges. One major challenge is air pollution. Urban living is energy-intensive, with vehicular pollution generally the key contributing factor to poor urban air quality.

Air pollution problems are a governance failure, reflecting the inability of a city's transportation infrastructure to keep pace with its growing population. But winds also carry air pollution from sources outside a city's administrative control. So, urban air pollution not only reflects a city-level governance failure, but also failure at the national and international levels.

India hosts nine of the ten most polluted cities in the world, with its capital Delhi ranking sixth. Delhi's air pollution reflects both internal and regional governance failures. The major sources of PM_{2.5} air pollution in Delhi are vehicles and industry, open waste burning and road dust. Authorities have sought to curb vehicular pollution with the development of the Delhi Metro and the adoption of fuel standards on par with Euro VI emission standards.

Yet vehicular pollution is worsening due to the increasing population that relies on personal vehicles. Delhi's government has discouraged vehicle use by introducing the odd-even road rationing scheme where cars are designated certain days to drive depending on license plate. But such policies have been ineffective against pollution. One reason is that the rule exempts female drivers and two-wheelers, with the latter accounting for the majority of vehicles. These symbolic half-steps reflect an absence of political will to address pollution issues seriously. Delhi is also experiencing a construction boom that has increased air pollution as the government seldom enforces dust control regulations. Landfill fires also contribute to the pollution problem because the build-up of methane generates toxic fumes.

Transboundary pollution also deteriorates Delhi's air quality. One of the biggest sources of air pollution is paddy stubble burning in the neighbouring states of Punjab, Haryana and Uttar Pradesh. Punjab and Haryana are India's breadbaskets and have played key roles in India's Green Revolution.

From the 1970s, Indian farmers adopted Green Revolution technologies, transforming India's chronic food shortage into a food surplus. Farmers' methods are geared towards generating high returns from their land. It is economically disadvantageous for farmers to keep their land fallow to regenerate so Punjab farmers plant both a monsoon and winter crop.

This two-crop strategy worked well for some time. But the Green Revolution created a strong farming lobby that complained about the high cost of production, demanding the government subsidise electricity to operate water pumps.

The provision of cheap electricity incentivised farmers to use high-powered water pumps to extract groundwater for irrigation — a highly unsustainable practice. In 2009, the Punjab

government enacted the Punjab Preservation of Subsoil Water Act with the objective of ensuring that farmers use the monsoon rains for irrigation by restricting the time of sowing and transplanting saplings.

There is some evidence that the law has generated positive effects, but there was also an unintended effect. After harvesting the paddy crop, farmers needed to prepare the same fields to plant the winter crop. But the law considerably reduced the time available for this preparation. Stubble clearing is challenging because farmers cannot afford to purchase harvesting machines or employ seasonal labour. To clear the post-harvest stubble quickly, farmers rely on a quick and inexpensive method: burning. Paddy harvesting in October–November means that post-monsoon winds carry soot and smoke from Punjab to Delhi, causing Delhi's air quality to deteriorate severely.

India is generally a well-functioning democracy where citizens can be expected to demand clean air. It is confounding that Delhi's air pollution problem persists despite its democratic institutions and affluence. India has laws against stubble burning and the Supreme Court has summoned the top administrators of various states to devise an action plan. But even then, the government is unwilling to enforce anti-burning laws.

In Punjab and Haryana, a vibrant democracy leads to intense political competition. But this means that no political party is willing to support the crop burning ban because it will antagonise the farming lobby. Religion also complicates politics. The majority of farmers in Punjab are Sikh and between the 1980s–90s, this region experienced massive violence against Sikhs following the assassination of then prime minister Indira Gandhi by her Sikh bodyguard. Governments realise that enforcing a burning ban could quickly turn into a sectarian issue.

Most groups agree that stubble burning should stop and that the central government should subsidise farming machinery that present farmers with alternatives to burning. Although farmers can't afford to buy machines individually, they can buy them collectively through farmer cooperatives. Policy should be focussed on the provision of government funds so that cooperatives can purchase machinery. The private sector could also contribute by using companies' mandated corporate social responsibility funds to 'adopt' villages to support cooperatives in their purchase of machinery.

Financial incentives are probably the most politically viable way to solve India's stubble burning problem. More investment in public transportation is required so that urban residents reduce their reliance on personal vehicles. Governments must also ensure that cities do not become islands of prosperity, creating conflict with the less prosperous rural areas. If regional problems require cooperative solutions, a large wealth gap undermines such efforts.

Air Quality to remain 'poor' in Delhi-NCR

Date: -19-Feb-2020, Source: indiatvnews.com

The air pollution level on Wednesday in Delhi-NCR stood at 'poor' category. The overall Air Quality Index (AQI) was at 273, said the Centre-run System of Air Quality and Weather Forecasting And Research (SAFAR). The PM10 was recorded 228, which fell in the moderate category. However, PM2.5 remained 'poor' at 112.

The situation may deteriorate further as the Indian Meteorological Department (IMD) forecast thunderstorm with lightning on Wednesday.

"Consecutive western disturbances are likely to affect the northwest Indian region, and an increase in wind speed and ventilation forecasted by Wednesday evening. AQI is likely to improve to the lower end of poor category on February 20. Further air quality improvement to the poor to moderate category is forecasted for February 21," said SAFAR.

An AQI between 0-50 is marked good, 51-100 is satisfactory, 101-200 moderate, 201-300 poor, 301-400 very poor and 401-500 is considered severe.

The SAFAR suggested that asthmatics should keep medicine ready if symptoms of coughing or shortness of breath occur. According to the IMD the minimum temperature at Safdarjung area was recorded at 10.6 degrees Celsius at 8.30 a.m.

Delhi's cleaner days up 50% in 2019; is air quality finally improving?

Date: -21-Feb-2020, Source: businesstoday.in



Delhi-NCR still has a long way to go in order to ensure a pollution-free city

In 2019, the Delhi-National Capital Region saw a considerable improvement in air quality. Compared to the last four years, Delhi witnessed almost 50 per cent increase in the number of cleaner days annually, according to a report by the Centre for Science and Environment (CSE).

The development comes as a sigh of relief for the city as its Air quality index (AQI) mostly stayed in 'satisfactory' and 'moderate' zones

in the bygone year. As per the index, the PM 2.5 levels in Delhi were under 'satisfactory' and 'moderate' categories for 120 days in 2019. There were only 68 such days in 2016. The pollution level under the 'very poor' category in 2019 lasted for only 72 days, while it extended for 125 days in 2016.

The cleaner days in 2019, however, were majorly clustered in the summer and monsoon seasons only. The air quality breached severe levels in winters. Continued stubble burning in Punjab and Haryana added to the smog levels in November 2019, a significant rise from 2018. Although stubble burning contributed up to 30 per cent in Delhi's air pollution, vehicular pollution, domestic pollution, industrial emission, road dust, garbage burning and construction of infrastructure were other key contributors in the mayhem.

In such a scenario, the recent CSE report by Anumita Roychowdhury and Avikal Somvanshi, comes as a breath of fresh air for residents of the 'most polluted city on Earth'.

Here's how Delhi experienced cleaner days in 2019:

Between 1998 and 2003, a series of Supreme Court directives led to the eviction of big, polluting industrial units outside Delhi. Besides, replacement of diesel-run public transport with CNG buses, taxis, and autos; phase-out of old commercial vehicles and improvement in emission standards for vehicles were some of the first generation actions taken to curb pollution in the national capital. Initially, all these helped in stabilising the air, but some of these gains were subsequently undermined as the action slowed down and pollution kept increasing.

However, the momentum to take the air pollution problem revived seriously 2015 onwards. During this phase, several multi-sectoral and diverse actions were initiated. Between 2017 and 2018, the SC directed the government to notify a Graded Response Action Plan (GRAP) for emergency intervention during smog episodes. The court also directed a Comprehensive Action Plan (CAP) for sustained short and long-term actions across sectors in Delhi-NCR.

During this period, all coal-based power plants in Delhi were shut down. Ban on dirty fuels, including pet coke, furnace oil, and coal was notified to the industry and power sector officials. Further, measures were taken to ensure a substantial number of industrial units replace coal and other dirty fuels with natural gas. Small-scale industrial recycling units in places like Mundka saw a significant reduction in the burning of plastic waste.

In the transport sector, massive court interventions were made to control emissions from heavy vehicles. For instance, eastern and western expressways were built to divert truck traffic. An Environment Compensation Charge (ECC) was imposed on every truck entering Delhi and the entry of 10-year or older and overloaded trucks was banned. Through these initiatives, heavy vehicles entering Delhi through its 13 key points reduced to 2,000 in 2019 from 15,000 in 2015.

In 2018, BS-VI (Bharat Stage VI) fuel norms were introduced to further control pollution. The phasing out of 10-year-old diesel vehicles and 15-year-old petrol vehicles, and environmental pollution charges on big diesel cars and SUVs were also introduced.

The CNG programme also added to the cause. A blend of hydrogen and CNG was piloted as fuel for buses during this period. Now, it has been further scaled up for nearly the entire commercial vehicle fleet of the city. Pollution charge based on the 'polluter pays principle' was enforced in yet another effort to control pollution.

TARGETS TO ENSURE CLEANER DAYS AHEAD:

While these measures saw a significant increase in the number of 'clean air' days in Delhi NCR, the capital has a long way to go in order to ensure a pollution-free city for its residents.

Avikal Somvanshi said, "The key problem is the government's Comprehensive Action Plan (CAP), that focuses on strict parking policy and on upgradation of the public transport system. Unfortunately, the plan has not been implemented fully." However, the development of Delhi Metro rail services, BS-VI emission norms, introduction of CNG technology in vehicles had largely given decent results in the battle against air pollution, Somvanshi added.

Somvanshi told BusinessToday.in about the stark contrast in pollution level during Delhi's summers and winters. He stated, "The AQI was under 'moderate' category for 68 days in 2016, which increased to 120 such days in 2019 but all these days were during the monsoon and the summer. Winter pollution remains equally bad as it was in 2016. So, winters have not become cleaner." He added, "We need to figure out which model has contributed the most in cleaning Delhi's air in order to reduce pollution even during the winters."

Bharati Chaturvedi, Director of Chintan Foundation stated a few clean days were not good enough for public health, because the slightest exposure to polluted air could result in severe consequences. Chaturvedi praised North Delhi Municipal Corporation (NDMC) for making Ajmal Khan road in Karol Bagh a non-motorised zone. Chaturvedi also suggested replicating the Ajmal Khan road model in other parts of Delhi.

"In terms of traffic decongestion, the Ajmal Khan road in north Delhi has significantly improved the quality of air in that area. We need to learn from the NDMC. Ajmal Khan model must be replicated and scaled up in more places in the city." She also said Delhi should introduce a congestion tax like London.

On Delhi's air pollution in winters and stubble burning, Chaturvedi said, "Pollution is not a winter problem, it is a chronic year-around problem. The burning of paddy will not make AQI

900. It will be bad for a few days but it won't go to that level. Stubble burning affects us because our air is already serious."

Chaturvedi also advised the government to discontinue sports events in the national capital. "Delhi government should completely stop promoting sponsored sports. We don't want cricket matches or sports marathons in Delhi."

Chaturvedi added that risk to life was higher while running in polluted air. Recently, Delhi had also lost the right to conduct the Under-17 Women's Football World Cup due to its poor air quality.

Study on real-time sources of air pollution can be done across Delhi: Gopal Rai

Date: -22-Feb-2020, Source: thehindu.com

Environment Minister Gopal Rai on Friday visited a Continuous Ambient Air Quality Monitoring Station near India Gate and said that a study being done by the Washington University in St. Louis to find out real-time sources of air pollution in the city could be replicated across different locations in the Capital.

The Delhi Pollution Control Committee (DPCC) has been collaborating since March 2019 with the university to undertake real-time source apportionment study of air pollution in the city. "Once we establish that the model is a success, the study can be replicated across various locations in the city," said Mr. Rai.

"We [Delhi government] have 26 pollution monitoring centres across various locations in Delhi. The mechanism in these centres monitor AQI [Air quality index] at a particular point of time in a span of one hour. But the mechanism cannot detect sources of pollution," he added.

Mr. Rai said that an interim report will be submitted by the university by March 2020 and the model will be functional by the month of June 2020.

Targeted campaign

"We will launch a targeted campaign based on the findings of the report which will help us in identifying the real sources of pollution and to work on reducing the existing pollution levels in the city. Once we are able to identify the real sources, we will be able to take immediate action and balance our efforts in reducing the pollution generated daily by two crore people of Delhi," the Environment Minister said.

On Thursday, the Minister after conducting a review meeting of the situation in Delhi had said that the government will work to make the fight against air pollution a mass movement, which he reiterated on Friday.

An aim to reduce air pollution to one third in the course of next five years was part of the 10-point 'Kejriwal Ka Guarantee Card' released by Chief Minister Arvind Kejriwal in the run-up to the 2020 Delhi Assembly elections.

Implementing the promises in the guarantee card is being done on a priority basis by the government.

India 5th Most Polluted Country In The World: Report

Date: -25-Feb-2020, Source: thehindu.com



India was the 5 most polluted country in 2019, with Ghaziabad in the National Capital Region ranked as the most polluted city in the world, according to a global compilation of PM 2.5 particulate pollution data by IQAir, a company that primarily works on air filtration.

On the whole, air pollution in India decreased in 2019 from 2018 though about half of the 50 most

polluted cities were in India, the report notes. India launched a National Clean Air Programme in 2019 that commits to reducing air pollution in 102 most polluted cities by a maximum of 30% by 2024. The report however notes that the reduction in pollution in 2019 couldn't be attributed to the NCAP but rather was due to a "slowing of the market place." The economic growth rate in India is expected to slow down to 5% in '19-20 from 6.1% in '18-'19 and 7% in '17-'18, according to the Economic Survey in January.

"Whilst cities in India, on average, exceed the World Health Organisation target for annual PM2.5 exposure by 500%, national air pollution decreased by 20% from 2018 to 2019, with 98% of cities experiencing improvements," IQ Air said in a press statement.

Bangladesh was marked the most polluted country in 2019 with an average PM 2.5 concentration of 83 $\mu\text{g}/\text{m}^3$. Pakistan came next with 65 $\mu\text{g}/\text{m}^3$ and India recorded an average of

58.1 $\mu\text{g}/\text{m}^3$. In the 2018 version of the IQAir report, the top two countries were the same and India was the third most polluted in the world with an average of 72 $\mu\text{g}/\text{m}^3$.

In the 90 country/region-ranking, the Bahamas ranked the cleanest with an average of 3 $\mu\text{g}/\text{m}^3$.

For the data, IQ Air relied on pollution recorded by sensors maintained by the government bodies—for India these were mostly the ones maintained by the Central and state pollution control boards—was well as monitoring stations maintained by private organisations.

“The new dataset highlights elevated air pollution levels as a result of climate change events, such as sandstorms and wildfires, and pollution gains from the rapid urbanization of cities, in regions such as Southeast Asia. While some achievements have been made in air quality monitoring infrastructure globally, there are still huge gaps in access to data around the world,” the press statement added.

NTPC, CPCB plan stations to monitor air quality in 13 cities

Date: -26-Feb-2020, Source: timesofindia.indiatimes.com

NEW DELHI: State-run generation utility NTPC will help Central Pollution Control Board to set up 25 continuous ambient air quality monitoring stations (CAAQMS) across six states and three union territories, the company said in a statement on Wednesday.

The company will provide financial support of Rs 80 crore for installation of CAAQMS in Gwalior (Madhya Pradesh), Ranchi (Jharkhand), Patna (Bihar), Varanasi, Lucknow, Kanpur and Allahabad (all in Uttar Pradesh), Pimpri-Chinchwad (Maharashtra) and Madurai (Tamil Nadu).

CAAQMS will also be installed at Port Blair in Andaman & Nicobar Islands, Silvassa in Dadra & Nagar Haveli and Daman in the union territory of Daman & Diu.

Data collected from these stations will be used for evaluation of air quality index for these cities.

March 2020

CSR: Volvo Car organises awareness program on air pollution for school children

Date: -3-Mar-2020, Source: indiaccsr.in

NEW DELHI: Volvo Car India executed an awareness activity about the harmful effects of air pollution and encouraged innovative solutions for environment sustainability.

This was an integrated program that included Social Media, Digital campaign, dealer activations and CSR activities across schools in Delhi NCR to sensitise children about air quality.

The program was executed by Volvo Car India and its partners Mindshare (a part of GroupM) and the CSR activity was executed by AFCSR (ASSOCHAM Foundation of CSR).

As part of the program Volvo Cars has fitted 50 school buses in Delhi NCR with 'Minus2point5' – a device which is attached to the exhaust pipe and reduces air pollution by converting PM2.5 particles in ambient air into coarser dust and making them fall to the ground.

The device is developed by tech start-up PerSapien Innovations and has been very well received by the school authorities. PerSapien fitted the interiors of the school buses with a PM2.5 air filters too, this reduces entry of PM2.5 inside the buses so that the air is clean for children to breathe.

Charles Frump, Managing Director – Volvo Car India, said, "BreatheFree was a success last year with children making DIY air-filters, this year we have upped the ante and made BreatheFree an even bigger success in democratising clean air. The programme is a reflection of our commitment to sustainability."

Ruchi Mathur, Senior Vice-President — Client Leadership, Mindshare North and East India, said, "Being a socially aware agency, we are extremely happy to have partnered with our client Volvo Cars in this collaboration. Together with Volvo, and the children of the society, we hope to bring about a change and succeed in getting a conversation started around clean air."

Sandeep Jain Director – AFCSR said, "We are proud to be associated with this one-of-its-kind campaign to enable people to breathe clean air."

We have successfully conducted a series of school activations with Volvo to create social awareness on harmful effects of air pollution."

India remains top of the list for air pollution

Date: -3-Mar-2020, Source: healthissuesindia.com



Air pollution in Delhi.

Of the world's thirty most-polluted cities, 21 are in India. This is according to data compiled in IQAir AirVisual's 2019 World Air Quality Report, which found that six Indian cities take spots among the top ten for air pollution.

This is hardly unsurprising, nor is it without precedent. Recent years have seen India home to

seven of the world's ten most polluted cities to India. In years before this, fourteen of the world's fifteen most polluted cities were in India.

A report published last year by the Global Alliance on Health and Pollution (GAHP), found that 8.3 million lives are lost to air pollution every year, making air quality the leading environmental threat to public health. In 2017 it was documented that India lost 2,326,771 lives to pollution, accounting for more than a quarter of global deaths due to breathing in toxic air. Pollution-related deaths account for fifteen percent of global mortality. In addition, 275 million disability-adjusted life years are lost to pollution annually.

Deaths and associated disease due to air pollution have consistently arrested headlines and provoked responses from health bodies across the globe to highlight the issue as being among the world's foremost health challenges. With even short stays in polluted cities found to be harmful to human health, the impact on those who live within these cities is severe.

"Urgent action" is required to address pollution in India, according to Dr Maria Neira, director of the World Health Organization (WHO) Department of Public Health, Environment and Social Determinants of Health. "We are confident," she asserted last year, "that based on the fact that this pollution can be reduced, [the] Indian government, which has an enormous amount of expertise and competence will be doing their best to tackle the sources of pollution, to reduce the toxic levels that the citizens are exposed to at the moment, and start to monitor how the health situation of their citizens will be improved.

"It is just the question of deciding to implement it as soon as possible because the more we delay those measures; the more we will have problems."

The effects of pollution on health are profound. Not only is air pollution damaging to the lungs, evidence has been uncovered linking the exposure to pollution to heart disease, diabetes and dementia. The elevated risks can be attributed to the inflammation caused by the inhalation of particulate matter. The health effects are one of the more immediate impacts of the damage humanity is dealing to the environment, with more repercussions anticipated should we fail to alter our attitude to emissions.

Need to include health impact of air pollution in our policies: Congress MP Gaurav Gogoi

Date: -4-Mar-2020, Source: theprint.in



Congress MP from Assam Gaurav Gogoi at the CPR Dialogues 2020
Tuesday

New Delhi: India's policies to fight air pollution need to include the health impact of breathing bad air, said Congress MP Gaurav Gogoi, adding that he intends to introduce a Private Member's Bill in the Parliament in this regard.

Speaking on day two of the Centre for Policy Research (CPR) Dialogues 2020 held at the national capital Tuesday, Gogoi said that linking pollution policies

to health will make the government more proactive.

"From the political instinct point of view, we need to link air quality with health. Look at the government response to the coronavirus crisis. The government is proactive because there is an immediate health impact," Gogoi, an MP from Assam, said.

Last year, Union Environment Minister Prakash Javadekar had said there is no Indian study to show that pollution impacts people's lives and health, drawing sharp criticism from scientists and environmentalists.

A number of studies have shown that air pollution causes a lot of health issues — ranging from heart diseases to lung disorders. A recent study has even shown that air pollution shortens lives worldwide by nearly three years on average and causes 8.8 million premature deaths annually.

Keeping political differences aside, Gogoi said that he appreciates the Narendra Modi government's National Clean Air Programme (NCAP), which shows that at least it considers air pollution a national problem.

The NCAP is a national-level strategy launched by the environment ministry last year. It lays out action plans for over 120 cities across the country that are currently plagued by bad air quality. Under this programme, the government aims to bring down pollution levels by up to 30 per cent by 2024.

NCAP lacks 'legislative teeth'

Gogoi, however, pointed out the NCAP does not have "legislative teeth" — that is it does not have any provisions to ensure that cities take steps to fight air pollution.

There is also no clearly laid out policy for tracking air quality improvements, he added.

Gogoi suggested the country's pollution control boards need to be upgraded so that they match the standards of their international counterparts.

The Parliamentarian also called for better coordination between different state governments as well as civil society organisations to fight air pollution.

30% reduction in air pollution by 2024 at Kalinganagar

Date: -4-Mar-2020, Source: updateodisha.com

Bhubaneswar: Kalinganagar in Odisha's Jajpur district is one of the 122 cities (non-attainment cities) in India that are worst affected by air pollution.

In the recently released Odisha Star Rating, 5 out of the 6 participating industries from Kalinga Nagar have been rated as one star (lowest environment complaint). According to the University of Chicago's Air Quality Life Index, the average life expectancy of Kalinga Nagar residents could increase three years if WHO air quality standards are met.

The situation at Kalinga Nagar is critical. But under the National Clean Air Programme (NCAP), State Pollution Control Board is aiming at reducing the air pollution by 30% by 2024 at Kalinga Nagar, said Er. Pramod Kumar Behera, Regional Officer, State Pollution Control Board, Kalinganagar.

He was addressing at an awareness workshop jointly organised by State Pollution Control Board, Energy Policy Institute at the University of Chicago (EPIC India) and Tata Center for Development at UChicago(TCD).

Themed as 'Can citizen engagement contribute towards cleaner air in non-attainment cities', this workshop witnessed technical presentations on different aspects of air pollution.

Talking on 'Health Hazards of air pollution', Dr. Sudhanshu Sekhar Bal, ADMO, FW, told, 'Morbidity and mortality due to adverse impacts of air pollution have increased at an alarming rate here. Hospitalization and health-related expenses have become manifold.'

Talking on what a common citizen can do to prevent air pollution, Dr. Sudhamayee Behura, Head of the Department, Environmental Science, Raghunathjew College told, 'Controlling air pollution at the source level, using right kind of fuel, more dependence on public transport can help.'

Shubhadarshini Das, environmental engineer of the State Pollution Control Board, told that a comprehensive action plan has been prepared for control and abatement of air pollution in the non-attainment cities by different departments of Government of Odisha.

Air Pollution Emergency Response Plan (APERP) is also being prepared for different departments of the Government of Odisha to restore urban air quality and take precautionary measures to minimize health risk at the time of emergency situations in terms of air quality.

Presenting on 'How Public Disclosure Programs Help in Enhancing Environment Performance and Compliance', Jyoti Ranjan Nayak, Senior Data Associate, EPIC India, told that to keep industrial air pollution under control, Government of Odisha had started the Odisha Star Rating, public disclosure of pollution data of industries belonging to 17 categories of high polluting sectors in 2018. The program aims to encourage responsibility and healthy competition between industries in order to reduce emissions and achieve better regulatory compliance.

More than 100 students, faculties and civil society members attended the workshop. Parambrahma Tripathy, Communication and Outreach Coordinator of EPIC India proposed the vote of thanks.

Air pollution in Delhi-NCR: We are worried for future, says Supreme Court

Date: -6-Mar-2020, Source: timesofindia.indiatimes.com

NEW DELHI: "We are worried for future", the Supreme Court said on Friday, asking the municipal corporations and other agencies in Delhi to consider purchasing BS-VI compliant diesel vehicles for their respective works to reduce pollution. A bench of justices Arun Mishra and Deepak Gupta said this while hearing a plea filed by the East Delhi Municipal Corporation (EDMC), seeking permission to allow registration of several diesel vehicles of 2000cc capacity and above to carry out solid waste management.



"We are worried for future. It is not for today," the bench said, referring to the menace of pollution in the Delhi-National Capital Region.

Solicitor General Tushar Mehta, appearing for EDMC, told the bench that vehicles required by the civic body for solid waste management were available in diesel variant as the power needed for these vehicles can be generated only by diesel fuel.

"Next in future, you will have to buy BS-VI compliant vehicles. Once BS-VI will come into play, the pollution from diesel vehicles will reduce," the bench said.

Mehta said these vehicles were required for essential services only.

The bench was informed that other agencies, including civic bodies, also needed new diesel vehicles to carry out their works.

The bench sought a chart of the number of vehicles needed along with its particulars and posted the matter for hearing on March 16.

During the hearing, the bench asked, "Instead of going for BS-VI variant, why do you want to go for BS-IV variant vehicles?"

One of the counsel appearing in the matter said the vehicles needed by the civic bodies are so far available in BS-IV variant only.

The bench also dealt with the issue of installation of smog towers, being designed as large-scale air purifiers to reduce air pollution, in the national capital.

In January this year, the court had given three months to the Centre and the Delhi government for the pilot project of setting up smog towers at Connaught Place and Anand Vihar here.

During the hearing on Friday, Additional Solicitor General A N S Nadkarni told the bench that the apex court had given three months' time for setting up smog towers but the Indian Institute of Technology (IIT), which is assisting authorities in the project, has said it required around 10 months.

The counsel appearing for the Delhi government also said they require time till August-September this year to set up smog towers.

The bench has posted the matter for hearing on March 27.

These issues have cropped up before the top court which is hearing a matter related to air-pollution in the Delhi-NCR.

After three 'satisfactory' days, air quality dips in Delhi

Date: -9-Mar-2020, Source: timesofindia.indiatimes.com



While the capital was aided by a spell of incessant rain and strong winds, experts said its withdrawal and a drop in wind speed had led to a slight deterioration in air quality.

NEW DELHI: After recording three straight days of 'satisfactory' air quality — Delhi's cleanest air spell since September — the overall Air Quality Index (AQI) fell to the 'moderate' range on Sunday with a reading of 164 on CPCB's daily bulletin. In comparison, the AQI was below 80 on Thursday, Friday and Saturday — falling to as low as 64 on Friday.

While the capital was aided by a spell of incessant rain and strong winds, experts said its withdrawal and a drop in wind speed had led

to a slight deterioration in air quality. The IMD has meanwhile forecast another spell of rain to hit Delhi on the night of March 10, as well as March 11 and 12.

System of Air Quality and Weather Forecasting And Research (SAFAR) forecasts air quality to remain in the 'moderate' range in the next 48 hours before another spell of rain hits Delhi on March 11 and 12, which could once again lead to an improvement in air quality.

"AQI is likely to marginally improve and stay in the lower end of moderate category on March 10 and 11," said SAFAR.

Kuldeep Srivastava, scientist at India Meteorological Department (IMD), said a fresh western disturbance will influence parts of north Rajasthan, Haryana and western Uttar Pradesh on March 10-11, bringing a spell of light rain on the night of Holi (March 10), as well as on March

11. A light drizzle could also be recorded in the morning on March 12. “The major impact of the western disturbance will be on March 11, with strong gusty winds of 35-40 km/hour also blowing. This will once again lead to an improvement in air quality and bring down the mercury,” said Srivastava

Meanwhile, the maximum temperature on Sunday was recorded at 24.8 degrees Celsius — four notches below normal. The minimum temperature was also recorded three notches below the normal mark, at 11.1 degrees Celsius.

Met officials forecast a rise in mercury in the next 48 hours, with the maximum likely to touch 27 degrees Celsius by Monday and 28 degrees Celsius by Tuesday. “There will be a drop in the maximum temperature from Wednesday after rain. It will remain below the normal mark on Thursday too,” said a Met official.

Hyderabad sees bad air days, records higher AQI than Delhi

Date: -10-Mar-2020, Source: timesofindia.indiatimes.com

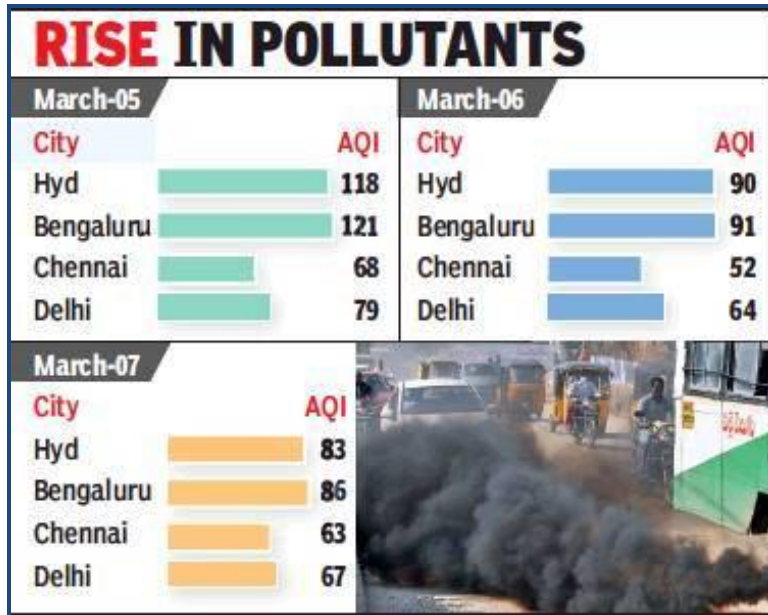


On Thursday, the AQI in the city was 118 as opposed to 79 in Delhi

HYDERABAD: The city has been dealing with worse pollution levels than Delhi over the past week with experts suggesting that rains in the capital might be a reason for pollution levels plummeting there. In the last week alone, on three occasions the Air Quality Index (AQI) — used to monitor pollution in the city — for Hyderabad was higher, in spite of the city getting light drizzle.

On Thursday, the AQI in the city was 118 as opposed to 79 in Delhi. The next day, figures were 90 in the city and 66 in Delhi and on Saturday, levels were at 83 in the city and 67 in Delhi.

An expert from the Telangana State Pollution Control Board (TSPCB) said the rains in the capital might have been a major reason for the fall in pollutants. “This is a temporary phenomenon likely because of the rains experienced in Delhi,” the expert said.



He said change in wind directions could also be attributed to levels remaining above 90 in Hyderabad even though there have been brief spells of rain.

Also suggesting the rain as being the major reason, experts said smaller factors may have reduced vehicular traffic. “The recent violence in the capital and coronavirus fears may have reduced vehicular pollutants. Such factors must be analysed before we reach any conclusion,” said

Babu Rao, an air pollution expert. Besides this, the greater awareness may also be a contributing factor, say some experts, adding that Hyderabad needs to do more.

As per TSPCB data, the AQI index was the highest in February at IDA Pashamylaram (115), followed by Zoo park (113). The data was based on the levels monitored by Continuous Ambient Air Quality Monitoring Stations. The least AQI levels were noticed at Sanathnagar at 79. Levels above 100 are categorised as ‘moderate’ where it might cause “breathing discomfort to the people with lungs, asthma and heart diseases”, as per the Central Pollution Control Board’s standards.

Mumbai gets lion’s share of govt’s pollution fund

Date: -12-Mar-2020, Source: timesofindia.indiatimes.com

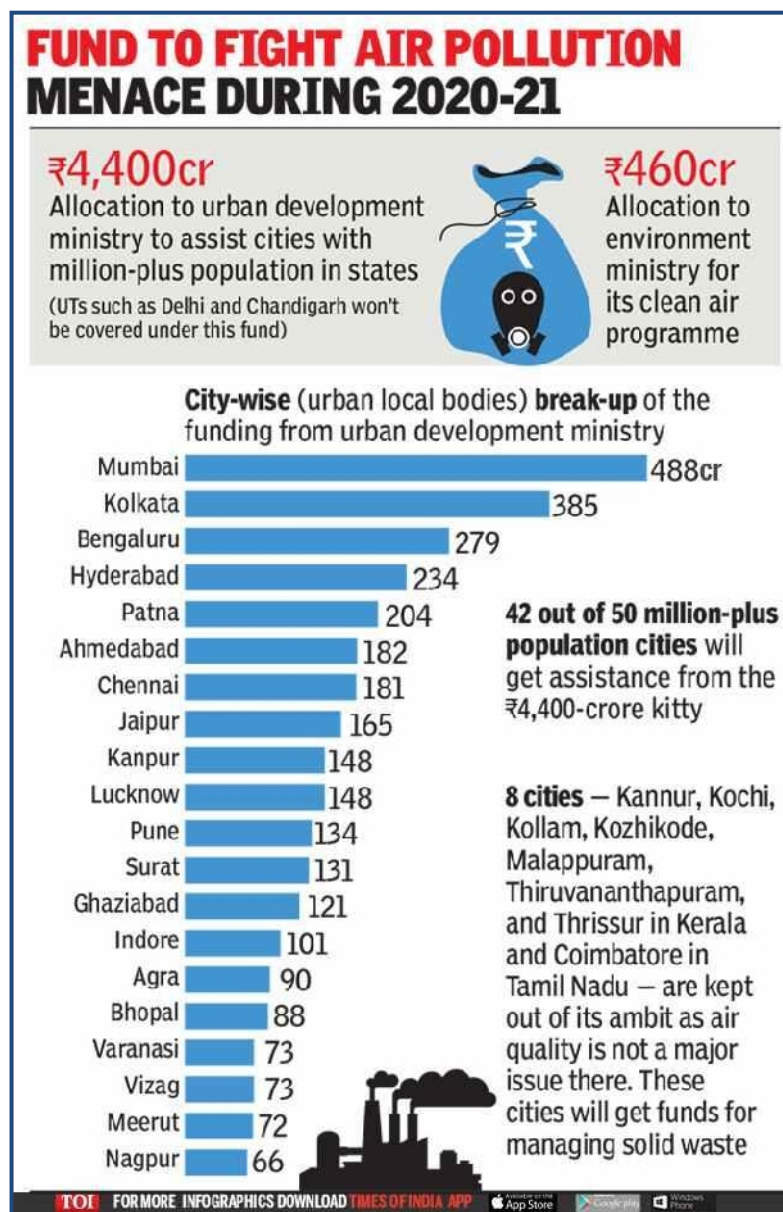


NEW DELHI: As the government works on a mechanism to assist big cities in battling air pollution, Mumbai is set to get the highest grant of Rs 488 crore from the Centre’s Rs 4,400 crore fund which is earmarked exclusively for cities with more than one million population in states to improve air quality during 2020-21.

Delhi may miss this assistance despite figuring among the most polluted cities in the country as the fund would only be meant for 'million plus' population cities in states.

The national capital, will, however continue to get support from the National Clean Air Programme (pollution control scheme) of the environment ministry and other schemes of the agriculture ministry to deal with stubble-burning.

Under the pollution control scheme, the environment ministry has, however, been allocated just Rs 460 crore for 122 'non-attainment' cities across the country. Non-attainment cities are those which do not meet the national ambient air quality standards.



At Rs 488 crore, share of Mumbai local body will be higher than the total money (Rs 460 crore) earmarked for the entire NCAP of the environment ministry. Besides NCAP, the Centre has in its budget for 2020-21 allocated Rs 4,400 crore to the urban development ministry for taking up clean air measures in 'million plus' cities.

The break-up of financial assistance for these cities is recommended by the 15th Finance Commission. Forty-two of 50 such cities in states will get assistance from the fund. Remaining eight cities are kept out of its ambit as air quality is not a major issue there.

Noting the critical issue of air pollution in Delhi-NCR, the Commission recommended the Centre to constitute a committee, consisting of ministries of finance,

environment and agriculture, state governments of Haryana, Punjab and Uttar Pradesh, to “devise, implement and monitor a time-bound action plan for pollution mitigation”.

After Mumbai, the second highest amount from the urban development ministry’s fund will be allocated to Kolkata (Rs 385 crore), followed by Bengaluru (Rs 279 crore), Hyderabad (Rs 234 crore) and Patna (Rs 204 crore).

Half of the earmarked assistance will, however, be given to these cities based on their performance in year-on-year improvement in air quality. “The environment ministry will soon publish benchmarks for this purpose,” said an official, adding the performance related grant will be based on improvement in average annual concentrations of both PM 10 and PM2.5 (equal weightage of 50%) as calculated in January 2021.

The environment ministry had launched NCAP in January last year and set a mid-term (five-year) target to reduce air pollution by 20-30% by 2024, taking 2017 as base year.

The first instalment to the cities from Rs 4,400 crore fund will be used for taking multiple air quality improvement measures, including capacity- building of local bodies.

Coronavirus | Air is cleaner with COVID-19 lockdown

Date: -18-Mar-2020, Source: thehindu.com

Air Quality Index			
Station	March 14	March 15	March 16
City Railway Station	86	102	124
Basaveshwaranagar	65	63	59
Veterinary College, Hebbal	73	99	66
Jayanagar 5th Block	79	76	72
KAVIKA, Mysuru Road	74	86	62
NIMHANS	76	91	67
Silk Board	76	70	66

KSPCB figures between Saturday and Monday show weekday had lower pollution levels than weekend

Many private firms have asked employees to work from home, schools and colleges have suspended classes, and malls and pubs are closed. This partial lockdown in a usually bustling city to contain the spread of COVID-19 appears to have had one positive impact — lower levels of air pollution.

Data collated by the Karnataka State Pollution Control Board (KSPCB) between Saturday and

Monday showed that ironically, the weekday had lower pollution levels than the weekend.

According to the Air Quality Index (AQI) compiled by the KSPCB, six out of seven monitoring stations posted ‘satisfactory’ index values, as well as lower pollution levels on Monday, when pollution levels usually see a spike.

For example, the AQI at the Silk Board monitoring station went from 76 on Saturday, to 70 on Sunday and 66 on Monday. Silk Board is notorious for its traffic snarls.

The AQI at NIMHANS was 76, 91 and 67 on Saturday, Sunday and Monday respectively. The other stations that recorded a downward trend in air pollution were the Veterinary College Hebbal, Basaveshwaranagara, Jayanagar 5th block and Mysuru Road.

KSPCB officials said the three-day data is a window to the impact that vehicular emissions have on air. "Usually, we see that air pollution goes up on Mondays when people are back to work or to school and college. Now that many of these establishments are closed, and the IT industry and others have asked their employees have been asked to work from home, vehicular emissions have reduced and this is having a direct impact on the pollution levels," said an official.

City Railway Station

On the other hand, the City Railway Station station saw no impact of the closure of establishments and reduction in traffic. On the contrary, the busy junction saw the AQI go up from 86 to 102 to 124. This was the only station that recorded 'moderate' levels.

According to the AQI, index value between 0 and 50 is deemed good with minimal impact on health, 51 to 100 is satisfactory with health implications being minor breathing discomfort to sensitive people, 101 to 200 is considered moderate, and the possible health impact likely to cause breathing discomfort to people with lung diseases and discomfort to people with heart disease, as well as affect children and older adults.

AQI of 201 to 300 is considered poor (may cause breathing discomfort to people on prolonged exposure and discomfort to people with heart disease), 301 to 400 very poor (may cause respiratory illness to people on prolonged exposure. Effect may be more pronounced in people with lung and heart diseases), and more than 401 is categorised as severe (may cause respiratory effects even to healthy people and serious health effect to people with lung/ heart diseases).

Skies clear, air pollution levels drop as Mumbai stays indoors

Date: -22-Mar-2020, Source: timesofindia.indiatimes.com

MUMBAI: As the city slows to fight Covid-19, its air has seen a decline in pollutant levels, found a report by System of Air Quality Weather Forecasting and Research (SAFAR). According to SAFAR, there was a 45% drop in concentration of nitrogen oxide (NOx) this month compared to March 2018 and 2019. A drop in concentration of PM 2.5 too was seen since restrictions were imposed.



The otherwise-busy Western Express Highway near airport which is choc-a-bloc with traffic where a deserted look on Saturday

SAFAR's report states, "Fossil fuel emission, mainly coming from vehicular traffic, is one of the major sources of NO_x (60-80%) and PM_{2.5} (35-50%) in Delhi, Mumbai, Pune and Ahmedabad. Under fair weather conditions, NO_x levels are mainly controlled by its major sources of emissions (vehicular traffic), although changes due to weather cannot be ruled out. Hence, if NO_x levels are reduced significantly as compared to earlier years, it may provide us a qualitative/broader indication in

reduction in emissions in major sources." In Mumbai's lowered Nox levels, the major drop of 75% was noticed at BKC. Nerul and Worli too showed a reduction. But levels at Colaba, Andheri, Malad and Mazgaon showed no change.

SAFAR has also recorded a drop in PM 2.5 levels, concentration of which is used to calculate air quality index. Though PM 2.5 concentration in comparison with March 2018 and 2019 did not show a change, it dropped from 118 microgrammes per cubic metre (µg/m³) on Tuesday to 40 µg/m³ on Saturday. "There was a spike in pollutants during Monday and Tuesday which could be due to more people using their own vehicles in the wake of restrictions. But it soon began to drop.," said Gufran Beig, project director, SAFAR. Saturday's AQI for Mumbai was 64, the best in 2020. An AQI between 51 and 100 is considering to be satisfactory.

Air quality level in Kochi improved on Janata curfew day

Date: -24-Mar-2020, Source: thehindu.com

The Janata Curfew on Sunday may have locked down the city, but it helped residents breathe fresh air going by the air quality data provided by the State Pollution Control Board.

According to data provided by the air quality monitoring stations managed by the board, the Air Quality Index (AQI) at Vyttila and on M.G. Road was 50 and 51 respectively on Sunday. The corresponding figure at Eloor was 64.

Vyttila and M.G. Road used to record AQI levels in the range between 95 and 100 on busy days while the corresponding figure at Eloor had often crossed the 100 mark. Reduced emissions

from vehicles and particulate matter helped achieve the good index on March 22, said board officials here.

An index value between 0 and 50 is deemed good with minimal impact on health, 51 to 100 is satisfactory with health implications such as minor breathing discomfort to sensitive people, 101 to 200 is considered moderate, and the possible health impact is breathing discomfort to people with lung diseases and discomfort to people with heart disease, children and adults.

On M.G. Road, the carbon monoxide level was recorded as 0.6 against the previous day reading of 1.06 while the PM (particulate matter) 2.5 level was 17.59 against the 27.78 reading recorded on March 21. The PM10 level was 39.1 against the 55.09 level recorded the previous day. The PM2.5 and PM10 levels at Vyttila on Sunday were 20.1 and 43.31 respectively against the corresponding values of 34.68 and 81.45 recorded the previous day. The nitrous oxide level was 75.4 against the 87.6 recorded on Saturday. The carbon monoxide level was 0.02 against the 0.07 recorded the previous day.

At Eloor, the PM2.5 level on Sunday was slightly better compared to the readings on March 21. The levels were 14.86 and 15.29 respectively. According to the National Ambient Air Quality Standards of the Central Pollution Control Board (CPCB) of India, the 24-hour average for PM10 is 100 microgram/cubic metre, and 60 microgram/cubic metre for PM2.5.

Lockdown improves air quality in New Delhi, auto hubs across India go greener

Date: -26-Mar-2020, Source: autocarpro.in



With near-empty roads and no air traffic, the skies at the Dhaula Kuan intersection in New Delhi have turned blue

As India observes its second day of a 21-day nationwide lockdown – a proactive attempt by the government to curb the spread of the deadly Coronavirus – there's a glimmer of hope in the skies. India's Air Quality Index (AQI) of the country, which 'won' fifth position in the 2019 World Air Quality Report, published by Switzerland's IQAir, is in for some positive change driven by lack of vehicular emissions and industrial operations.

With a prevailing AQI of 71, New Delhi, the national capital has recorded a sharp 60 percent drop in the PM 2.5 (particulate matter) concentration in its air over the past one week, leading to the city currently ranking at No. 31 among popular metropolitans around the world, as of today afternoon (March 26), as listed by IQAir.

Compare this much-improved position to last year's report when New Delhi was placed at the No. 5 position in Top 30 list of most polluted cities in the world. It would not come as any surprise that 21 of these 30 polluted cities are in India.

The national capital, which started seeing state government measures such as closure of malls and cinema halls as early as March 13, to then getting into a complete lockdown since March 22, has brought in this effective transformation.

Air pollution has been a vexing subject for much too long, especially in recent times when climate change and global warming have caught the attention of policy makers as well as industry leaders worldwide, who now look at all possible sustainability solutions to go eco-friendly.

According to IQAir's report, the average level of PM 2.5, which is majorly contributed by combustion from power plants, smoke and soot from waste burning, industrial chemical processes and vehicular emissions, exceeded the WHO-recommended guidelines by a shocking 500 percent in India last year.

As a result, a total lockdown could prove to be fortunate and bring some essential respite to the environment by providing it time to rejuvenate in the absence of major economic activities, including suspension of domestic and international air transportation, and all national train services in the country until midnight of April 14.

55% PM 2.5 typically comes from CV fleets

However, even as all major modes of transportation including local trains, buses, auto-rickshaws, shared cabs and private transportation are prohibited from plying on city roads during the lockdown, goods-carrying commercial trucks are still running to keep the production and delivery of essential goods and services active.

According to Paulo Afonso de Andre, AQI expert, Air Pollution Lab - Medical School, University of Sao Paulo, Brazil, "Heavy commercial trucks and buses are responsible for 55-60 percent of the PM2.5."

Historical data shows that New Delhi had 1.12 crore registered vehicles in the city as of December 2018, with a growth rate of about 6 percent.

India's automotive hubs go greener

Meanwhile, the Indian automotive industry, which includes vehicle OEMs, component suppliers, dealers and logistics players have also been significantly impacted by the ongoing lockdown and have had to pull down shutters to participate in the national call for prioritising health of its citizens. A quick glance at the PM2.5 readings of the corresponding automotive hubs in the country also shows a noticeable improvement in the prevailing condition of the air.

Manesar, which is an industrial area on the outskirts of Delhi housing vendors supplying to neighbouring plants of Maruti Suzuki India, Hero MotoCorp and Honda Motorcycle & Scooter India, has recorded a 70 percent improvement in air quality with the AQI going down from 154 on March 19 to 47 as of 14:00 hours today.

For Gurgaon, there has been a 67 percent improvement with the metric dropping from 232 to 75. Nashik in Maharashtra, which is predominantly known for Mahindra & Mahindra's operations, has posted a nominal 6 percent improvement from 66 to 62.

Chennai, which is home to Ford India, Hyundai Motor India, BMW India, Renault-Nissan Alliance India, TVS Motor Company and Royal Enfield shows a 32 percent reduction in the AQI value which has dropped from 88 a week ago to 60 today afternoon.

BS VI to reduce PM 2.5 emissions

With less than a week remaining for the country to make a complete transition to the BS VI emission norms for its new vehicles, India could continue to be on the path of decreased vehicular emissions from its fleet.

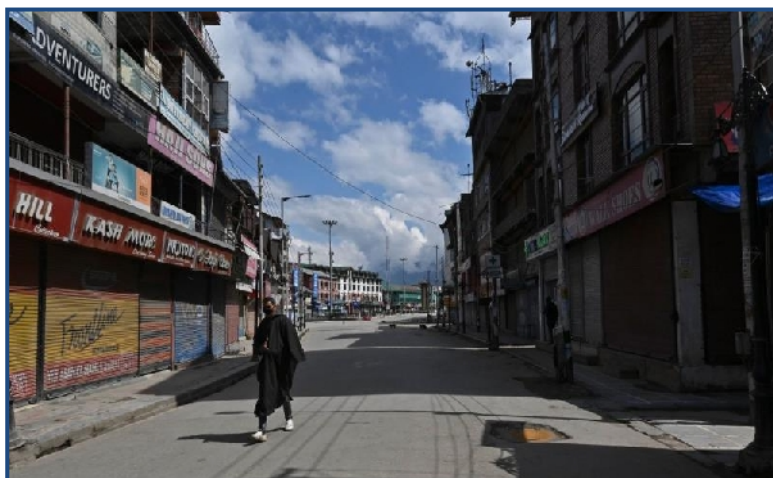
The new stringent regulations, which get implemented nationwide from April 1, will reduce NOx emissions by 25 percent in petrol-powered vehicles and bring a 68 percent reduction of the same in diesel vehicles, alongside a drastic 82 percent reduction in PM2.5.

While the industry has been bracing itself for the much-discussed transition, the current Coronavirus situation has impacted its plan of action. There is a concern of substantial BS IV inventory lying unsold at dealers, who are now hoping the Supreme Court allows some relaxation.

As all of India works from home in a time of coronavirus and while scores of executives and industries rely on the 'Cloud' to continue with their work while socially distancing themselves from the world, the real clouds in the sky are taking their own recourse to cleanse themselves.

India's 90 cities record minimal air pollution amid COVID-19 lockdown

Date: -29-Mar-2020, Source: thestatesman.com



A man wearing a facemask walks along a deserted street during a government-imposed nationwide lockdown as a preventive measure against the COVID-19 coronavirus, in Srinagar on March 29, 2020

With a nationwide lockdown in place, over 90 cities, including Delhi, recorded minimal air pollution in the last few days.

India is currently under the biggest lockdown with around 130 crore people asked to stay home in view of the coronavirus outbreak, which has claimed 25 lives and infected over 900 people in the country.

According to the Centre-run System of Air Quality and Weather Forecasting and Research (SAFAR),

the impact of the measures taken due to the coronavirus outbreak has resulted in a drop in PM2.5 (fine particulate pollutant) by 30 per cent in Delhi and by 15 per cent in Ahmedabad and Pune.

The level of Nitrogen Oxide (NOx) pollution, which can increase the risk of respiratory conditions, has also reduced. NOx pollution is mainly caused due to a high motor vehicle traffic. In Pune, NOx pollution has reduced by 43 per cent, in Mumbai, by 38 per cent and in Ahmedabad, by 50 per cent.

Gufran Beig, a scientist at SAFAR, said generally in March, pollution is in the “moderate” category (Air Quality Index range: 100-200) while presently, it is in the “satisfactory” (AQI 50-100) or “good” (AQI 0-50) category.

“It is the lockdown impact. Local factors like shutting down of industries and construction and traffic have contributed in improving the air quality. Rain is also helping, but the curbs on local emissions are playing a significant role,” he said.

Under the “good” category, pollution is considered to be at the lowest and the air is believed to be the healthiest to breathe.

According to the data of the Central Pollution Control Board (CPCB), the air quality in the national capital is presently in the “good” category. In Kanpur, which has high pollution levels, it

is in the “satisfactory” category. Moreover, 92 other cities with CPCB monitoring centres have recorded minimal air pollution, with the air quality in the range of “good” to “satisfactory”.

As many as 39 cities have recorded “good” air quality and 51 cities have recorded “satisfactory” air quality in the last few days, the CPCB data showed.

An AQI between 0-50 is considered good, 51-100 satisfactory, 101-200 moderate, 201-300 poor, 301-400 very poor and 401-500 severe.

It is not just India but worldwide that the impact of multiple lockdowns can be observed. Quarantining and lockdowns have forced many countries’ industries to shut down, with many factories closing their doors. The World Economic Forum reports, images from the Centre for Research on Energy and Clean Air (CREA), as well as satellite footage from NASA and the European Space Agency (ESA), show a drastic decline in NO₂ emissions over recent months, particularly across Italy and China.

According to NASA scientists, the reduction in NO₂ pollution was first apparent near Wuhan, but eventually spread across the world. Millions of people have been quarantined in one of the largest such actions in human history. “This is the first time I have seen such a dramatic drop-off over such a wide area for a specific event,” said Fei Liu, an air quality researcher at NASA’s Goddard Space Flight Center. Liu recalls seeing a drop in NO₂ over several countries during the economic recession that began in 2008, but the decrease was gradual.

April 2020

The world's largest coronavirus lockdown is having a dramatic impact on pollution in India

Date: -1-Apr-2020, Source: wtky.com



These pictures taken on March 25 show deserted streets across India. The top row, from left to right, shows Ghaziabad, New Delhi, Mumbai. The middle row, left to right, is Allahabad, Chennai, Kashmir. The bottom row, left to right, depicts Siliguri, Kolkata, and Bangalore

When India imposed a nationwide lockdown a week ago, it was designed to stop the imminent spread of the novel coronavirus.

But grinding this country of 1.3 billion people to a near halt has also provided a temporary remedy to another pressing health issue: suffocating pollution levels.

The world's largest lockdown means all factories, markets, shops, and places of worship are now closed, most public transport

suspended and construction work halted, as India asks its citizens to stay home and practice social distancing. So far, India has more than 1,300 confirmed cases of COVID-19, including 35 deaths.

Already, data shows that the main cities are recording much lower levels of harmful microscopic particulate matter known as PM 2.5, and of nitrogen dioxide, which is released by vehicles and power plants.

PM 2.5, which is smaller than 2.5 micrometers in diameter, is considered particularly dangerous as it can lodge deep into the lungs and pass into other organs and the bloodstream, causing serious health risks.

The sudden fall in pollutants and the subsequent blue skies signal a dramatic shift for India — which has 21 of the world's 30 most polluted cities, according to the IQAir AirVisual's 2019 World Air Quality Report.

In the capital, New Delhi, government data shows the average concentration of PM 2.5 plunged by 71% in the space of a week — falling from 91 microgram per cubic meter on March 20, to 26

on March 27, after the lockdown began. The World Health Organization considers anything above 25 to be unsafe.

The data from the Central Pollution Control Board (CPCB), part of India's Environment Ministry, was collated by the Centre for Research on Energy and Clean Air (CREA).

Nitrogen dioxide went from 52 per cubic meter to 15 in the same period — also a 71% fall. Mumbai, Chennai, Kolkata and Bangalore have also recorded a fall in these air pollutants.

"I have not seen such blue skies in Delhi for the past 10 years," said Jyoti Pande Lavakare, the co-founder of Indian environmental organization Care for Air, and author of upcoming book "Breathing Here is Injurious To Your Health."

"It is a silver lining in terms of this awful crisis that we can step outside and breathe."

Lowest traffic pollution

Even before the national lockdown started on March 25, the phased shutdowns in India were having an impact.

During the first three weeks of March, the average nitrogen dioxide levels declined by 40-50% in the cities of Mumbai, Pune and Ahmedabad, compared with the same period in 2018 and 2019, said Gufran Beig, a scientist with the System of Air Quality and Weather Forecasting And Research (SAFAR) under India's Ministry of Earth Sciences.

"The reduced fossil fuel emissions due to (the) transport sector and slowdown in other emissions-related activity is slowly reducing the air pollutants," Beig said.

The nationwide curfew in India on March 22 also resulted in the lowest one-day traffic pollution levels on record, analysis from CREA said. Other dangerous pollutants, PM2.5 and the larger PM10, which are less than 10 micrometers in diameter, also dropped steeply, the report added.

"It is most likely that even the record of March 22 will be broken, and we are seeing more and more cleaner days as industries, transportation and energy generation and demand are reducing across the country," said Sunil Dahiya, an analyst based in New Delhi for CREA.

Similar patterns showing drastic falls in pollution levels were seen in parts of Europe and China since their lockdowns, as industry and transport networks grind to a virtual halt.

But this data is no reason to celebrate, Dahiya said.

"This is a really grave situation which the entire world is grappling with," Dahiya said.

"Pollution is going down, but we cannot let the suffering of so many human beings be the way to clean the air," Dahiya said. "We can only use the outbreak of coronavirus as a learning lesson for us."

Pollution protest

It's a lesson that is badly needed in India, activists say.

In November 2019, hundreds of Indians took to the streets in New Delhi to protest the levels of air pollution, after the city was blanketed in a dark yellow haze for several days.

Air pollution hit record high levels, forcing schools to close and flights to be diverted. Other cities in northern India also suffered.

Four months later, the skies are now clearing up. But the impact of living in such badly polluted conditions has left a hidden problem for residents: a potential vulnerability to the coronavirus pandemic — a severe respiratory disease.

India has one of the highest rates of respiratory disease in the world, and the world's highest number of tuberculosis cases. Such widespread lung damage could potentially increase the risks associated with the coronavirus.

"(There are) very high levels of respiratory disease, even among young children, they have asthma, the nebulizer has become a normal thing to have in the house for families who can afford them," said Lavakare from Care for Air.

According to the WHO, older people, and people with pre-existing medical conditions, including asthma, appear to be a higher risk of becoming severely ill with the virus.

Investing in a cleaner future

Globally, deaths related to exposure to air pollution are of pandemic proportions, with 7 million deaths every year, the World Health Organization (WHO) said. Care for Air said this should be a wake-up call for India to address the problem.

"Obviously, this is not the most ideal way to bring down air pollution, but it does prove that air pollution is manmade," Lavakare said. "It gives a lot of encouragement and hope that we can bring pollution down."

The coronavirus crisis also presents India with an opportunity to invest in a clean energy future, said Dahiya from CREA.

"India (is) a highly fossil-fueled country," said Dahiya. "In order to tackle pollution, we need to tackle that."

"When we come out of the outbreak, it will be interesting to see if we invest money in the cleaner future," he added. "(Do) we ramp up the old fossil fuel based intensive industries, or we go towards more sustainable options."

Lavakare said that at the minimum, the government should commit to keeping existing policy pledges.

"Governments cannot use this disruption as an excuse to go back against the gains that have been made," she said. "Right now, we have a priority, we need to stop this big crisis."

"But when things are under better control ... we need to move towards renewable energy faster. It would be really sad (if) we make the same mistake again, using coal and non-renewable energy."

India's Air Pollution Plummets in COVID-19 Lockdown

Date: -2-Apr-2020, Source: ecowatch.com



Deserted view of NH24 near Akshardham Temple on day nine of the 21-day nationwide lockdown to curb the spread of coronavirus on April 2, 2020 in New Delhi, India.

India is home to 21 of the world's 30 most polluted cities, but recently air pollution levels have started to drop dramatically as the second-most populated nation endures the second week of a 21-day lockdown amidst coronavirus fears, according to The Weather Channel.

While the complete shutdown of India's economy was designed to stop the spread of COVID-19, it is having an ancillary health benefit of clearing the air that millions of people were choking on,

according to CNN. As vehicles stay off the road, construction is put on hold, and factories stop production, the levels of microscopic particulate matter, or PM 2.5, start to drop.

"It is true that pollution levels are going down and will continue to be lower as a result of lockdown," Pawan Gupta, senior scientist at the Earth Sciences of Universities Space Research Association at NASA's Marshall Space Flight Center, told Earther in an email.

Recent heavy rains in the north and west of the country have also helped the country's pollution levels, Gupta added. "Rain is a very effective aerosol removal process from the atmosphere and can bring down particulate matter values," he said.

Since the March 25 lockdown that forced 1.3 billion Indians to stay home, air quality in New Delhi, usually the worst in the world, has dropped to "satisfactory" levels. The lockdown order shut down offices, schools, movie theaters, malls, markets and "non-essential" service providers. All modes of public transport such as metro trains, buses, inter-state trains and domestic and international flights for civilian movement have also been stopped, according to Quartz.

The effect of the lockdown has been dramatic. In New Delhi, where flights have been diverted because smog shrouded the airport, the air pollution levels have dropped 71 percent in just one week. On March 20, the air had an unhealthy 91 micrograms per cubic meter of PM2.5. On March 27, just a couple days into the lockdown, that level fell to 26 micrograms per cubic meter. Anything above 25 is considered unsafe, according to the World Health Organization, as CNN reported.

"I have not seen such blue skies in Delhi for the past 10 years," said Jyoti Pande Lavakare, the co-founder of Indian environmental organization Care for Air, and author of upcoming book *Breathing Here is Injurious To Your Health*, to CNN. "It is a silver lining in terms of this awful crisis that we can step outside and breathe."

Data from the Central Pollution Control Board of India's Environment Ministry also showed a 71 percent decrease in nitrogen dioxide levels. Mumbai, Chennai, Kolkata and Bangalore have also recorded a drop in these air pollutants, according to CNN. In Mumbai, the financial capital, air quality levels in March 2019 averaged 153 on the Air Quality Index, which ranks as unhealthy to breathe, according to Reuters. New Delhi averaged 161 last March.

The tops of skyscrapers were visible and some residents told Reuters they could spot more stars than usual.

"The air quality is likely to slip into 'good' category soon. It is due to reduced vehicular traffic and rise in temperature," said Kuldeep Srivastava, who heads the regional meteorological center at the Indian Meteorological Department, to The Weather Channel.

However, it is important to remember that this is a temporary reprieve that will return if industry and vehicular traffic return once the lockdown is over.

As for its effect on the climate crisis, The Weather Channel reported that the World Meteorological Organization issued a statement that read: "Efforts to control the coronavirus pandemic have reduced economic activity and led to localized improvements in the air quality. But it is too early to assess the implications for concentrations of greenhouse gases, which are responsible for long-term climate change."

Delhi's air quality improves slightly as overall AQI reaches 59

Date: -4-Apr-2020, Source: timesnownews.com



New Delhi: The quality of air in the national capital improved marginally in the 'satisfactory' category with the overall Air Quality Index (AQI) docking at 59 on Saturday, according to the Centre-run System of Air Quality and Weather Forecasting And Research (SAFAR). The concentrations of major suspended polluting particles including PM10 and PM2.5 docked at 59 and 31 respectively at 7 am, both falling in the 'satisfactory' category.

category.

Analysis of lockdown impact

According to SAFAR's latest update, the levels of PM2.5 and NOx have witnessed a reduction of 63 percent and 49 percent due to the lockdown imposed for containing the spread of COVID-19 pandemic.

The improvement in air quality can be attributed to the closure of factories (dealing in non-essential services) and low vehicular movement amid lockdown. For the sixth consecutive day, the air quality in the national capital stood in the 'satisfactory' category.

Air quality in various areas of Delhi

Several areas in Delhi such as Dhirpur, Delhi University, Old Delhi's popular marketplace Chandni Chowk, Indira Gandhi International Airport and Mathura Road recorded the air quality in 'satisfactory' category with the AQI docking at 55, 58, 69, 64 and 61 respectively.

Some areas witnessed a spike in some pollutants such as NO₂ and ozone (O₃) and recorded 'moderate' air quality. The concentration of NO₂ docked at 113 ('moderate' category) in Pusa. Lodhi Road and IIT Delhi area witnessed a spike in the levels of O₃, clocking at 125 and 105 respectively, both falling in the 'moderate' category.

SAFAR's forecast

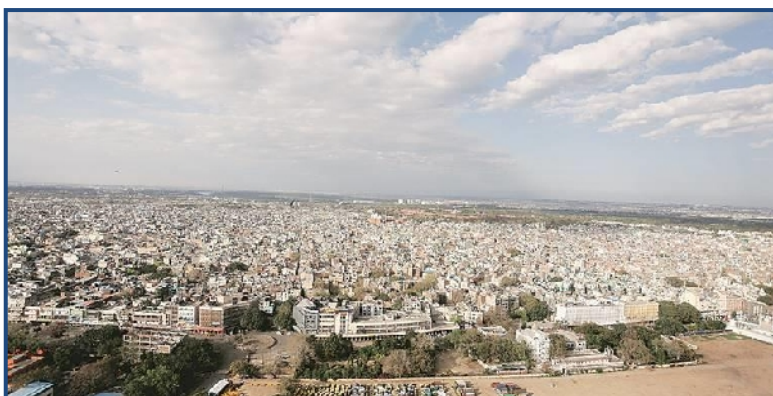
The pollution monitoring system has predicted a marginal improvement in the AQI value on April 5. The forecast was made after considering an estimated reduction in local emissions. Further, it also predicted strong surface winds for the next two days.

Air quality in other cities

Adjoining Noida in Uttar Pradesh recorded the air quality in the 'moderate' category with the concentrations of PM₁₀ and PM_{2.5} standing at 51 and 69 respectively. The worsening of AQI value can be attributed to the high concentration of the O₃ particles which docked at 142.

Best AQI in March: Industries shut, vehicles off roads but calm winds bring down Delhi's air quality a notch

Date: -6-Apr-2020, Source: indianexpress.com



Delhi's temperature has been below normal for most of March and the first five days of April as well because of frequent Western Disturbances.

With industries, private vehicles and public transport shut during the lockdown, air in Delhi and NCR, among the worst in the country, was the least polluted in March since air quality records have been maintained.

On Sunday, however, air quality settled in the 'moderate' category at 102 – down down from a f weather on AQI.

The Central Pollution Control Board's AQI is based on air quality data from different monitoring stations across the city. Delhi's data on Sunday was calculated based on 30 stations.

Experts said the sudden increase was because of a dip in wind speed. “Last week, the wind speed was an average of 25 km/ hour. This is because there was an active Western Disturbance blocking the flow of wind from the northwest direction. The average wind speed on Sunday was 10-12 km/ hour. Because the input load (of pollutants is so less) the change is only marginal but meteorology is a major factor,” said Kuldeep Srivastava, who heads the Regional Weather Forecasting Centre, Delhi.

The air quality along the Indo-Gangetic Plains is amongst the worst in the world due to a variety of factors – including meteorology. Winters see a steady accumulation of pollutants while high temperatures and wind speed in summer months means the dispersal of pollutants is quicker.

“Had this dip in wind speed been observed outside of a lockdown situation, the AQI would likely have been in the higher range of ‘poor’ or ‘very poor’. The conditions we are observing right now are extremely unique and have never been seen in the modern world. It will help us understand the nature of Delhi’s air and the extent of the impact of changes in different parameters,” said a Pollution Control Board official, who did not want to be named.

According to Srivastava, the wind speed will be low on Monday as well. “The city is expected to see thundershowers on Tuesday, when the impact of the disturbance will be felt in the city,” he said.

Delhi’s temperature has been below normal for most of March and the first five days of April as well because of frequent Western Disturbances.

World’s Dirtiest Air Gets Cleaner After India’s Lockdown

Date: -8-Apr-2020, Source: bloomberg.com



The India Gate monument in New Delhi shrouded in smog, Nov. 5, 2019

As India went into the world’s biggest lockdown to combat the deadly coronavirus, trains, planes, automobiles and factories came to a halt. And the skies in some of the most polluted cities on the planet turned blue.

Cities across the country, which was home to 14 of the 20 most polluted cities in the world last year, are breathing some of the cleanest air after Prime Minister

Narendra Modi announced a three-week nationwide lockdown, starting March 25. On April 8, the country's financial hub, Mumbai, was the only Indian city in the top 20 most polluted places, according to data from IQAir.

"The low AQI and blue skies prove beyond doubt that a lot of the air pollution" is a result of human activity, according to Jyoti Pande Lavakare, co-founder of the Indian environmental organization Care For Air. "Obviously slowing down the economy to such a degree isn't the ideal way of bringing down air pollution but at least it proves that it can be done, if the intention is there."

Modi's unprecedented move to impose the lockdown may have been the only way to enforce social distancing in the densely populated nation of 1.3 billion people, where cases have surpassed 5,300 and experts fear that number could increase dramatically over the next few weeks as testing increases.

The lockdown improved the air quality index to satisfactory levels in nearly 90% of the 103 cities monitored by the country's Central Pollution Control Board on March 29, according to data on the environmental agency's website. In contrast, about half the cities it monitored in the middle of last month had satisfactory air.

The clean air could aid the country's battle against the pneumonia-like virus as air pollution makes people more vulnerable to lung disease. The World Health Organization estimates that dirty air kills 7 million people globally primarily through increased mortality from diseases including acute respiratory infections. In India, it's also leading to a sharp drop in complaints from people with respiratory problems, according to Delhi-based pulmonologist Pankaj Sayal

"We are now able to treat asthmatic patients with minimum medications," Sayal said. "Right now, in this season, I'm getting only 20% to 30% of the calls" he would get earlier.

Still, the clean air has come at a cost and is likely to be short-lived. India is set to focus on getting its factories and businesses going again after the lockdown forced hundreds of thousands to flee cities in a mass exodus unseen since India's independence in 1947. The economy is poised to shrink this quarter and full-year expansion set to suffer markedly due to the standstill.

"If the economic restart isn't done mindfully, pollution will come roaring back as industries try and catch up," Pande Lavakare said. "I expect this winter to be worse than usual," as there could be a temptation to relax emission norms to revive the economy.

The haze that shrouds India's capital for much of the year has become a symbol of the South Asian nation's struggle to contain toxic air. Emissions from millions of vehicles, industries and

coal-burning power plants are some of the main contributors to pollution as the country prioritizes growth to pull millions out of poverty. Pollution intensifies from fall onward as rice farmers burn the stubble of the harvested crop and lower temperatures trap the pollutants.

“This lockdown is uncomfortable, and no country would have wanted it,” but it’s giving data on how air quality and health indices change before and after the lockdown, Sayal said. There is economic disaster but it also “improves the quality of life because the air has become better. Delhi’s air breathes like a mountain air after the rains now.”

People in India can see the Himalayas for the first time in 'decades,' as the lockdown eases air pollution

Date: -9-Apr-2020, Source: edition.cnn.com



(CNN) — People in the northern Indian state of Punjab are reacting with awe at the sight of the Himalayan mountain range, which is now visible from more than 100 miles away due to the reduction in air pollution caused by the country's coronavirus lockdown.

Indians in the city of Jalandhar and the surrounding area have posted photos online of the views from their homes, with some saying they haven't seen the peaks of the Himalayas for decades.

"For the first time in almost 30 years (I) could clearly see the Himalayas due to India's lockdown clearing air pollution. Just amazing," Manjit Kang wrote.

The phenomenon is made possible by a dramatic improvement in air quality in recent weeks, after industries shut down, cars came off the road and airlines canceled flights in response to the coronavirus pandemic.

Delhi saw up to a 44% reduction in PM10 air pollution levels on the first day of its restrictions, India's Central Pollution Control Board found. The PM10 standard measures airborne particulates 10 micrometers or smaller in diameter.

The report said that, in total, 85 cities across India saw less air pollution in the first week of the nationwide lockdown.

Meanwhile the air quality in Jalandhar, which sits more than 100 miles from the Himalayas, has been measured as "good" on the country's national index for 16 of the 17 days since the nationwide lockdown was announced.

By contrast, the same 17-day period last year failed to register a single day of "good" air quality -- and in the first 17 days of March this year, only three days saw "good" air quality.

The period has therefore marked an unintended but welcome breath of fresh air for the country's crowded and polluted cities. India is home to 21 of the 30 worst polluted urban areas in the world, according to data compiled in IQAir AirVisual's 2019 World Air Quality Report, with six in the top ten. The nation has been in lockdown for more than two weeks, with Prime Minister Narendra Modi ordering "a total ban on venturing out of your homes."

Only essential services have been operational, including water, electricity, health and fire services, groceries stores and municipal services. All other shops, commercial establishments, factories, workshops, offices, markets and places of worship have been closed and interstate buses and metros were be suspended. The country has reported nearly 6,000 cases of Covid-19, and 178 deaths, according to figures from the Johns Hopkins University. While the famous mountain range is more visible than in recent memory, it is also more deserted.

Many of its mountains have been closed to climbers for nearly a month, with both the Nepalese and Chinese sides of Mount Everest shutting down in early March.

With Coronavirus Lockdown, India's Cities See Clear Blue Skies As Air Pollution Drops

Date: -10-Apr-2020, Source: npr.org



A crow flies near Rashtrapati Bhavan, the presidential palace in New Delhi, on April 2. Air quality has markedly improved in India's capital since the country's coronavirus lockdown began last month.

In India, the coronavirus cloud has a silver lining: clear blue skies.

India entered the world's biggest lockdown last month and the government ordered 1.3 billion people to stay home as the number of coronavirus cases climbed.

The jury is still out on the effectiveness of those stringent measures in halting the spread of

COVID-19. India has some 6,000 active cases and more than 200 deaths, with the number of new cases rising steadily. But the lockdown measures seem to have inadvertently solved, at least temporarily, another public health crisis: air pollution.

Across India, vehicular traffic has been cut to almost zero. Big industries billowing black smoke into the atmosphere are closed. Construction sites that are usually buzzing with activity, spewing dust and dry cement particles into the air, are eerily vacant.

All this has dramatically reduced the concentration in the air of fine particulate matter known as PM2.5 and PM10.

Perhaps nowhere is the drop in pollutants more pronounced than in the country's capital New Delhi, which usually has some of the dirtiest air in the world.

Delhi residents are used to looking up to see a hazy, gray sky. Now they're posting pictures of clear blue horizons on social media.

The air is typically so polluted that it leaves an acrid taste. During winter, smoke from crops burning across northern India wafts into the city and the pollution reading crosses 900 — up to 20 times above the safe limit prescribed by the World Health Organization. Flights are grounded periodically and schools are forced to close.

In late March, as India began its 21-day lockdown, the Air Quality Index in Delhi dropped as low as 45. Around the same time last year, it was about 160. Since the lockdown, Delhi and its suburbs have even enjoyed days when the air quality was officially classified as "good" — the best category. That's happened only a handful of times in the past few years.

India's central pollution control board says 85 Indian cities noted an improvement in air quality during the first week of the lockdown. In Jalandhar, in the northwestern state of Punjab, pollution levels dropped to their lowest in a decade and residents were able to spot snow-capped Himalayan peaks more than 100 miles away.

Social media is flooded with pictures of things that people can suddenly see from their windows — some more believable than others. One person joked he could see the Eiffel Tower from central India. Another said they spotted aliens on Mars. And someone wrote that he could see gods from his balcony.

In India, life under coronavirus brings blue skies and clean air

Date: -11-Apr-2020, Source: washingtonpost.com



People stand near the banks of the Yamuna River in New Delhi on April 6, 2020, during a government-imposed nationwide lockdown ordered as a measure against the spread of the coronavirus.

NEW DELHI — Inside the world's largest lockdown, there are no flights, no passenger trains, no taxis and few functioning industries. But one thing is remarkably abundant: cleaner air.

India is engaged in a desperate bid to “flatten the curve” of coronavirus cases before they overwhelm the creaky health system in this nation of more than 1.3 billion people.

In the meantime, the three-week lockdown is flattening something else — India's notorious air pollution. The speed of the change has surprised even experts, who say it is proof that dramatic improvements in air quality can be achieved, albeit at an enormous human and economic cost.

Days after the lockdown began on March 25, the level of particle pollution considered most harmful to human health fell by nearly 60 percent in New Delhi, India's capital, according to an analysis by experts at the nonprofit Center for Science and Environment. Similar drops have occurred in other major Indian cities.

In normal times, Delhi is the world's most polluted megalopolis. For much of the winter, air quality readings remained at levels that in the United States are considered unhealthy or worse. Last November, the city experienced its longest spell of hazardous air since such record keeping began.

These days, Delhiites are stuck at home except when picking up essential goods. But above them are blue skies, the moon and the stars, seen without the usual barrier of smog. The sight is so striking that “I feel like complimenting the sky for its beauty,” said Sameer Dhanda, 26, an architect.

In other parts of India, the Himalayan mountain range is visible from a distance for the first time in years. Waterways choked by industrial pollution, such as Delhi's Yamuna River — full of gray foam just months ago — are flowing unimpeded.

The current reduction in pollution has come at a steep price. Much of the Indian economy has been idled, forcing vulnerable workers to travel hundreds of miles to their home villages on foot. Millions could be plunged into poverty or hunger if the lockdown continues beyond its initial three-week period.

But experts say that there are still lessons to be gleaned, including a chance to imagine a different future. The decrease in pollution is a “proof of concept” that demonstrates clean air “is doable,” said Ajay Mathur, a former Indian climate negotiator and a member of Prime Minister Narendra Modi’s council on climate change. “The linkage between personal behavior and what I will breathe is far clearer now than it has been in the past.”

The first step for any government is to ensure that “the vast number of Indians have sustainable livelihoods,” Mathur added. Nevertheless, he hopes that policy changes — such as phasing out dirty industrial fuels and accelerating the shift to environmentally friendly vehicles — will get a boost in the post-pandemic world.

Mathur often suffers from a raspy voice and persistent cough that doctors have told him is related to Delhi’s bad air. In the past two weeks, he said, such symptoms have vanished.

One terrible irony of the current crisis is that a pandemic that makes it difficult for some to breathe has, by curbing pollution, eased respiratory troubles for others. Pulmonologists in Delhi say many of their regular patients are breathing easier and reducing their use of inhalers. For them, this period is a kind of boon, said Arvind Kumar, a chest surgeon and trustee of the Lung Care Foundation.

India’s long-running battle with pollution may have rendered it particularly vulnerable to the novel coronavirus. Researchers at Harvard recently found that places with long-term exposure to higher levels of fine particle pollution — known as PM2.5 — were associated with higher rates of death caused by covid-19. Such particles can lodge deep in the lungs and have been linked to high blood pressure, heart disease, respiratory infections and even cancer. So far, about 200 people in India have died of covid-19, with more than 6,500 cases of the illness confirmed.

Anumita Roy Chowdhury, an air pollution expert at Delhi’s Center for Science and Environment, described India’s improved air quality as “a very big unintended experiment unfolding in front of us.” The lockdown demonstrates “the scale at which change is needed,” she said, but also shows people “what it means to breathe clean air.”

In a huge swath of northern India, the air quality normally varies from poor to apocalyptic, depending on the time of year, with a brief respite during the annual monsoon. The worst period begins when temperatures drop in October, trapping near ground level a mix of

industrial emissions, road dust, vehicular exhaust and ash from burned crop stubble. Pollution begins to ease in February.

Jyoti Pande Lavakare, an author and anti-pollution activist in Delhi, said she doesn't remember seeing skies of this type of blue at this time of year in at least a decade. In recent days, she began doing her morning exercises outside and found herself lying on her back on her yoga mat, just gazing at the sky.

"After we battle the current pandemic, we need to revisit how we treat the invisible killer of air pollution," Lavakare said. The World Health Organization estimates that polluted air kills 7 million people annually.

For now, Delhi residents are treasuring a rare upside of a time marked by fear and worry. Priyanka Choudhury, a 29-year-old account manager, said she has not experienced anything like this — clear blue skies in the day and stars at night — since she was a teenager. Choudhury was not sure whether the lockdown would succeed in stemming the spread of covid-19. But, for the environment, she said, it is clearly a "time to heal."

The Coronavirus Offers a Radical New Vision for India's Cities

Date: -13-Apr-2020, Source: newyorker.com



A nationwide lockdown has given Indian cities the kiss of life—the sky is clearer, rivers are less contaminated, and people have awakened to possible change.

On the morning of April 3rd, residents of Jalandhar, an industrial town in the Indian state of Punjab, woke to a startling sight: a panorama of snowcapped mountains across the eastern sky. The peaks and slopes of the Dhauladhars—a range in the lesser Himalayas—were not new, but the visibility was. Last summer, Jalandhar had the worst

air quality in Punjab, although it still doesn't rank among the most polluted cities in India. On March

24th, as a national lockdown was imposed to stop the spread of the coronavirus, nearly all of Jalandhar's road traffic came to a halt, along with its manufacture of auto parts, hand tools, and sports equipment.

Ten days later, suspended particulates had dispersed from the air, and the Himalayas were unveiled. Residents gathered on their rooftops, posting photos of far, icy elevations towering behind water tanks and clotheslines. “Never seen Dhauladhar range from my home rooftop in Jalandhar,” the international cricketer Harbhajan Singh, who was born there forty years ago, tweeted. “Never could imagine that’s possible.”

The view from my own rooftop, fifteen hundred miles to the south, in Bangalore, has not revealed any equivalent surprises. Instead, there is the birdsong. The constancy of car horns in India is legend, a stock line for travel writers. I could never have imagined it possible, in an Indian city, to wake up not to the sounds of traffic but to the sovereignty of bulbuls and mynahs over the morning air. I wonder when an Indian city last felt like this. I wonder when I last felt like this.

It’s a guilty pleasure, for sure. In a country where most households live squeezed into a single room, I’m working through the lockdown in an apartment with a balcony covered in potted plants. As people are forced indoors, I can sit under an open sky, beneath passing clouds, studying a birdbath. This is how the world looks from inside the silver lining. Outside, the silence on the street may be therapeutic, but it can also feel grim, suspenseful. It suggests the held breath of a country bracing for disaster—not only for the brunt of a pandemic but for empty savings accounts, purses, and pantries. Millions of Indians eat only if they are paid wages each day, which means that when the lockdown was announced, a second epidemic, of hunger, began to unfold.

As for the virus, the curve is not yet flattening. The circulation of a billion Indians has not settled into the neat grid of social distance. On my phone, I see looming disaster. And yet, looking up, I see something else—a glimpse, behind the jungle crow facing off with two brahminy kites, of an alternative to how we live. In northern India, the change has been as basic as breathing. Of the thirty cities with the worst air pollution in the world, twenty-one are in northern India. New Delhi and its exurbs make up the worst of those. In such places, air pollution may reach us before our first breath—particulates have been found in the placenta of pregnant mothers—and continues to harm us until our last one, increasing the risk of cancer, heart attacks, and respiratory disease. The World Health Organization has linked exposure to PM2.5—particles with a diameter of 2.5 micrometres or less—to a hundred thousand deaths in India each year, and that’s just among children below the age of five.

The coronavirus will only compound these morbidities. Studies of viral pandemics such as the 1918 flu, or the 2003 sars outbreak, found that residents of areas with more polluted air were far more likely to die. A team at Harvard made similar findings about covid-19, using data of death rates across the United States. In Delhi, bad air is chronic, but the worst of the smog is seasonal, drifting over the city when the farmers of the Indo-Gangetic plain burn crop stubble

after the harvest, in October. To live in Delhi is to agonize, each winter, over your choice to stay and breathe the air, or to be the reason your family has to breathe it. Historically, the city's curse was harsh weather. Now residents check the temperature less often than they do the air-quality index, or A.Q.I., and its most incriminating measure, PM2.5—the particulates that pass most easily through the lungs. Living in the city, last winter, my waking routine was to look at my phone and see the route to work dotted with flags coded in red, purple, and black, each with a numerical rating that indicated if it was “unhealthy” or “hazardous” to breathe that day. Often, the ratings would simply be maxed out.

The lockdown, whatever its effect on the virus, has given Indian cities the kiss of life. In a week, Delhi's PM2.5 count dropped by seventy-one per cent. The sky is bluer now, the Yamuna River less black, and my friends say that the stars are out at night. Elsewhere, the number of cities in which India's Central Pollution Control Board recorded “good” or “satisfactory” air rose from fifty-four to ninety-one.

The lockdown is also improving our understanding of the complex phenomena that contribute to pollution. “From a research viewpoint, this is a fantastic experiment,” Sarath Guttikunda, a founder and director of UrbanEmissions.info, told me over the phone. Guttikunda's team studies air pollution across India: its baselines, its sources, its chemical interactions. “What we're seeing now is unprecedented: drops in commercial activity, industrial activity, and transport, all at the same time—not just in a city but, significantly, across a region,” he said. The past few weeks have allowed his team to assess, for example, how responsible a given city is for its air quality. “We do a lot of modelling for every city of how much pollution is local, and how much is coming from the boundary,” he said. “The big cities always point outwards, saying, ‘All my pollution is coming from outside.’ ” Guttikunda's models had suggested otherwise, and from the first day of the lockdown evidence of cities' own contributions became clear. “Now we don't have to blindly say, ‘Look, you are responsible for seventy per cent of your pollution. Please do something about it,’ ” Guttikunda said. “We have that proof.”

Blue skies may seem like scant compensation for a frozen economy and a health crisis. But it's worth remembering that last November, Delhi's schools, colleges, construction sites, and many of its offices were ordered to shut down because of the smog. We were already working from home, going out in N95 masks, before the coronavirus was even dreamt of in Wuhan.

Pollution is the world's least exciting pandemic. In India, the crisis has become the norm, not least because it discriminates. The assault is most painful if you're in poverty: if you work on the roadside, commute on a bicycle, or sleep on the street. Emissions may disperse into a common “air shed,” but the rich adapt within their own sealed-off, private atmospheres—purifying the air in their bedrooms, their cars, and in the luxury shopping malls that have replaced the outdoor promenade. Working- and middle-class Indians receive none of this relief.

This discrimination explains some of our passivity. What explains the rest? One problem is that air pollution is especially resistant to single-shot solutions. Its causes literally shift with the wind, varying by time and location, which makes it easier for interest groups to deflect responsibility onto one another. To truly revitalize our air, we need to change how we cook, build, farm, travel, consume, and produce—bearing in mind, through it all, how we breathe.

Such comprehensive action can seem impossible. Guttikunda's hopeful analogy is to the 2008 Summer Olympic Games, a turning point for Beijing, which had the worst air of any major city before ceding that place to Delhi. "What they did during the Beijing Olympics is what is happening now, though it's been forced," Guttikunda said. "For at least a month before, and then for the entire period of the Games, they really, really reduced pollution levels in Beijing. They cut down fifty per cent of transport, literally shut down all the industries within a hundred kilometres of Beijing, placed serious restrictions on the amount of coal being used in the tri-city region. For two months, people got to see the change possible in the city."

Those two months were an experiment, not just in the technical means to achieve cleaner air but in the public's desire for it. "As soon as the Games were over, the restrictions were lifted and the PM2.5 levels shot back up," Guttikunda said. "But now there was a public outcry saying, 'Look, we could have those blue skies for longer. We don't mind the restrictions.' " That set China on a path to better regulation, more industrial efficiency, new transport systems, and a sea change in its urban air quality.

In India, a full generation or two has known the city only in crisis. When the lockdown ends, I'll fly back to Delhi, hoping to beat the traffic, the construction work, the factory emissions, and the piles of burning litter. I know that all these activities will resume. But maybe we'll confront them differently this time. The cures of collective action were not well known in India, least of all among the rich. The pandemic, though, has been met with an outsized restraint, and with the sacrifice of income, opportunity, and ego. The reward has been a sane and breathable atmosphere. Like a view of snowcapped peaks above a clothesline, we never imagined it was possible. Now we don't have to imagine.

The deadly link between COVID-19 and air pollution

Date: -15-Apr-2020, Source: weforum.org

As the coronavirus pandemic impacts millions across the world and brings economies to a grinding halt, there is a lot of talk about how emissions from fossil fuel combustion have dropped radically in many countries. Yet this is no solution to air pollution and climate change. For while eerily empty cities may be bathed in blue skies, millions are suddenly out of work and wondering how they are going to care for their families.



Clean air and clear skies in Delhi during India's COVID-19 lockdown

The poor and most vulnerable will suffer most from both the health impacts and the economic crisis. Cleaner air for a few months may be a tiny silver lining to COVID-19's dark clouds, but will do little in the long run to solve the

problem of outdoor air pollution that kills more than four million people every year. For that we need to kick our habit of burning coal, oil and gas.

What's more, people living in high-pollution cities are more likely to have compromised respiratory, cardiac and other systems – and are therefore more vulnerable to COVID-19's impacts.

One of the refrains all of us are hearing as the coronavirus spreads is to quit smoking. But what about the 90% of people worldwide who are exposed to high levels of air pollution? They can't choose to quit breathing the air where they live. On every continent, people suffer the negative health impacts of air pollution. Living in Delhi is comparable to smoking six cigarettes a day. The respiratory systems of people in California and Australia have been compromised by air pollution from climate-fuelled forest fires. The people of Wuhan have suffered poor air quality for years, and just last summer took part in air pollution protests.

During the SARS outbreak in China, a study by researchers at UCLA's School of Public Health showed that patients with SARS were more than twice as likely to die from the disease if they came from areas of high pollution. The same seems true of COVID-19: the more air pollution you are exposed to, the sicker you are likely to get.

And while it's too early to prove a direct correlation between current high air pollution levels and incidence of COVID-19, high pollution levels might also increase the risk of contracting COVID-19 in the first place, as particulate matter has the potential to act as carriers for contagion leading to rapid spread over larger areas. A paper published by the Italian Society of Environmental Medicine suggests that "the rapid increase of contagion rates that has affected some areas of Northern Italy could be tied to atmospheric particulate pollution acting as a carrier and booster there". A Harvard study has just found the first correlation between air pollution and COVID-19 deaths in the US.

The response to this pandemic also threatens to make air pollution's health impacts worse in the longer-term. Several governments are moving under the cover of COVID-19 to give industry a break and weaken clean air standards. In the US, the Environmental protection Agency (EPA) is accelerating its radical relaxation of regulation as the pandemic proliferates. In South Africa,

air pollution standards have been significantly weakened during lockdown and this will, according to South Africa's Life After Coal Coalition, cause an estimated 3,300 premature deaths. There will be particularly profound health impacts on children, the elderly, pregnant women, and those already suffering from asthma, heart, and lung disease.

Some elected officials are taking a different tack. For instance, in Bogotá, Colombia's capital city, facing a 'triple threat' of poor air quality, seasonal respiratory illnesses and the pandemic, Mayor Claudia Lopez opened 76 kilometers of new bike lanes to reduce crowding on public transport and help prevent the spread of coronavirus while simultaneously improving air quality and people's health. As world leaders respond to the coronavirus, they have a chance to chart a different course and make a major intervention for a healthy planet and healthy people. With trillions of dollars in economic stimulus investments in the offing, they have a golden opportunity to channel significant portions of those funds to fast forward to a renewable energy economy. A transition to clean, renewable energy and transport will seriously reduce air pollution, greenhouse gas emissions and the impact of future pandemics.

The coronavirus pandemic has made it clearer than ever that human and planetary health are intimately interconnected. The choice is ours to act accordingly.

Delhi air quality slightly deteriorates due to dust storms, overall AQI stands at 150

Date: -16-Apr-2020, Source: timesnownews.com

Delhi NCR pollution level today: SAFAR has said that the long-range dust pollutant has engulfed the region and pushed the air quality in a 'moderate category'.

New Delhi: The air quality in Delhi remained in the 'moderate' category for the third consecutive day on Thursday morning (April 16) as the overall AQI stood at 150, according to the latest estimates updated by System of Air Quality and Weather Forecasting And Research (SAFAR). SAFAR said the dust particles have slightly raised the pollution level in Delhi.

'Moderate' air in Delhi

Dhirpur Road, Chandni Chowk, Pusa Road, Lodhi Road, Mathura Road and IIT-Delhi registered 'moderate' air quality on Thursday morning with an AQI of 147, 171, 193 139 125 and 162 respectively.

'Satisfactory' air in parts of Delhi

However, there were some areas in the national capital which recorded air quality in the 'satisfactory' category including Delhi University, and Indira Gandhi International Airport

(Terminal-3) with an AQI of 71 and 81 respectively. According to SAFAR, AQI between the range of 51 and 100 is considered as 'satisfactory' or 'very good', 101-200 is 'moderate', 201-300 falls under the category of 'poor'. While 300-400 is considered as 'very poor', levels between 401-500 fall under the 'hazardous' category.

SAFAR prediction

"Long-range dust transport from the dry arid western region is engulfed the region has lead to a sudden increase in coarser particle(PM10). The SAFAR model suggests AQI likely to the high end of moderate to poor category. AQI is forecasted marginally improve by 16th April night back to moderate category. The lower end of the moderate category is forecast on 17th April. This impact is purely attributed to external natural factors linked to dust and independent of local emissions. The ratio of PM2.5 to PM10 has declined significantly, indicating missing sources of fossil fuel emissions and enhancement of the role of natural summer dust," SAFAR forecast said.

Air quality in NCR

The NCR too has enjoyed a spell of clean air after the lockdown on March 24. However, on Thursday morning, Noida and Gurugram too registered the air quality in the'moderate' with an AQI of 193, 111 respectively.

Delhi air quality remains in 'moderate' category after natural dust storm, AQI stands at 176

Date: -17-Apr-2020, Source: timesnownews.com



Since the lockdown on March 25, the NCR too enjoyed a spell of clean air.

Delhi NCR pollution level today: In its prediction, the air monitoring agency SAFAR said the natural dust movement has affected the Air Quality Index (AQI) in Delhi and its surroundings.

New Delhi: The air pollution in the national capital has spiked after the long-range dust transport from the dry arid western region of India. The air quality in Delhi remained in the 'moderate'

category for the fourth consecutive day on Friday (April 16) as the overall AQI stood at 176, according to the latest estimates updated by System of Air Quality and Weather Forecasting And Research (SAFAR).

'Moderate' air in Delhi

Delhi University, Chandni Chowk, Pusa Road, Mathura Road, IIT-Delhi and Indira Gandhi International Airport (Terminal-3) registered 'moderate' air quality on Friday morning with an AQI of 180, 171, 173, 152, 190 and 159 respectively.

'Poor' air in parts of Delhi

However, there were some areas in the national capital including Dhirpur Road and Lodhi Road which recorded air quality in the 'poor' category with an AQI of 211 and 201 respectively.

According to SAFAR, AQI between the range of 51 and 100 is considered as 'satisfactory' or 'very good', 101-200 is 'moderate', 201-300 falls under the category of 'poor'. While 300-400 is considered as 'very poor', levels between 401-500 fall under the 'hazardous' category.

SAFAR prediction

"Long-range dust transport (mild dust storm) from the dry arid western region of India engulfed the region and a sudden spike in PM10 is noticed. The SAFAR forecast suggests AQI will marginally improve by 17th April back to moderate category. Further decline to the middle-end of the moderate category is forecast on 18th April. This impact is purely attributed to external natural dust movement. Had the local emissions present, AQI could have crossed a very poor category. The ratio of PM2.5 to PM10 has declined significantly and unusually to just 35 per cent from normal 55 per cent indicating the dominant role of dust and the absence of other missing sources.

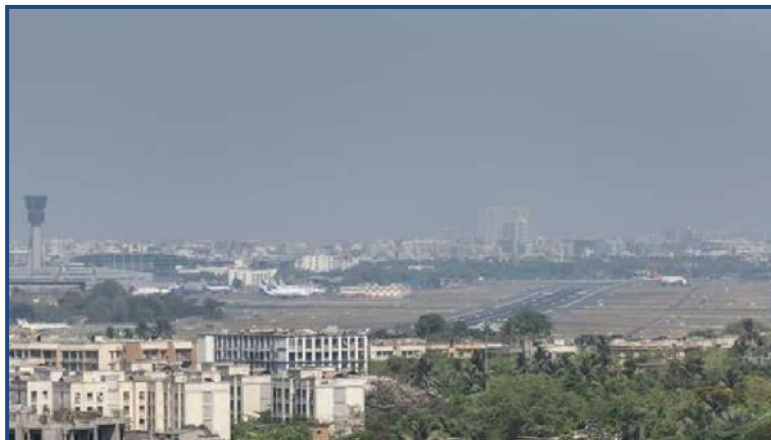
Air quality in NCR

Since the lockdown on March 25, the NCR too enjoyed a spell of clean air. However, on Friday morning, Noida and Gurugram registered the air quality in 'good' and 'moderate' category with an AQI of 50, 104 respectively.

Air pollution in Maharashtra sees significant drop during Covid-19 lockdown

Date: -18-Apr-2020, Source: hindustantimes.com

Latest satellite data on air quality two weeks before and two weeks during coronavirus lockdown show a big improvement in the air quality, mainly for nitrogen dioxide (NO2) levels, in major Maharashtrian cities such as Mumbai, Nagpur and Pune.



As the air quality gets better and the pollution level decreases due to the coronavirus lockdown, the international airport which is usually covered in haze is now clearly visible from Tilak nagar, Mumbai.

The fall in NO₂ levels is largely due to the sharp drop in fossil fuel combustion in transport, industrial and energy sectors after the lockdown.

The details were released on Friday in a study assessing satellite images (TROPOMI/S5P satellite data), Central Pollution Control Board (CPCB) real-time data, electricity generation and petroleum product consumption across India by the Centre for Research on Energy and Clean Air

(CREA). An overall 18% reduction was recorded in petroleum products use during March 2020 as compared to March 2019.

On April 2, HT had reported that an 81% decline in NO₂ levels was recorded over six weeks (February 17 to March 29) across 10 real-time stations in Mumbai. The same was also visible through satellite images (also the first study for the Mumbai region using satellite images post-lockdown).

The present study compared NO₂ concentration between March 11 - 24 (before the lockdown) and March 24-April 7 (during the lockdown) and identified hotspots over major cities in India and industrial zones with high coal combustion. In the latest study, CREA observed a 71% drop in NO₂ levels for Mumbai between March 24 to April 7 as compared to the previous two weeks (March 11-24) while Navi Mumbai saw a 62% drop as per the CPCB data. A similar significant reduction was recorded for Nagpur and Pune during this time, the study said.

“Drastic reduction in NO₂ over these cities post lockdown show that we can achieve breathable air and clear skies with emission reduction, and not necessarily by taking drastic measures such as shutting down all sources,” said Sunil Dahiya, Analyst, CREA, adding, “By adopting emission load reduction or efficient emission control across sources such as vehicles, industries, petrochemical refineries and power plants, we achieve clean breathable air.”

Formed from the burning of coal, oil, and emissions from vehicles and diesel generators, toxic gases like NO₂ worsen respiratory conditions and have detrimental effects on the central nervous system, especially the brain due to short term impacts, said Dr Arun Kumar Sharma from the University College of Medical Sciences in Delhi.

In Mumbai, the Chembur-Trombay area — which has a power plant, several petroleum refineries and a fertiliser factory - is a hotspot for high NO₂ levels. In the Mumbai Metropolitan Area (MMR), industries are located across Uran, Panvel, Kalyan and Bhayander covering Mumbai's peripheral areas.

"Even as Mumbai's air had very little NO₂ concentration, emissions across Navi Mumbai and peripheral areas of Raigad district were visible even during the lockdown period in our satellite study analysis," said Dahiya.

Considering that air pollution reduction is temporary (until the lockdown is called off) there are fears of a spike in private transport utilisation leading to higher air pollution. CREA recommended a shift from highly fossil fuel-dependent economy to clean energy-based systems, enhanced public transportation conducive for walking and cycling, and strengthening emission standards with time-bound targets under city or regional clean air action plans.

Thanks to lockdown, aerosol levels hit 20-year low in India, finds NASA

Date: -23-Apr-2020, Source: business-standard.com



Aerosols are tiny solid and liquid particles suspended in the air that reduce visibility and can damage the human lungs and heart

The aerosol levels over northern India has plummeted to a 20-year-low for this time of the year, according to satellite data published by US space agency National Aeronautics and Space Administration (NASA).

The US space agency's satellite sensors observed aerosol levels at a 20-year low post the countrywide lockdown, implemented to slow the spread of the novel coronavirus.

"We knew we would see changes in atmospheric composition in many places during the lockdown," said Pawan Gupta, a Universities Space Research Association (USRA) scientist at NASA's Marshall Space Flight Center. "But I have never seen aerosol values so low in the Indo-Gangetic Plain at this time of year," added Gupta.

Acting Assistant Secretary of State for South and Central Asia Alice G Wells tweeted, "These images from NASA were taken each spring starting in 2016 and show a 20-year low in airborne

particle levels over India. When India and the world are ready to work and travel again, let's not forget that collaborative action can result in cleaner air." The data published with maps show aerosol optical depth (AOD) in 2020 compared to the average for 2016-2019. Aerosol optical depth is a measure of how light is absorbed or reflected by airborne particles as it travels through the atmosphere.

If aerosols are concentrated near the surface, an optical depth of 1 or above indicates very hazy conditions. An optical depth, or thickness, of less than 0.1 over the entire atmospheric vertical column is considered "clean." The data were retrieved by the Moderate Resolution Imaging Spectroradiometer (MODIS) on NASA's Terra satellite.

In the first few days of the lockdown, it was difficult to observe a change in the pollution signature. "We saw an aerosol decrease in the first week of the shutdown, but that was due to a combination of rain and the lockdown," said Gupta.

Around March 27, heavy rain poured over vast areas of northern India and helped clear the air of aerosols. Aerosol concentrations usually increase again after such heavy precipitation.

"After the rainfall, I was really impressed that aerosol levels did not go up and return to normal. We saw a gradual decrease and things have been staying at the level we might expect without anthropogenic emissions," Gupta said.

On March 25, the Indian government placed its 1.3 billion citizens under a strict lockdown to reduce the spread of Covid-19. The countrywide mandate decreased activity at factories and severely reduced car, bus, truck and airplane traffic. Every year, aerosols from anthropogenic (human-made) sources contribute to unhealthy levels of air pollution in many Indian cities.

Aerosols are tiny solid and liquid particles suspended in the air that reduce visibility and can damage the human lungs and heart.

In southern India though, the story is a little hazier. Satellite data show aerosol levels have not yet decreased to the same extent. In fact, levels seem to be slightly higher than in the past four years. The reasons are unclear but could be related to recent weather patterns, agricultural fires, winds or other factors.

"This is a model scientific experiment," Robert Levy, program leader for NASA's MODIS aerosol products, said about the lockdown and its effects on pollution.

"We have a unique opportunity to learn how the atmosphere reacts to sharp and sudden reductions in emissions from certain sectors. This can help us separate how natural and human sources of aerosols affect the atmosphere," Levy added.

NASA reveals India's air pollution levels lowest in two decades – Can we imagine a greener post-pandemic era?

Date: -24-Apr-2020, Source: timesnownews.com



Reduced traffic and industrial activity during the lockdown has rid Delhi's skies of air pollution

It has only been a month since Prime Minister Narendra Modi announced a nationwide lockdown, but few could have envisioned how profound its effects on the environment would be. With factories shuttered, cars off the roads, and public transport halted, India's skies have cleared up revealing sights that some have never witnessed in their entire lives. In fact, the change

was so dramatic, that just a week into the lockdown, NASA satellite

sensors recorded that aerosol levels in Northern India had fallen to a 20-year low.

Aerosols are tiny particles that linger in the air reducing visibility, and capable of causing severe respiratory and cardiac complications.

Anthropogenic activity like the burning of fossil fuels, and crops emit large amounts of this particulate matter into the air, leaving many of India's cities, towns and villages clouded in dust and smog, for most of the year.

Its hard to believe that six months ago, levels of air pollution in Delhi were so high, compounded by the seasonal stubble burning that takes place in Punjab and Haryana, that schools had to be shut, and flights diverted.

With the Delhi government urging individuals to stay indoors, and wear N95 masks as frequently as possible, in hindsight, it almost seems like a primer for what is currently ensuing.

14 Indian cities feature on the list of the top 20 most polluted cities in the world, with an estimated 1 million Indians dying annually, as a consequence of air-pollution related conditions. Yet, since the lockdown, federal pollution bodies have themselves been taken aback by the remarkable improvement in air quality across 85 of India's largest cities.

Crises beget change

As dire as the current crisis is, it has offered a tiny glimpse into what a cleaner and greener India could look like. Whether it is enough for governments, central and state, to make bolder and more ambitious pledges towards the clean energy transition remains to be seen, but there is some precedent for this abroad.

For instance, a month before the Beijing Olympics in 2008, China reduced transport levels by 50 per cent, shut down industries within a 100km radius of its capital, and introduced a spate of measures aimed at curbing pollution levels. Although it lifted restrictions after the event, the public outcry that followed eventually saw China embark upon a new regulatory path towards reducing urban air pollution.

Similarly, the four-day “pea-souper” episode in London in 1952 that, reportedly, claimed the lives of between 3,412 and 4,075 people, saw the introduction of the Clean Air Act in 1956 fitted with measures to incentivise cleaner industrial practices, and punish polluters.

India’s abysmal air quality makes its poor more vulnerable to Covid-19

Date: -25-Apr-2020, Source: scroll.in



A fumigation drive being carried out in Mumbai's Dharavi slums amid the Covid-19 lockdown.

From street sweepers and farmers to rural housewives, poor Indians who breathe some of the world’s dirtiest air are at greater risk of dying from the new coronavirus than wealthier groups, health experts have warned.

India is home to about half of the world’s 50 most polluted cities, according to Swiss firm IQAir, with

emissions fuelled by industry, vehicle exhaust fumes and coal-fired power plants. New Delhi was named in February as the capital with the dirtiest air.

Dust from building sites and smoke from burning rubbish and crop fields also contribute to what is locally dubbed the “airpocalypse”. Environmentalists say this air pollution hits poor and socially marginalised communities most as they often live and work in or close to industrial and commercial areas. In addition, they tend to burn wood, dung, kerosene or coal indoors to cook and heat their homes.

Long exposure to health-harming emissions can weaken immune systems, making it harder to fight off the coronavirus, which in severe cases causes shortness of breath and lung failure, said Arvind Kumar, a leading chest surgeon in New Delhi. “The poor will be far more vulnerable because...poverty is linked to air pollution – and air pollution is linked to higher mortality to [the novel coronavirus],” said Kumar, founder of the Lung Care Foundation.

Those suffering from malnutrition also have weak immune systems and are more prone to infections, giving them low chances of fighting Covid-19, he told the Thomson Reuters Foundation.

Beyond India

Overall, nine in 10 people on the planet breathe poor-quality air, which kills an estimated seven million people each year, according to the World Health Organisation. More than 90% of air pollution-related deaths occur in low- and middle-income countries, mainly in Asia and Africa, it found in a 2018 report.

India’s toxic air claimed 1.24 million lives in 2017, according to a study published by The Lancet Planetary Health.

Kumar cited recent studies that draw links between air pollution, Covid-19 – the respiratory disease caused by the new coronavirus – and mortality rates, including in Italy, one of the world’s hardest-hit countries with more than 20,000 deaths. In a study published this month in the journal *Environmental Pollution*, Danish and Italian scientists said the two Italian regions with the highest death tolls, Lombardy and Emilia-Romagna, are also among the most polluted in Europe.

While other factors likely contributed to the deaths, the bodies of the victims “may have already been weakened by the accumulated exposure to air pollution”, the researchers said.

Similarly, another new study from the Harvard TH Chan School of Public Health looked at data from about 3,000 counties in the United States, covering 98% of the country’s population.

It found that residents of counties with high levels of fine particulate pollution over decades were 15% more likely to die from Covid-19 than inhabitants of regions with just one microgram per cubic metre less of such PM2.5 pollution. Still, it remains unclear if the virus is carried on the polluting particles or if dirty air damages the layer of cells that cover the lungs “which makes it easier for the virus to enter”, said Mark Nieuwenhuijsen, an environmental epidemiology professor at the Barcelona Institute for Global Health.

No tests, no data

Indians have been breathing easier since a national lockdown came into force on March 25 to combat the coronavirus outbreak, which has infected more than 10,000 and killed about 350 people. With cars off the road and factories closed, skyscrapers usually shrouded in smog have been visible under blue skies and residents say they can spot more stars than usual.

Kumar of the Lung Care Foundation said India should take a cue and start moving faster to ditch dirty fossil fuels and adopt renewable energy. “Instead of planning on doing something in the next 20 or 30 years, we must use this sad episode to fast-forward to a clean energy economy in a rapid way,” he added.

Health experts said that while air quality may have improved for now, conditions linked to long-term exposure to pollution like asthma and bronchitis were harder to tackle.

Respiratory problems can also be made worse by “co-morbidities” – or existing medical conditions – like hypertension and diabetes, said Ramanan Laxminarayan, director of the Washington DC-based Center for Disease Dynamics, Economics and Policy.

“The poor are more likely to have these co-morbidities and are exposed to higher levels of air pollution because they are more likely to be involved in physical labour that requires exertion that is hazardous when air quality is low,” he said.

Tuberculosis is an example of a respiratory infection where Indians have been at risk of worse outcomes due to exposure to poor air quality, he added in emailed comments.

India is home to the world’s largest number of tuberculosis patients, according to the World Health Organisation.

Kumar said a lack of tests and information so far made it “impossible” to know whether the poor are facing more severe forms of Covid-19.

Those with symptoms are being admitted to local government facilities, where resources are usually limited and tests for lung function unlikely to happen, he said.

He urged the government to create a central database to catalogue Covid-19 patients according to the cause of death, underlying problems, history of exposure to air pollution and socio-economic background, to support better research.

May 2020

Covid-19: 4 unbelievable environmental changes seen in India since lockdown

Date:-2-May-2020, Source: indiatoday.in



These are the pictures of post-lockdown and pre-lockdown taken from a society in Noida.

Human beings often forget that we are largely dependent on Mother Nature and become ignorant towards taking care of it. We have been so reluctant to the preservation of natural resources and sustainable development that we had forgotten the beauty of the Earth completely.

The Covid-19 lockdown imposed throughout the world has struck a chord in every one of us and it has made us thinking how nature is so important for our day to day living. The tangible improvements in nature have made us believe that the Earth can be saved.

It has made us see that our actions can very well impact the Earth's sustainability. For

breathing pure air to greener trees, spotting various wildlife into the cities here are some important environmental changes that we have seen for coronavirus lockdown in India:

Improvement in air quality

New Delhi was ranked as the most polluted city in the world by WHO in May 2014. The usual air quality of India's national capital according to the air quality index used to be 200. When the pollution level hit its peak, the pollution level soared to 900 and sometimes, off the measurable scale.

While 200 itself is 25 percent above unsafe level as deemed by World Health Organization, but as Delhi's 11 million registered cars were taken off the roads and factories and construction

were ground to a halt, AQI levels have regularly fallen below 20. The skies are suddenly a rare, piercing blue. Even the birdsong seems louder.

In the capital of New Delhi, government data shows the average concentration of PM 2.5 plunged by 71 percent in the space of a week -- falling from 91 micrograms per cubic meter on March 20, to 26 on March 27, after the lockdown began.

Do not let Hyderabad's green quotient dip post lockdown, urge experts

Date:-3-May-2020, Source: timesofindia.indiatimes.com



HYDERABAD: Environmentalists warned that the significant improvement in air and water quality, which the city has witnessed since the lockdown, may cease to continue if we are not mindful. They warn that after days of staying indoors, a spurt in travel and industrial activities could set us back again.

“The drop in pollution levels has happened as a result of the lockdown and not because we have made any lifestyle or systemic changes,” said environmental scientist Babu Rao, who lamented that staying indoors is being seen as an inconvenience by many.

Speaking to TOI, Rao said once people start heading out, vehicular traffic will increase, worsening air pollution levels. “A reduction in travel time on the road and reduced energy

consumption must be encouraged through policy decisions. The biggest takeaway from the lockdown is that people need to live simpler lives, especially the rich.”

Activist Pranay Upadhyay, who has also been advocating for a reduction in vehicles, suggested dedicated cycle lanes across the city and car-pooling to reduce vehicular pollution.

Speaking about the resumption of industrial activity, Kajal Maheshwari, representing city-based environmental group, Citizens for Hyderabad, said, “The cost of the end product does not factor in environmental damage. Sold for dirt cheap these products are then lapped up by consumers.”

Putting the onus on people to be more aware of the environmental cost of what they buy, Maheshwari also said: “People need to be aware of the environment policies that are constantly being rolled out at the Centre. The environment ministry has become one that favours industries by giving clearances rather than one that protects our nature.”

With respect to keeping our waterbodies pollution free, Kalpana Ramesh, founder of the Rainwater Project which has started the Blue Hyderabad Campaign, said, “We need to focus not just on water security, but healthier water basins. This means once the lockdown is lifted, we need to ensure better segregation of waste and stopping dumping waste and pollutants in lakes.”

Mumbai, Pune record major slump in vehicular pollution during lockdown

Date:-5-May-2020, Source: smartcity.eletsonline.com

Comparing with the months of February 2020 and March 2020, vehicular emission levels have declined by three-fourth across Mumbai and Pune between the lockdown period that is between March 24 and April 25, as per the data published by System of Air Quality Weather Forecasting and Research (SAFAR) on May 3

The Air Quality Index (AQI), in Mumbai, was 37, making it the cleanest air day so far this year, while Pune recorded an AQI of 47 which also falls under the ‘good’ category. Considering the comparison of AQI of the four major cities including Delhi, Mumbai, Ahmedabad and Pune on a monthly basis, it was seen that a major slump in nitrogen dioxide (NO₂) levels was seen in Pune that accounted for 70 percent decline. For Mumbai, it was a 69 percent decline while Delhi and Ahmedabad recorded a decline of 33 percent and 30 percent respectively. Toxic gases such as NO₂ are emitted while burning coal, oil, or other fossil fuels. The gas is also present in the vehicular emissions.

Moreover, the SAFAR data also showed a slump in PM_{2.5} levels. Considering the PM_{2.5} levels, Ahmedabad saw the most fall of 51 percent in the particulate matter (PM_{2.5}). Mumbai followed with 49 percent decline. Pune saw a decline of 39 percent and the national capital recorded a decline of 31 percent.

Himalayan Peek: Thanks to Lockdown, Mighty Himalayas Are Visible from Bihar, Uttar Pradesh

Date:-6-May-2020, Source: weather.com



The Himalayas

With the ongoing nationwide lockdown extended until May 17, and most restrictions on transportation still in place, nature continues to enjoy a rare break from most human activities.

With a ginormous reduction in the number of vehicles on the streets, and emissions from factories and industries also witnessing a

significant drop, air quality across India has seen a drastic improvement. The changes have been particularly pleasant for the north Indian cities, which used to remain heavily polluted for most part of the year due to a combination of meteorological factors and human activities.

This drop in pollution levels has not just made the air we breathe healthier, but also clearer, effectively resulting in much-improved visibility. For some, this air clarity has worked nothing short of wonders. Take for instance the people residing in some select few areas across northern India who, on one morning, suddenly woke up to the sight of the mighty Himalayas!

Yes, that's right. Thanks to the improvement in air quality, the Himalayan ranges are now visible to residents of the areas close-by—Saharanpur and Bahraich in Uttar Pradesh, Sitamarhi in Bihar, and multiple locations across Punjab, to name a few. Residents of some of these regions recall that such beautiful sight was absent for the past several decades.

Why Air Quality Matters Even More in India post COVID-19

Date:-7-May-2020, Source: entrepreneur.com

India is often lauded for being a land of diverse cultures with some of the world's best-known landmarks and colorful cities. However, most of these cities are often blanketed in a haze of air pollution. According to the World Economic Forum, six of the world's 10 most polluted cities are in India, with the capital city of New Delhi topping the list for the worst air pollution among any capital city. These cities contain the highest concentration of PM 2.5 particles. Air pollution has become a national emergency as it is killing 100,000 children below the age of five in India



specifically, and is to be blamed for 12.5 per cent of all deaths within the country, in line with the fourth edition of State of India's surroundings (SoE) Report, 2019.

India's air quality has long been a major area of concern for environmentalists, the citizens,

and the government. The poor air quality has proven to result in several health complications ranging from bronchitis, asthma, tuberculosis, and other severe respiratory issues.

Currently, the COVID-19 outbreak across the world has wreaked havoc on livelihoods and globally has forced several countries to be placed under complete or partial lockdown. As more and more research around the world is being conducted to understand ways of controlling the pandemic, it is becoming more probable that coronavirus is airborne. The potency of an airborne disease can be exponential in a country where the air pollution level is already way above the acceptable mark. The important question, hence, is what will the scenario look like for India once the lockdown regulations have been relaxed with economic and social spaces opening up? Let us take a look.

Air pollution adding to woes

Although the lockdown owing to the pandemic appears to be a silver lining for air pollution due to significantly lesser vehicle emissions, we must consider the implications that the virus's changing nature poses to the world. Scientists across the world are now speculating the airborne nature of the virus, which further adds to the predicament. With increasing evidence that the coronavirus can spread through the air, air pollution is an area that must be given priority. India has been attempting to curb air pollution and improve its air quality by imposing strict regulations. Very recently, recognizing the potential airborne nature of the virus, the Indian Medical Association took a step forward and advised the income tax authorities to not run centralized air conditioners in their offices. In case the virus is proven to be airborne, it would call for immediate action and preparedness to handle the calamity.

Cause for concern

Another major concern is that while we are trying to boost the air quality and to make the air more breathable, we are only focussing on outdoor air pollution. Indoor air pollution is also a major cause for concern. With the government allowing essential services and IT companies to resume business operations with a minimal workforce, we must take into account the indoor

air pollution. The airborne virus combined with indoor air pollution will impact our health and subsequently the economy right now and going forward.

As a nation with a population of over 1.3 billion, there are over 450 people per square kilometre. While the government has taken severe measures to curb the transmission of the virus and ‘flatten the curve’, the sheer number of people in the country makes it a challenge to enforce stringent rules and ensure that they are followed. Besides this, being a tropical country, the onset of summer would mean that there will be an exponential increase in the usage of air conditioners in almost every household. The rising speculations about how air conditioners can be potential breeding grounds for bacteria and viruses adds to our woes.

Poor indoor air quality is also a source of worry for the citizens and has already been declared a national emergency in 2019. Combined with enclosed spaces and air conditioning, suppositions that there may be more respiratory issues owing to the bad air quality indoors are rising. For the long term success and recovery of the Indian population from the coronavirus, it will become important to safeguard citizens from the dangers of airborne infections, PM2.5, and harmful gases—all that severely impact the health and wellbeing of the citizens.

A comprehensive solution

Such situations call for a robust and permanent solution. While outdoor air pollution is a much larger problem and all the steps being taken will take time to show results, indoor air pollution is in our hands. ‘Air sanitization’ is an important concept that we must consider implementing to safeguard ourselves and make the air safer. It is important that both private and government organizations implement air and surface sanitization before getting back to business as usual once lockdown regulations are eased.

There is technology available today that can sanitize the air in any kind and size of indoor space instantly. The ‘Air Sanitization’ solutions available today are built on advanced technologies that can eliminate all kinds of viruses, bacteria, and harmful gases from air-conditioned spaces. These technologies can also clear the air of harmful particles. The use of these technologies will make the place safe for people to spend their time in, be it a restaurant, hotel, fitness centre, office space, stadiums, or hospitals.

While the pandemic is sure to pass in due time, improving air quality and reducing air pollution and the particulate matter should be of utmost priority. Working together and making use of novel technologies to remove airborne pollutants will be an important factor in determining India’s recovery and long term safety post the COVID-19 crisis.

Locked under Blue Skies: Air Quality and the Pandemic

Date:-9-May-2020, Source: news18.com

Amid the gloom of the daily assault on our society by the coronavirus and the lockdown against it, one silver lining along our collective clouds has been impossible to miss -- the bright blue skies and cleaner air we have all been allowed to enjoy.



The national capital region, the poster child of India's chronic, yearlong and nationwide air pollution problem -- which on average sees most of the days in a year in the poor to severe category on the national Air Quality Index — has witnessed little short of an unimaginable miracle. With the lockdown in effect, and construction, industrial and vehicular activity

(which cumulatively contribute 75% of Delhi's PM 2.5 levels) down to a crawl, the capital has been experiencing record levels of clean air.

Barring a single day on the fifth of April when a few overzealous supporters of the Prime Minister chose to take the latter's call to light lamps in support for our critical service providers to the next level by bursting firecrackers (and the lingering effects of their effusions the next morning), AQI levels in the city have dropped to scarcely believable levels. It has been truly refreshing to see AQI below 30 most days, on one occasion dropping into single digits after an unexpected summer shower.

Even prior to the lockdown, during the single day 'Janata Curfew' that was observed on March 21, 2020, the gains Delhiites received were immense — the Central Board of Pollution Control pointed out that it registered whopping reductions in PM 10 levels (-44%), PM2. 5 (-34%) and Nitrogen Oxide (-51%). The following week, with the lockdown, saw a 71% plunge in all these indicators.

And it's not just Delhi that is breathing easier thanks to the lockdown. A recent (and surprisingly fact-based) gem from WhatsApp University that was doing the rounds on the platform revealed that, thanks to clear skies, you could now, for the first time, view the foothills of the Himalayas in neighbouring Himachal from Jalandhar in Punjab.

The clean air that has replaced the dense smog in some of our most polluted regions is not just a glimpse of an experience that most Indians have almost forgotten existed. In our current fight against COVID-19 there is a more serious reason why this is worth paying attention to.

Initial research by Harvard's T.H Chan School of Public Health has suggested that there could be a correlation between air pollution and the lethality of COVID-19. Through their findings, based on data from nearly 3000 counties in the United States, researchers at the University have pointed out that a marginal increase in long-term exposure to PM2.5 could contribute to a higher fatality rate among those affected with coronavirus. The Chan study showed that counties that registered on average as little as one microgram per cubic meter of PM2.5 more than their counterparts had a COVID fatality rate that was 15% higher.

There is not the only contribution to the increasing evidence. A similar study in Italy by scientists from Denmark's Aarhus University pointed out that regions in the northern part of that country, which faced high levels of air pollution, also registered the highest number of coronavirus-related deaths (12% versus 4.5% in the southern part). This trajectory mirrors a 2003 study by the University of California which found that the impact of the Severe Acute Respiratory Syndrome (SARS) in China was more fatal in parts of the country that suffered from poor air quality.

This should be a matter of concern for all of us who live in regions where the air quality has perennially remained poor. Severe exposure to foul air, as many in Delhi are now accustomed to, inevitably means that most of us have gradually developed weaker respiratory systems and other conditions that would make us even more vulnerable to a virus like COVID-19, even among those who may otherwise be young, work out, do not smoke and partake of a nutritious diet.

India's situation is horrific in this regard. A study conducted by the Kolkata-based Chittaranjan National Cancer Institute (CNCI) found that the key indicators of respiratory health and lung function of schoolchildren in Delhi between four and 17 years of age were markedly worse than their counterparts elsewhere. Indeed, the figures were twice to four times as bad for children in Delhi than in other places, and were not reversible.

This is an issue that also threatens to derail our economic progress as a nation. While the Prime Minister invoked the famous 18th century Urdu poet Meer Taqi Meer to rightly point out that 'Jaan hai to jahan hai' while announcing the national lockdown, the economic implications of deteriorating air quality, as with COVID-19, are ominous--with a 2013 World Bank study estimating that welfare costs and lost labour income due to air pollution, cost the exchequer nearly 8.5 percent of India's GDP. Labour losses due to air pollution (in terms of number of man days lost for instance) resulted in a reported loss of \$55.39 billion in a single year. Further,

premature deaths cost the country an estimated \$505 billion or roughly 7.6 percent of our country's GDP. In other words, toxic air is a silent killer, and today in India, the air we breathe has in itself become a public health crisis — one that is slowly, but surely, crippling our country.

Despite all of this, comprehensive action to address this issue has been minimal. After taking much flak for its myopic approach to the problem, the present government finally decided to announce the National Clean Air Programme, which an annual Round Table I convene (under the auspices of Air Quality Asia) had been demanding for three years. The NCAP is deemed to be our most comprehensive intervention on the subject, and – at least on paper -- sought to bring down particulate emissions in a list of cities in the country. If the etymological inspiration was a reference to China's National Air Pollution Action Plan, which imposed stringent controls and guidelines on emissions and ushered in a breath-taking (or perhaps more suitably breath-giving) cleanup of their record levels of toxic air, the Indian version comes across as an uninspired and undercooked clone that only succeeded in raising eyebrows.

For one thing, despite India's wealth of civil society stakeholders and technical experts on the subject, there was limited public consultation on the plan and its targets. These groups could have used such a process to voice their concerns with the limited purview of the plan that was announced (only 102 cities have been included, whereas Greenpeace's 'Airpocalypse' survey of 313 Indian cities suggests that at least 241 cities have abysmal air quality) and the unambitious targets that accompany it (the plan seeks to reduce PM 2.5 and PM 10 concentration by 20-30% by 2024, which activists have argued would not ensure that the majority of the attainment cities will even hit national standards for decent air, let alone the international standards of the WHO).

The timing was also a matter of concern. While there were preceding declarations by the government of a comprehensive national level air quality intervention in the pipeline since 2017, the actual plan was suddenly announced ahead of the 2019 General Elections -- and only as the government closed their first innings, during which they enjoyed an absolute majority in Parliament. The announcements therefore came across as tokenism rather than a concrete willingness to tackle this problem head-on.

It also appears that the plan does not have legal measures incorporated within it to ensure accountability and penalise non-implementation which has essentially curtailed the effectiveness with which it has been implemented on the ground. Finally, in terms of fiduciary resources, the plan was, in its first year, allocated a paltry 300 crores (including 10 lakhs for a city with a population less than 500,000 and 20 lakhs for a city with 500,000-1,000,000 individuals), which is hardly likely to scratch the surface of the problem. And while the government distributed 280 cores, it appeared to be doing so in a manner that beats conventional thinking, given that Delhi, the most publicised city on the list, ranked the city with

the worst air quality in the world, failed to get a single rupee allocated to clean up its air in year one.

To be fair, there is no point in blaming this government alone, even if one could convincingly argue that given the mandate they received, they had the political capital to gain strong ground in the fight for clean air. The issue of air pollution is ultimately a classic case study of the “tragedy of the commons” problem, and we are all guilty of the sin of omission. The political class, notoriously incapable of long-term thinking, has offered little leadership to tackle this problem (and instead preferred to trade brickbats, as we saw between several states during the last winter smog). As I have personally found out from trying to generate interest in the Round Tables I have convened, convincing them to get to the table to even deliberate on this issue has been far from easy.

There is no point in blaming this government alone, even if one could convincingly argue that given the mandate they received, they had the political capital to gain strong ground in the fight for clean air.

And why should they, when the people they represent have largely not held their representatives accountable for their inactivity on this subject? Air quality is simply not an electoral issue in India. Astonishingly, nor is public health. Healthcare, as an electoral topic, was considered to be the prime concern for over 41% of the voters in the 2018 mid-term elections in the United States. In India on the other hand, as a concerned MP who has convened multiple high-level and cross-sectoral stakeholder gatherings to find solutions to our crisis of poor air, and as an Indian politician representing lakhs of people, I’ve been concerned at how little traction my efforts received. There is no doubt that neither public health, generally, nor air pollution, specifically, has yet won or lost an election for any Indian politician.

While the premium placed on conventional indices of economic growth -- jobs, poverty eradication, financial growth, food security and so on -- is understandable in a country where the majority of our citizens hover around the poverty line, the matter gets further compounded when class gets involved. With rising levels of smog and poor air, those with the financial resources and means have turned to short term remedies such as air purifiers, N-95 masks, Ubers or even temporarily working from home in order to avoid stepping out and inhaling the toxic air around them. For those whose lives are dominated by the need for a daily wage and the basic necessities of sustenance, the air around them has to be endured as they pursue other priorities. Either way, politicians have been under no pressure to pay attention to air quality.

Other problems---the lack of data to even adequately quantify the magnitude of the problem, bureaucratic bottlenecks that crop up in centre-state coordination, inadequate funding (as

mentioned previously) and in some cases the cost of implementing solutions (how does one offer a compelling alternative to a farmer to not burn their stubble when the competition is a one-rupee matchbox and some gasoline?)—have all come together spectacularly to ensure that the issue of air quality has till recently been reduced to articles such as this and conference discussions in one of Delhi's many air-purified 5-star hotels.

So why write this then? Beyond the gloom and the unimaginable pain that many have faced, the ongoing pandemic has arguably challenged us to fundamentally re-think and re-align our priorities. Therein lies a series of opportunities that we must be courageous enough to explore and seize. For instance, the limited public expenditure on healthcare (currently at a woeful 1.28% of our GDP), must be improved at all levels. The COVID pandemic has shown us the importance of investing far more in an effective public health system. We are likely – I believe -- to witness a completely different mindset in the eyes of both the voter and the public representative when it comes to recognising the value of health as a public good. Even as we have suffered in these last few months, there is also a growing recognition that a failure to adequately shore up our public defence system will not just leave us vulnerable to future contagion, but would directly undermine our economic capabilities. At the end of the day, the engine of growth is the Indian workforce, and an unhealthy and vulnerable workforce will not generate the growth we need.

All Indians have, at some point in the last few months, sat down to grapple with questions such as where the nearest hospital is, what sort of medical infrastructure does it have, how many doctors and nurses are there in one's district, how much will treatment at a private hospital or clinic cost as opposed to a government facility, and what is the difference of quality between the two. Above all, we have asked ourselves the principal question: how can we ensure that we are never again put in such a position of vulnerability and risk? A unique opportunity stems from this. As a community we are starting to recognise that a healthy lifestyle in itself offers a vital line of defence against pandemics like COVID-19 .

As a result, Indians are likely to unite against any aspect of their previous lives, such as chronic air pollution, that could threaten their health. At the same time, even as the premium on a healthy lifestyle grows steadily, the ongoing pandemic has forced us, as a community, to also engage with experiments that have upended and questioned the conventional way of how we work, how we move and how we consume. While these experiments could help us eventually be able to do more with less, I am confident that they could also offer us compelling focal points that can be leveraged to help produce a behavioural change when it comes to allied issues such as that of air quality.

I remain confident that as a country we will collectively pull through our current crisis and win the fight against corona. Eventually the lockdown too will be lifted and we will inevitably have

to kickstart the economy to make up for the time lost in the current slowdown. I am aware that we cannot realistically expect to continue to hold back our economic activity the way we are doing right now. Livelihoods matter almost as much as lives; they are what make lives worth saving. But we should seize the opportunity to try and find a way to drive the economy forward without once again driving our air pollution levels through the roof. Renewable energy is part of the answer, and there are other steps the government must take. As I have long argued, we only need to look at our past for all the inspiration and encouragement we need in this fight. Today, for example, it is easy to forget that by 1940, Britain accounted for nearly 10 percent of the world's GDP, while India had been reduced to a poor "third-world" country — a global poster child of poverty and famine.

But rather than meltdown into chaos and indisposition, the governments of the day set aside their differences, rallied the political class together, and in alliance with the best of our civil society and grassroots pioneers of change, waged successive, and indeed successful campaigns against poverty, pestilence and patriarchy. We still have miles to go before we sleep, but we also know, that it can be done — and so too shall be the case with toxic air.

We must not lapse into inaction when the lockdown is lifted and the silent killer of poor air quality resurfaces. In a country as diverse and stratified as ours, the crises that we are required to address daily are many, and often some will have to take priority over others. But ultimately, we must recognise that toxic air affects us all, no matter which part of the country we come from, what political and ideological affiliations we may have, or what socio-economic class we find ourselves in. Let's defeat COVID, and let's also make cleaner air an indispensable part of our defence against the next deadly contagion.

We must recognise that toxic air affects us all, no matter which part of the country we come from, what political and ideological affiliations we may have, or what socio-economic class we find ourselves in. Let's defeat COVID, and let's also make cleaner air an indispensable part of our defence against the next deadly contagion.

India's cleaner lockdown air could save 650,000 lives

Date:-11-May-2020, Source: telegraph.co.uk

India's annual death toll would fall by 650,000 if the fall in air pollution levels driven by the country's lockdown are maintained, according to a new study.

Researchers from the Indian Institute of Technology (IIT) Delhi and two Chinese universities — Fudan University and Shenzhen Polytechnic — compared the average annual concentration of six pollutants in 22 Indian cities with the reduced average concentration during the first month of lockdown.



The snowcapped Dhauladhar range of the Himalaya are clearly visible during lockdown

They discovered the pollutant measuring indicator - air quality index (AQI) - fell by a third between March 16 and April 14. Lower ratings on the index - up to around 25 - are good, while higher ratings mean there is more pollution.

The study found the greatest reduction in AQI in the north of India at 44 per cent while New Delhi enjoyed the highest

improvement of any major city, with its average air quality improving by about half.

In November, the AQI surged to over 900 in New Delhi, far exceeding the 25 safe limit set by the World Health Organization. In April, it regularly fell below 20.



Pollution hanging over New Delhi's India Gate before – and clear skies after – the lockdown

“If this low concentration during one month persisted for a year, it would save the lives of 650,000 people, which would have otherwise been lost due to air pollution health effects,” said Sri Harsha Kota, one of the report’s authors from IIT Delhi.

India has recorded over 67,000 coronavirus cases and has been under nationwide lockdown since March 24 as the authorities tried to control the spread of the disease.

Only essential travel is permitted and industry was ground to a complete halt until May 3, when the Indian government announced a resumption of some manufacturing and construction

work.

Experts believe the air quality rate will now worsen again as the government continues to slowly reopen its ailing economy - India usually leads the world in pollution-linked deaths and up to 2.3 million people die prematurely each year, according to the Global Alliance on Health and Pollution.

Pollutants worsen a range of chronic ailments, including lung disease, diabetes and pneumonia.

Air pollution rates are at their worst in India's densely-populated megacities, where industry is usually centred and vehicle congestion is some of the worst globally. Eighteen of the 20 cities with the highest air pollution in the world are found in India, according to a Greenpeace study.

Not ambient air, but PM2.5 shows correlation with Covid-19 mortality: SAFAR study

Date:-12-May-2020, Source: indianexpress.com



With most Indians staying indoors and limited plying of vehicles on roads, the air quality has improved significantly during the last 40 days or so, SAFAR scientists noted.

While there may be no direct link between atmospheric temperature and the spread of coronavirus as of now, ambient air pollution has very poor relation with the pandemic as well, said Gufran Beig, project director, System of Air Quality Weather Forecast and Research

(SAFAR), run by Pune-based Indian Institute of Tropical Meteorology (IITM). Beig was

speaking during the second webinar series, organised by the Ministry of Earth Sciences (MoES) on Tuesday.

However, SAFAR scientists, who have been tracking air quality both before and during the lockdown, have found some relation between Particulate Matter (PM) 2.5 levels and the mortality rate of Covid-19 patients in six major Indian cities with SAFAR's monitoring network – Mumbai, Ahmedabad, Pune, Bengaluru and Chennai. PM 2.5 pollutants are the finest and most invisible, prolonged exposure to which can cause respiratory illness.

“As per our preliminary analysis, ambient air quality and mean temperature have no direct role in the mortality rate of due to Covid-19. However, in cities where the mortality has been high,

corresponding PM 2.5 levels showcased about 80 per cent correlation, as on May 3. The correlation was with respect to the baseline (minimum) levels of PM 2.5 in each city,” said Beig.

With most Indians staying indoors and limited plying of vehicles on roads, the air quality has improved significantly during the last 40 days or so, SAFAR scientists noted. There were reports of far flung mountains being visible from Bihar and Punjab owing to clear air.

However, scientists warned that air pollution levels can never touch the zero mark. “The lockdown may have cut pollution caused by transportation or industries, but we noticed that pollution contributed by the burning of bio-fuel in the form of LPG, wood or similar sources used for cooking, remained,” Beig said. Pollution records maintained by SAFAR indicate that Nitrogen Oxide (NOx) and Carbon Monoxide (CO) levels dropped anywhere between 80 to 87 per cent in Delhi, Mumbai and Pune during the nationwide lockdown, at least in the first phase.

The lockdown helped the SAFAR team measure the baseline levels of key parameters required for forecasting of air quality. The team now plans to recommend the newly established minimum levels of some gaseous parameters to the Central Pollution Control Board (CPCB), and similar agencies that are involved in policy making.

“Even though pollution levels and the time of exposure are relative, everybody is exposed to a certain minimum level of pollution, and that is called the baseline pollution. This can be shared for policy making and setting standards for cities,” he said.

Chennai: Air pollution is down by 35% over pre-lockdown levels, shows study

Date:-13-May-2020, Source: timesofindia.indiatimes.com



The quality of air in Chennai is good.

CHENNAI: The quality of air in the city is good. The restriction on vehicular movement and reduced combustion activities during the lockdown have ensured that. The PM 2.5 levels have now dropped by 36% over the levels before March 24, a Central Pollution Control Board (CPCB) study has shown.

The two-part study, undertaken from February 22 to March 21 and from March 22 to April 21,

showed that the levels of nitrogen dioxide and carbon monoxide fell by 5% and 43% over prelockdown levels, a senior CPCB official told TOI. While the huge number of vehicles are mainly responsible for emitting carbon monoxide, industries release nitrogen oxide, said the official. Vehicles also release nitrogen oxide, but on a reduced scale.

Two CPCB ambient air quality monitoring stations in Manali, an area with a significant presence of chemical and petrochemical industries, showed that the operations in the area might be influencing the nitrogen dioxide levels in the city. All through the lockdown period, the levels of PM2.5, sulphur dioxide and nitrogen oxide remained within National Ambient Air Quality Standards, while PM10 data was not available for the city, the official said, quoting from the study. The lowest levels of PM2.5 and nitrogen dioxide, on a 24-hour average, during the lockdown period were recorded at 12 microgram/cubic metre, and 4 microgram/per cubic metre, while sulphur dioxide levels decreased by 29% in the city, showed the study.

The hourly comparison of average concentration values has shown a declining trend in the levels of PM2.5, with the maximum hourly PM2.5 level of 84 micrograms per cubic metre at 9pm dropping to 34 micrograms per cubic metre at the same time at night during the lockdown period. However, the high hourly PM2.5 levels before the lockdown kicked does seem unnatural, the official said. PM2.5 is fine dust, or particulate matter with a diameter of less than 2.5 micrometres, which can enter the human body through nose and settle in the lungs before mixing in the bloodstream. It can cause severe respiratory problems for children and the elderly and those with respiratory problems. A PM2.5 level of 60 micrograms per cubic metre is considered permissible.

Similarly, the lowest average hourly concentration during the pre-lockdown period of 26 micrograms/cubic metre at 2 in the morning dropped to 19 micrograms/cubic metre during the lockdown. This, the official said, was probably due to the absence of non-essential vehicles and restriction on industrial operations during the period, he added.

As India Enters Lockdown 4.0, Delhi Witnesses Spike in Pollution Levels

Date:-18-May-2020, Source: weather.com

After two months of azure blue skies and healthy, breathable air, Delhi has entered the fourth phase of the nationwide lockdown with a 'poor'-level air quality index (AQI) above the 200 mark.

As per the Central Pollution Control Board's (CPCB) daily AQI bulletin, Delhi's overall AQI on Monday evening stands at 206, which is classified into the 'poor' category. Furthermore, certain localities in the national capital have even recorded pollution levels that are closer to being categorised as 'very poor'.



Dust storm in Delhi

According to CPCB data, the Punjabi Bagh locality in Delhi has registered an AQI of 297, followed by Delhi Technological University (AQI 251), Rohini (244), Bawana (242), and Mundka (235). All these indices, i.e. AQIs between 201 and 300, are categorised as ‘poor’, while those from 301 to 400 lie within the ‘very poor’ bracket. As of 7 p.m., 12 Delhi localities continue to experience ‘poor’

quality air, while 21 have registered ‘moderate’ pollution levels—AQIs between 101 and 200. No area in the capital has recorded a ‘good’ or ‘satisfactory’ AQI.

According to the System of Air Quality and Weather Forecasting And Research, the spike in pollution levels may be down to the “dust transport from Rajasthan”, especially considering the unfavourable southwesterly winds blowing into the landlocked capital.

And while Delhi’s air is likely to improve from Tuesday onwards, the dust shall remain a dominant contributor to Delhi’s particulate pollution for the coming days, keeping its AQI in the ‘moderate’ zone until Wednesday.

This spike in air pollution is a bad break from weeks of pure air, particularly from the early stages of the nationwide lockdown. According to a study conducted by the Indian Institute of Technology (IIT) Delhi, India, during the early lockdown weeks, had witnessed 43 and 31 percent decreases in PM 2.5 and PM 10 levels respectively, as compared to previous years.

Maintenance of these low levels of air pollution would reduce India's annual death toll by 6.5 lakh, the study added. But alas, as lockdown restrictions loosen, the countrywide air quality is sure to slowly and steadily begin deteriorating yet again.

Climate Change, Air Pollution May Have Impacted Cyclone Amphan: Experts

Date:-19-May-2020, Source: weather.com

Human activities, and their impact on climate and the environment, may have influenced Cyclone Amphan in several ways, multiple experts have opined.

Climate change appears to be increasing the damage that cyclones cause in many ways, including increasing sea surface temperatures that raise the maximum potential energy that a

storm can reach; increasing the rainfall that drops during the storm; rising sea levels, which increases the distance inland that storm surges reach; and causing storms to gain strength more quickly.

Scientists are discovering a complex relationship between air pollution and cyclones, and it is possible that reductions in air pollution in the region, due to the COVID-19 restrictions, may have influenced Cyclone Amphan. Although they agree this requires further investigation.

Aerosols, from human-caused air pollution, can partly reduce the strength of cyclones in various ways, as they restrict the amount of sunlight reaching the earth's surface, thereby cooling it slightly. Reductions in air pollution may have slightly increased sea surface temperatures in the Bay of Bengal, adding to the effect of climate change.

In addition, aerosols can make clouds produce rain more easily, which limits the formation of cyclones. These factors suggest that reductions in air pollution would tend to increase cyclone strength.

But another factor that influences cyclone strength, wind shear, has the opposite relationship with air pollution. Higher air pollution tends to reduce wind shear, which generally allows stronger cyclones to form. So reduced air pollution could, in this respect, limit cyclone strength.

While there may be a relationship between the reduction in air pollution and Cyclone Amphan, it is too soon to say precisely what kind of influence cleaner air has had on the storm.

Roxy Mathew Koll, a scientist with the Indian Institute of Tropical Meteorology and lead author of the United Nations' Intergovernmental Panel on Climate Change (IPCC) oceans and cryosphere, said: "Our research shows that high ocean temperatures are conducive for rapid intensification of cyclones in the North Indian Ocean.

"In the current case, the Bay of Bengal has been particularly warm, which may have had some role in the rapid intensification from a depression to a cyclone and then to a super cyclone in a very short time.

"For example, some of the buoys in the Bay of Bengal registered maximum surface temperatures of 32-34 degrees Celsius consecutively, for the first two weeks of May. These are record temperatures driven by climate change we have never seen such high values until now."

Koll said these high temperatures could super-charge a cyclone, since tropical cyclones primarily draw their energy from evaporation at the ocean surface.

V. Vinoj, Assistant Professor with the School of Earth, Ocean and Climate Sciences at the Indian Institute of Technology in Bhubaneswar, said global warming is leading to an increase in the heat content of the upper oceans around the globe.

"This is also true for the oceanic regions around the Indian region. This is one of the causes of the increasing number of cyclonic activities in our region during pre-monsoon times. However, what is different now than the past is the world's largest COVID-19 lockdown in the south Asian region led by India," he said in a statement.

"This lockdown has significantly reduced human emissions into the atmosphere. This decrease means that surface warming due to the removal of human-made aerosols has increased and atmospheric warming (due to those absorbing aerosols such as black carbon) has decreased significantly during this time.

"This surface warming extends over the waters in the Bay of Bengal. Therefore, the global warming effect which tends to increase the strength of cyclones, if any, is now amplified due to this human-induced lockdown effect. This may be the reason why Amphan has strengthened into a super cyclone, a second one only to the 1999 super cyclone.

"Overall, I feel lockdown may have strengthened this cyclone due to the additional warming of the ocean waters over the Bay of Bengal. This will need to be investigated in the future," he added.

Cyclone Amphan could be the result of falling pollution, climate scientist claims

Date:-20-May-2020, Source: news.sky.com



The cyclone was ranked as the strongest ever tropical storm in the Bay of Bengal

Cyclone Amphan was ranked as the strongest ever tropical storm in the Bay of Bengal earlier this week with wind speeds of 270mph, but the vortex has eased to 120mph as the weather system made landfall at the border between the two countries.

Professor Vinoj Velu, of the Indian Institute of Technology, Bhubaneswar, said the economic

shut down across South Asia had significantly reduced sooty particles in the atmosphere, allowing more of the sun's energy to reach the sea.

He said: "The global warming effect, which tends to increase the strength of cyclones, is now amplified due to this human-induced lockdown effect.

"This may be the reason why Amphan has strengthened into a super cyclone, the second one only to the 1999 super cyclone." The wind speed in cyclones is largely determined by the temperature of the sea. Monitoring buoys in the Bay of Bengal show the water reached a record high of 34C during the first two weeks of May.

Dr Roxy Mathew Koll, a lead author of the recent Intergovernmental Panel on Climate Change report on the oceans, said the rising temperature was part of a long-term trend.

"We have never seen such high values until now," he said.

"These high temperatures can supercharge cyclones since they primarily draw their energy from evaporation at the ocean surface." Unusually warm water also drives rapid intensification of tropical storms. In just 24 hours the wind speed of Cyclone Amphan increased from just 50mph to more than 130mph. Indian meteorologists have warned that the V-shape of the Bay has funnelled a seawater storm surge of between 3 and 5 metres, which will submerge villages several miles inland. The coast is low-lying and already vulnerable to flooding because the sea level has risen by more than 23cm in recent decades.

At least two million people have been evacuated from coastal villages in Bangladesh. Amphan is expected to continue north east into Bhutan in the coming days. The Odisha cyclone in October 1999 killed almost 10,000 people.

Air pollution on the rise in Noida as factories open

Date:-21-May-2020, Source: hindustantimes.com

Noida: After staying within prescribed limits during the first three phases of lockdown, the air pollution levels in Noida and adjoining regions have now started to rise.

While the pollution levels are still much lesser – almost half – as compared to those of last year during the same period, the month of May is seeing a sudden spike in the air quality index that fluctuates between ‘moderate’ to ‘poor’ categories on the air quality index (AQI) against the ‘satisfactory’ to ‘moderate’ categories last month.

According to records from the Central Pollution Control Board (CPCB) and the Uttar Pradesh Pollution Control Board (UPPCB), the AQI for Noida in April 2020 oscillated from 73 to 184 on a

scale of 0 to 500, with half of the month seeing 'satisfactory' air quality. However, the AQI for May 2020 so far has oscillated between 97 and 160, with only a few days of 'satisfactory' air quality. On the AQI, 0 is least polluted whereas 500 is most polluted.

Going by CPCB's data, the month of April saw a total of 17 days of 'satisfactory', 12 days of 'moderate', and one day of 'poor' AQI. Meanwhile, until May 21, the month has experienced only three days of 'satisfactory' and 18 days of 'moderate' air quality.

The AQI in April and May last year had oscillated between 'poor' and 'very poor' categories.

According to the CPCB, for the month of April 2020, the average particulate matter (PM) 2.5 was recorded at 45.86 micrograms per cubic metres (Ug/m³), while the same was 84.52 Ug/m³ in the same month last year. The average volume of PM_{2.5} for May 2020 so far has increased to 50 Ug/m³ against 99.38 Ug/m³ last year in May.

The district administration of Gautam Budh Nagar had earlier in May allowed construction activities as well as restricted operations of industries to run. However, due to a number of reasons, the operations of industries are yet to reach their full potential.

"While the pollution levels are still under control, thanks to the lockdown, pollution levels are rising yet again and the major reason seems to be that more and more vehicles are now plying on roads due to lockdown relaxations. We had also seen traffic across the Delhi-Noida-Direct flyway, even as industrial units and construction activities are still far from resuming operations to their full strength. This gives us a rough idea that we have to take a fresh look into the sources of pollution. The share of vehicular pollution has to be more than what it is believed to be," said Ashish Jain, director, Indian Pollution Control Association.

According to Noida-based environmentalists, increasing cases of waste burning is also causing issues and needs to be checked.

"Slight rise in pollution levels could be felt and the AQI levels are also showing the same. While relaxation in the lockdown could be one of the reasons, however more and more incidents of waste burning, etc., are being reported. There are many cases of waste burning, and this has to be checked," said Vikrant Tongad, a Noida-based environmentalist.

While officials said they also noticed that the air quality is dropping, they, however, believe that meteorological reasons such as dust storms to be the major cause.

"Yes, there has been slight deterioration in the air quality, but the major reason for the same is dust storms in recent weeks. Obviously, vehicular emissions are a reason and their share is somewhere between 22 to 33%, but the current situation is more due to the dust coming in," said Anil Kumar Singh, regional officer, UPPCB, Noida.

City experiences hottest day of the season; near heatwave conditions likely to prevail

Date:-22-May-2020, Source: hindustantimes.com

The city on Friday experienced the hottest day of the season so far with the day temperature rising to 44 degrees Celsius. On Thursday, the city had recorded a maximum temperature of 42.5 degrees Celsius.

The Palam observatory in Delhi, which according to the MeT department officials gives an accurate reading of Gurugram's weather, also recorded a season-high temperature of 45.4 degrees Celsius on Friday.

Near heat wave conditions are likely to prevail in the city over the next three days with the mercury expected to rise by a few more degree Celsius, the India Meteorological Department (IMD) said on Friday.

"Heat wave is likely to continue over a few places in Delhi-NCR from May 23 till 25. Clear skies and dry north-westerly winds blowing over Northwest India and Delhi-NCR have made conditions favourable for heatwaves," said Kuldeep Srivastava, head of the IMD's regional forecasting centre in Delhi.

"Two conditions have to be met for the declaration of a heat wave. First, the maximum temperature has to touch 45 degree Celsius. Second, the temperature must be 4.5 degrees above the normal temperature," said Srivastava.

Past data from Gurugram is insufficient due to which weather inference is drawn mainly by relying on Palam observatory data for estimating the departure from normal. "Gurugram has an automatic weather station and there is no past record of data. Palam is already facing heat wave conditions on the basis of which we can say that Gurugram is also facing near heat-wave conditions," Srivastava.

On Friday, the minimum temperature was recorded at 23.7 degrees Celsius. While the minimum temperature is predicted to rise by a degree and touch 25 on Saturday, the maximum temperature is likely to remain in the range of 44-45 degree Celsius for the next few days, as per an IMD forecast.

The air quality in the city remained in the 'moderate' category on Friday, according to the Central Pollution Control Board's air quality index (AQI) bulletin. The city recorded an AQI reading of 139, a marginal deterioration from the previous day's 123. The average daily concentration of particulate matter (PM) 2.5, the city's most prominent pollutant, on Friday was 81.9 µg/m³, as per the HSPCB's official air quality monitor at Vikas Sadan.

As per the IMD's weekly forecast, a clear sky is likely to prevail this week for the most part with temperatures staying within the range of 44-45 degrees Celsius.

Air quality levels back to 'poor' after lockdown eased in Punjab

Date:-24-May-2020, Source: hindustantimes.com



Stubble burning, opening of industrial units main reasons why AQI index shoots up to unhealthy levels.

Air quality levels which had improved considerably over the last two months of lockdown and curfew to prevent the spread of Covid 19 have deteriorated after easing of restrictions by May 17 in Punjab. Stubble burning post wheat harvesting season is also adding to the problem.

The air quality index (AQI) to monitor air pollution indicated unhealthy levels of 200 towards

the end of May after recording a low of 36 in Punjab during the lockdown.

On May 22, the industrial town Mandi Gobindgarh recorded an AQI of 242, which was in the very unhealthy bracket according to data from the National AQI of the Central Pollution Control Board (CPCB).

On May 23, the industrial hub of Ludhiana recorded AQI levels of 170. A month earlier, on March 23, it was 36.

After harvesting season, increasing cases of stubble burning have added to the problem with 12,575 such cases recorded as against 10,357 cases last year.

Pollution levels were increasing for a number of reasons, said Punjab Pollution Control Board (PPCB) chairman Satwinder Singh Marwaha. "The resumption of industrial operations and vehicular pollution after relaxations in the lockdown coupled with farm fire incidences have gradually led to deterioration of air quality in Punjab."

Increasing dust particles in the air due to use of machines during wheat harvesting also added to poor air quality, he said.

The AQI level from day one of lockdown on March 22 to April 14 before harvesting was recorded at less than 50 in major parts, including industrial towns.

“With the start of the harvesting season after April 15, AQI levels started escalating to over 70 in the ‘satisfactory’ bracket. Now, it has reached ‘moderate’ levels at 150 and even crossed 200 in the past few days,” Marwaha added.

PPCB member secretary Krunesh Garg said 12,575 cases of stubble burning had been reported up to May 23.

“The board has taken serious note of these fire incidents and imposed environmental compensation of around Rs 40 lakh,” he said. Till date, the PPCB has registered FIRs against 322 farmers under section 188 (disobedience to order duly promulgated by public servant) of IPC.

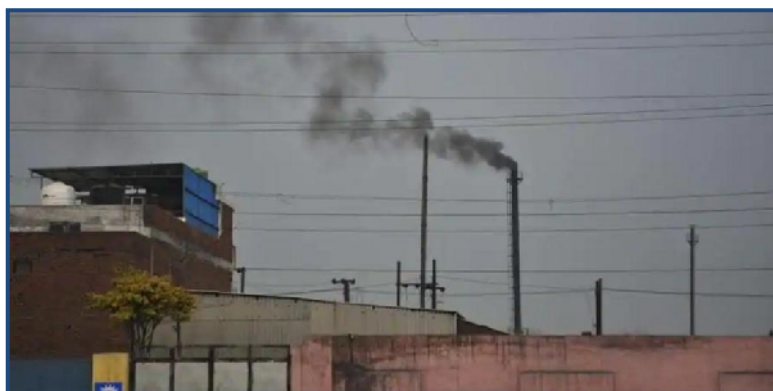
Contending, however, that the farmers could not be held responsible for pollution all data pointed to air quality deteriorating after increase in vehicular pollution and industrial activities, Jagmohan Singh, state general secretary of Bharatiya Kisan Union (Dakaunda), said, “Only scattered incidents of farm fire were reported as farmers listened to appeals of farmer unions not to burn stubble,” he said.

Three industrial towns of Chhattisgarh have toxic air: analysis

Date:-27-May-2020, Source: hindustantimes.com

A new air quality analysis of three industrial areas of Chhattisgarh has revealed that there is severe PM 2.5 pollution and the air is laden with heavy metals such as nickel, manganese, silica and lead.

The analysis was conducted in the industrial areas of Korba, Champa and Raipur by the State Health Resource Centre of Chhattisgarh, an autonomous body that provides technical support to the state health department. It collected air samples from these towns between January and February.



A pollution cess is levied on units and activities not conforming to national air quality standards, the analysis suggested.

At nine sites close to coal mines and thermal power plants in the three town, samples were collected for 24 hours from roofs of houses and public health centres. Sampling revealed that concentrations of PM 2.5 (or fine, respirable pollution particles) ranged from 186 micrograms per cubic metre to 549.9 micrograms per cubic metre, which is 3.1 and 9.1 times higher than the national standard of 60 micrograms per cubic metre.

Manganese concentrations in eight of the nine samples exceeded the US Environment Protection Agency (EPA) reference of 0.05 micrograms per cubic metre, and also the World Health Organization's (WHO) safety guideline of 0.15 micrograms per cubic metre.

Nickel concentrations exceeded the WHO guideline (based on cancer risk) in all samples. Silicon concentrations too were unsafe in all the samples.

In most environments, the predominant form of silicon in ambient air is crystalline silica. Coal ash and iron and steel operations, both common to the region, have high levels of crystalline silica and could be prominent contributors, the analysis said. Lead concentrations exceeded the US EPA standard in two out of the nine samples.

"Multiple studies have shown that there are linkages between PM 2.5 and respiratory diseases and cardiovascular problems. In addition, manganese, lead and nickel are well known toxins and their effects on human health have been well documented," Prabir Chatterjee, former executive director of the State Health Resource Center, was quoted as saying in the analysis.

"Manganese and lead are predominantly neurotoxins while nickel is a carcinogen. The measurement of such toxic substances from the rooftops of human settlements and health care facilities is indeed a cause for concern," he added.

The analysis recommended the government should set up specialised healthcare facilities at the polluters' cost, under the "polluter pays" principle, to cater to health issues of residents of Korba, Champa and Raipur. This should include facilities such as spirometry at the district hospitals.

A pollution cess is levied on units and activities not conforming to national air quality standards, the analysis suggested. Due to the Covid-19-linked economic slowdown, finance minister Nirmala Sitharaman recently said India would further open up commercial coal mining. This would mean more emissions from thermal power plants and coal dust emissions from mines.

A report by the Centre for Science and Environment (CSE) released last week found that 70% of thermal power plants in India won't meet new emission standards for sulphur dioxide, nitrogen dioxide, and particulate matter by 2022, a deadline given to them by the environment ministry.

"Chhattisgarh needs to immediately find out where they stand. The new standards have to be met by 2022 but if the tendering process for emission control equipment has just started, then they will not be able to meet the deadline. There has to be a deterrence strategy for these plants to ensure they comply. On mining, there is very little information on the scale of pollution," said CSE executive director Anumita Roy Chowdhury.

Ozone concentration in Maharashtra cities spikes during lockdown

Date:-27-May-2020, Source: hindustantimes.com



There has been an increase in urban ground-level ozone, a harmful pollutant, across 10 Maharashtra cities during the lockdown

Despite a decline in vehicular pollution during the lockdown due to the Covid-19 pandemic, there has been an increase in urban ground-level ozone, a harmful pollutant, across 10 Maharashtra cities, according to an analysis of the National Clean Air Program (NCAP).

The Mumbai Metropolitan Region (MMR) comprising - Mumbai, Thane, Navi Mumbai and Kalyan -

witnessed a spike in urban ozone during the first three phases of the lockdown over two months (March 24 to May 24), according to an analysis released as part of the NCAP tracker on Tuesday by Mumbai-based air quality research group Respirer Living Sciences (RLS) and Delhi-based communications initiative, Climate Trends.

The Maharashtra Pollution Control Board (MPCB) confirmed the findings were accurate.

Surface ozone (O_3) is a photochemical oxidant, which is formed when volatile organic compounds and oxides of nitrogen (NO_x) chemically react in the presence of heat and sunlight. Ground-level ozone is harmful for humans as it can aggravate asthma, cardiovascular diseases and other ailments.

The latest study found a 10.3% rise in ozone across 10 Indian cities during the two month lockdown period. Among monitoring locations across Maharashtra, Khadakpada in Kalyan has shown the highest average ozone levels at 70 micrograms per cubic metre ($\mu g/m^3$) against the safe limit of 80 $\mu g/m^3$ (for 24 hours), followed by the Maharashtra Industrial Development Corporation Khutala station in Chandrapur at 64 $\mu g/m^3$. While the concentration ranged between 23-37 $\mu g/m^3$ for MMR, a 50% increase in average O_3 levels was witnessed when compared to 2019. Comparatively, a 50% reduction for Mumbai and 58% for Thane was witnessed for nitrogen dioxide (NO_2) levels that comes mostly from burning of coal and vehicular exhaust.

“The analysis indicates that when NO_2 levels remain low, surface ozone is higher as photochemical production can become more efficient during summer months,” said Ronak

Sutaria, founder and director, RLS. “Breathing air with high ozone poses a risk for people with asthma and other lung ailments especially for children, older adults, and those active outdoors such as daily wage workers.”

MPCB said they were investigating the spike in the pollutant by comparing different station readings.

“Based on our preliminary data collection, ozone is going up across Maharashtra cities,” said SC Kollur, chief scientist, MPCB. “It may be a secondary pollutant arising from the reduction of other major pollutants. Industrial areas do witness such spikes but the increase for major cities comes as a surprise. We have to analyse the source.”

For Mumbai, MPCB plans to study background data from the Borivli station (near the national park) to check reasons for an increase in ozone. “The station data is down due to a broken cable for a week. The data is crucial as it gives background data and human induced emissions are not present,” said Kollur.

All 10 Maharashtra cities are part of the NCAP where the Centre seeks to reduce pollutant concentrations by 20-30% by 2024 with the target pollutant as particulate matter (PM2.5 and PM10). Data was compiled from state pollution control board monitoring stations over two months. The tracker is a web portal that monitors the achievement of state specific air quality targets for 122 Indian cities, and whether funds released for each city are being appropriately utilised.

“Assessing how pollutants behaved during the lockdown the rise in ozone is an alert at a time when cities are already facing a health crisis. The findings should equip policy making and calls for more studies to identify the impact of other pollutants apart from PM,” said Aarti Khosla, director, Climate Trends.

A recent study by the Indian Institute of Technology, Delhi and two Chinese universities also showed a 20% rise in ozone for western parts of India. The study suggested that secondary pollutants such as ozone need to be considered by NCAP. “China witnessed a similar rising trend for ozone and adopted measures to reduce the pollutant. India is already showing the indication of higher O₃ when other pollutants reduce.

During summer months, the Centre should consider precursors to ozone for non-attainment cities and in addition to PM, O₃ has to be kept in mind while preparing action plans,” said Harsha Kota, professor, IIT-Delhi.

NCAP apex committee and professor, Indian Institute of Technology-Kanpur, SN Tripathi said, “Ozone has not been a problem in India over the years barring occasional spikes, which is

regularly observed abroad across cities. An increase has been observed during lockdown due to its function as a precursor to declining NOx concentration but remained below safe limits. Ozone should be considered by NCAP as a secondary pollutant. Studies show PM followed by ozone contributes to 85-90% human related adverse health impacts. The current data is giving us the opportunity to understand O3 mitigation strategy.”

Pollution drop could pressure India’s energy policymakers

Date:-28-May-2020, Source: petroleum-economist.com



India’s nationwide lockdown, which began in late March in response to the Covid-19 pandemic, has been one of the strictest in the world. Travel and transport have been severely curtailed, with a subsequent material downward impact on

economic activity. Having been extended through April and the first two weeks of May, a phased easing process began from 17 May.

In a significant silver lining to the economic downturn, the country has recorded its lowest levels of pollution in decades—including in hugely symbolic ways. The grand Himalayan mountain range, otherwise permanently cloaked in smog, is visible from the northern states of Uttar Pradesh and Punjab. The Ganges river, sacred to India’s Hindu majority, has never been cleaner—somewhat ironically given the billions of dollars poured into previous efforts to rejuvenate its polluted waters.

A study by the Indian Institute of Technology (IIT) university in Delhi concludes that, if the current lower levels of air pollution were sustained, India’s annual death toll could fall by 650,000. More than a million people are estimated to die every year in India due to pollution-related respiratory diseases.

According to the federal government’s system of air quality and weather forecasting and research (Safar) initiative, all main pollution sources—whether CO, NOx or particulate matter (PM)—have fallen during the lockdown period. India’s overall air quality index (AQI) has improved by nearly half, with levels of PM2.5—responsible for the most respiratory diseases—recording the largest decline.

In April, the AQI of Delhi, the nation's capital, consistently stayed below 20. Among the most polluted cities in the world, its AQI during winter months can rise to over 900. By comparison, the WHO considers a safe AQI level as below 25.

Change in direction

The key question now, as India emerges from lockdown and starts trying to get its economy back on an even keel, is what happens next. Will India's energy demand forecasts return largely to previous projected trajectories, consigning the cleaner lockdown air to a brief memory? Or will the bluer skies usher in a permanent change in attitude and a greener and less-energy intensive future?

India's fossil fuel consumption fell by nearly 46pc in April as big drops in demand were seen across all petroleum products—with the exception of LPG, which is used mainly for domestic cooking. Gasoline sales were down by over 60pc, while diesel—India's most-consumed fuel—dropped by more than 55pc.

Production of electricity, predominantly supplied by heavily polluting coal-fired plants also, fell sharply—by almost 25pc in April, according to consultancy Crisil Research.

Regarding road transport emissions, it seems likely the pre-coronavirus status quo will be re-established, given the absence of economically viable alternatives in the short term. Preliminary data suggest India's fuel demand recovered quickly in May.

The case for greening India's generation mix through increasing renewable power capacity will, though, be strengthened, potentially accelerating a decline in the country's coal demand. India has already made rapid strides in boosting its solar and wind capacity over recent years. Renewable energy, including large hydro, now accounts for almost 36pc of installed capacity in the country.

And the outlook remains positive. The cost of producing renewable energy in India is already at parity with thermal plants. In May, Indian company Renew Power, backed by US bank Goldman Sachs, won an auction for 400MW of solar power, including storage, at a rate well below competing thermal sources.

Nor is it just expectations of a cleaner power sector that may be permanently reset. State and federal governments will also likely be under pressure to back best practices in sectors such as construction and agriculture to minimise problems such as dust pollution and stubble-burning that have briefly ameliorated during lockdown. It is not a stretch to imagine that other short-to-medium-term measures that improve air quality without imposing too great an economic burden, such as greater energy efficiency in intensive industries, will gain momentum.

India's pollution levels will rebound again, unfortunately. But the lobby pursuing structural changes to improve them—and likely moderate some of the most bullish forecasts of Indian energy demand growth—should also emerge from lockdown emboldened and with a folk memory to aid its agenda.

Rain brings down mercury by four degrees

Date:-29-May-2020, Source: hindustantimes.com

The maximum temperature on Friday fell by four degrees from Thursday's 40.3 degrees Celsius to 36.8 degrees Celsius following a spell of rain in the evening.

According to the India Meteorological Department (IMD), around 3.1mm rainfall was recorded around the Palam Observatory Area— the closest manual weather observatory to Gurugram— between 8.30am and 8.30pm on Friday. Officials attributed the rain to a western disturbance affecting north-west India and easterly winds from Uttar Pradesh.

As per Kuldeep Srivastava, head, regional weather forecasting centre, IMD, thunderstorms with light rain, lightning, and squally winds (50-60 kmph speed) prevailed across Haryana and northwest UP on Friday. Cloudy skies with one or two spells of rain or thundershowers have been predicted till Monday by the IMD.

The minimum temperature on Friday was recorded at 22.5 degrees Celsius. Gurugram's maximum temperature is expected to fall further and touch 35 degrees Celsius on Saturday, as per IMD's weekly forecast. The maximum temperature is expected to hover around 25 degrees Celsius on Saturday, as per the forecast.

Air quality in the city was 'satisfactory' on Friday, recording 100 on the Central Pollution Control Board's air quality index (AQI) bulletin. This was an improvement from the previous day's recording of 151 in the 'moderate' category. The improvement in air quality was attributed largely to an increase in wind speed and dispersal of pollutants due to rain. According to the early air quality warning system for Delhi-NCR, the air quality is likely to improve further on Saturday.

First 3 lockdown phases show dip in levels of major pollutants: SAFAR

Date:-30-May-2020, Source: indianexpress.com

As industries remained shut and vehicles were off the roads, an analysis by the System of Air Quality Forecasting and Research (SAFAR) showed that there was a significant decline in pollutant levels – mainly nitrogen dioxide, PM 10 and PM 2.5 — during the three lockdown periods in Pune, as compared to last year during the same period.



Scientists at SAFAR monitored levels of pollutants during the first three phases of lockdown and compared it with the levels recorded last year. A similar analysis has been done for Delhi, Mumbai and Ahmedabad.

Nitrogen dioxide (released during traffic emissions), PM 2.5

(atmospheric particulate matter that has a diameter of less than 2.5 micrometers) and PM 10 (atmospheric particulate matter with a diameter of less than 10 micrometers) are among some of the major pollutants which, when exposed to for a long period of time, can cause respiratory disorders.

Dr Gufran Beig, project director of SAFAR, told The Indian Express that the analysis found 67.9 per cent reduction in nitrogen dioxide levels during the first lockdown as compared to levels recorded last year. In the second lockdown, it found 79.6 per cent reduction in nitrogen dioxide levels and in the third lockdown, the reduction was 53.3 per cent.

PM 2.5 levels fell by 16.4 per cent during the first lockdown, by 22.4 per cent during the second lockdown and 3.1 per cent during the third lockdown. PM 10 levels reduced by 28.8 per cent during the first lockdown, 35.0 per cent during the second lockdown and 20.9 per cent during the third lockdown period.

Because of the lockdown, there has been a decline in emission levels and at some places, the reduction in pollutants was high, said Dr Beig. This was also possibly because there were rain spells which also help wash away the pollutants, he said.

Air pollution has increased India's health burden, making it more vulnerable to threats like Covid-19. The pandemic puts people suffering from respiratory conditions that are worsened by air pollution, like asthma and chronic obstructive pulmonary disease (COPD), at increased risk of death and complications. Nine out of 10 people breathe air the WHO deems too polluted, causing an estimated 4.2 million premature deaths every year.

However, experts say improvement in air pollution levels should not be seen as a silver lining but an opportunity to understand the background levels in cities when major sources are on hold. With most activity on halt, and the subsequent low levels of pollution these days, it is clear that air quality can improve in a matter of weeks.

At a webinar organised recently by Climate Trends, Dr Sagnik Dey, associate professor, Centre for Atmospheric Sciences, Indian Institute of Technology-Delhi, said that every source apportionment study shows that there are eight key sources of pollution in India — power plants, vehicles, industry, household, brick kilns, open burning, diesel generator

sets and dust (from construction, soil, re-suspended and trans-border). Of these eight sources, only four were shut down during lockdown — vehicles, industrial activity, brick kilns and construction activity.

This reduction in pollution in India during the lockdown has come from these four major sources and that needs to be taken into account in the National Clean Air Programme, he said. “If we can control vehicular, industrial, brick kilns and construction activity, we can reach PM 2.5 and PM 10 targets in the near future,” said Dr Dey.

June 2020

Air quality deteriorates in May as public mobility increases

Date:-1-June-2020, Source: hindustantimes.com

Air quality in the city deteriorated in May, with an average daily reading of 143 on the air quality index (AQI), according to data from the Central Pollution Control Board (CPCB). This was up from an average AQI value of 110 in April, and 113 in March. Experts said they expected the uptick in pollution, as the past month has seen an increase in vehicular movement during phases three and four of the ongoing nationwide lockdown to curb the spread of the Covid-19 pandemic.

The deterioration of air quality between April and May is also atypical, experts said. “Usually, with a rise in temperature as the summer progresses, air quality tends to improve in May. This year we are seeing the reverse take place. But on the whole, air quality is still better than it was during the same time last year,” Sachin Panwar, a city-based air quality scientist, said.

Another indicator that points to increasing vehicular emissions as the cause for Gurugram’s deteriorating air quality is a spike in atmospheric ozone, which was recorded as a primary pollutant on 22 days in May, as per the CPCB’s daily AQI bulletin for the city. Ozone is a composite, or secondary pollutant, formed due to chemical reactions undergone by other pollutants, such as sulphur oxides and nitrogen oxides.

“NO_x are directly emitted by vehicles. The formation of ground-level ozone implies that primary pollutants, in this case, nitrogen oxides, are being emitted into the atmosphere,” Panwar explained.

This is also reflected in data from Gurugram’s four air quality monitors. For example, on April 30, the average concentration of NO_x in the city’s air was 8 parts per billion (ppb), down from 14ppb on April 1. In May, however, the concentration of NO_x in city air shot up, exceeding over 100ppb on several days of the month.

Further evidence of increased public mobility can be seen in data published by Google. Between April 26 and May 25 in Haryana, public movement to retail and recreational spaces increased by 24%, while visits to transit stations increased by 15%, and visits to pharmacies, food markets and grocery stores increased by 38%. Visits to workplaces also increased by 6% during the same time frame, while visits to parks and public spaces increased by 8%.

Despite repeated calls and texts, Haryana State Pollution Control Board (HSPCB) officials were not available for comment.

COVID-19 Crisis: Beginning of clean air and the end of oil age in India

Date:-2-June-2020, Source: [financialexpress.com](https://www.financialexpress.com)



India is under lockdown since 25 March – over 60 days now. For a country of 1.3 billion and with more than 100 million vehicles of all types, configurations, engines and fuel on roads, it is an incredible feat to keep everyone locked up at home for two months. Smoke sputtering trucks, three-wheelers and cars jostling for space on the streets have not

been seen for a while. The entire transportation system of the country is on a pause. While the impact, costs, benefits and losses of lockdown would be a topic for debate for a long time, one thing is for sure – the environment has been the biggest beneficiary of this lockdown. Seeing pictures of the Himalayas visible from Saharanpur and Jalandhar to clean waters Ganga, the impact has been profound. Take the case of Clean Ganga mission – what could not be achieved after decades and spending thousands of crores, lockdown could do in six weeks.

The average AQI (air quality index) of Delhi was 360 in December 2018; in 2017, it was 450. Anything above 100 is considered dangerous for breathing. The deadliest particle in Delhi's foul air is the tiny but fatal PM 2.5, which increases the likelihood of respiratory and cardiovascular diseases. This primarily comes from combustion – fires, automobiles and power plants.

Urban Emissions found the levels of PM 2.5 in Delhi during the lockdown plummeted to 20 micrograms per cubic meter with a 20-day average of 35. To put this into context, between 2017 and 2019, the monthly percentage of PM 2.5 in the capital was up to four times higher. (The national standard is set at 40, and the WHO has an annual average guideline of just ten micrograms per cubic meter)

The most significant contributor to air pollution in India is the vehicles running on hydrocarbon fuels – petrol or diesel. The burning of these fuels produces harmful gases like CO, NOX and release other unburnt fuel as particulate matter into the air. Diesel, in particular, is the most significant contributor to this contamination of air releasing around 50 mg of CO and NOX per Km. A car emits carbon monoxide when the carbon in fuel doesn't burn completely.

When fuel burns, nitrogen and oxygen react with each other and form nitrogen oxides (NOx). Particulate matter — small particles of foreign substances — in the air contributes to atmospheric haze and can damage people's lungs. To counter and discourage vehicle makers using these fuels, Govt. has been tightening emission norms over the years, the latest being the implementation of Bharat Stage 6 starting April 2020. This limits the emission of CO to 2g/km and calls for a reduction of NOX by 25% in light-duty vehicles and 80% in heavy-duty vehicles.

The emission control is achieved in two ways – in the cylinder during ignition, and after treatment post, the contaminants are released from the engine. This is fine, but the problem is implementing these measures cost money, and it increases the cost of vehicles which gets passed on to the end customer.

In the case of BSVI, we have seen the price of a diesel vehicle going up by almost two lakh. In a high price-sensitive market, it impacts the purchase of the car. Commercial vehicles, on the other hand, are business enablers for the users. The owner has to earn money out of the three-wheeler or the truck he purchases and deploys in the fleet. Hence there is a reluctance to buy a higher-priced vehicle at the cost of environmental damage.

The solution to this is non-hydrocarbon fuel vehicles. The battery-powered vehicles are the best option right now. With the mature technology of Li-Ion battery and powertrain, we see this as the best option right now. The success of Tesla has given a big push to the electrification of vehicles globally. The majority of OEMs in Europe and the USA have announced their migration to electric cars. This is undoubtedly going to happen in India too.

Three-wheelers and two-wheelers are expected to be the early adopters in India, followed by Minibuses and light trucks. Going further as other technologies like hydrogen fuel mature, the changeover from hydrocarbon would be complete.

As lockdown eases, air quality drops in Agra

Date:-3-June-2020, Source: indiatoday.in

The clean air Agra enjoyed since the last week of March has become polluted as soon as the lockdown norms eased. The air quality in the city registered a drop as hundreds of two and four-wheelers came out on roads.

The Central Pollution Control Board (CPCB) sources said that the carbon monoxide levels in Agra have jumped by over 40 times the normal in just one day, while during the lockdown, this spike was limited to maximum 8 to 12 times.

The sudden spike air pollution indicates that the key reason for poor air quality in Agra is vehicular traffic, especially diesel cars and SUVs.



Social worker Uma Shanker Sharma said that the polluting industries in Agra have all been shut down in compliance with the Supreme Court guidelines, but still the pollution levels have not improved. "They only improved between March-May, when vehicular traffic on Agra roads was minimum. This was ample

evidence that vehicles, not industries were the main culprits causing air pollution in Agra," he said.

The highest levels of CO were found during the morning hours around 6 am, while nitrogen dioxide levels rose between 9 to 11 am. Dust particles were found spiking from 7 pm in the evening. Sulfur dioxide levels were the highest at 7 pm.

Senior physician Dr SK Kalra told India Today that CO is a poisonous gas that replaces the oxyhemoglobin in the blood with carboxyhemoglobin, reducing the oxygen-absorbing capacity of the blood. The gas can cause dizziness, headaches and breathlessness in small volumes and can cause coma and death in larger volumes.

Social activist Vijay Upadhyay said, "The government has not been able to adequately fight the novel coronavirus till now and if the coronavirus attacks people who are suffering from breathing issues caused by air pollution, it will be devastating."

Upadhyay said that the government could restrict the movement of diesel operated cars and SUVs as an immediate step as the diesel vehicles cause the maximum pollution. Apart from private vehicles, the government should also make a note of its vehicles that are in need of a tuneup or an overhaul so that the government vehicles also don't cause pollution.

People in Delhi-NCR lack awareness about air pollution, says report

Date:-4-June-2020, Source: livemint.com

NEW DELHI: A survey conducted by the Lung Care Foundation showed that there was massive unawareness regarding air pollution among public in the national capital region (NCR). It also found that people were unaware about government initiatives and necessary precautions taken to control high levels of pollution.

According to the air pollution knowledge, attitude and practice survey, 92% respondents were unaware of the difference between PM 2.5 and PM 10. While 92.2% participants were unaware of the closest air quality monitor in their areas, 71% respondents had never seen the screen displaying severe/poor/good air quality.

"This shows people don't know how, when and where to check about air quality," said the report, which is supported by the public affairs section of the US Embassy in New Delhi.

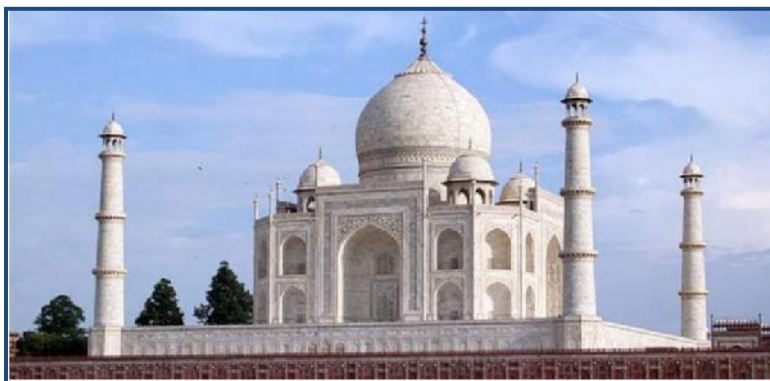
The study was conducted in Delhi-NCR among 1,757 individuals to check their knowledge, attitude and perception level regarding air pollution. Majority of the respondents were males (68.8%), while 31.2% were females. The survey covered students, youth, elderly, women and men of all age groups ranging from 12 to 93 years, from Delhi, Ghaziabad, Noida, Gurgaon, and Faridabad.

According to the survey, majority of the respondents did not take enough measures to protect themselves, with 60% not using a mask regularly. Most respondents rated vehicular pollution as the first source of air pollution followed by waste burning and industries emissions.

Interestingly, 78.1% of the respondents were unaware of any programs or initiatives undertaken by the Delhi government to tackle air pollution in the city. This comes at a time when the Arvind Kejriwal-led government has taken various steps including implementation of the odd-even scheme for vehicles.

Coronavirus lockdown helps Taj Mahal heal, but for how long

Date:-5-June-2020, Source: newindianexpress.com



Taj Mahal

AGRA: Seventy days of respite due to the lockdown, may have helped the iconic 17th century monument of love, the Taj Mahal, to temporarily heal itself and be restored to good health for the first time in its history, questions continue to be raised whether the

city's environmental conditions over the years have drastically

changed to assure continuous healthy conditions to the ageing historical monuments.

As the city celebrates World Environment Day, local activists say there has been no fundamental change in the environmental conditions in the eco-sensitive Taj Trapezium Zone, spread over 10,000 sq km.

Minus the 70 days of the lockdown that has seen some improvement in the Yamuna water quality and the air pollution levels, the overall picture remains largely grim despite Nearly three decades of environmental activism, and a series of judicial interventions by the Supreme Court of India in the famous M.C. Mehta PIL.

The air pollution level continues to remain alarming, affecting both humans and stones.

A meeting of the River Connect Campaign activists early Friday, at the Etmauddaula view point park, demanded urgent steps to save river Yamuna, which they said was dying due to lack of fresh water, and a heavy load of pollutants released by industrial clusters upstream of Agra.

High level of noxious gases, suspended dust particles, emissions from vehicles, denudation of green cover to construct roads and houses, had affected both men and stones, green activist Devashish Bhattacharya said.

Tourism has been badly hit and the health of the local population is in peril, activist Jugal Kishor said.

Activists said various recommendations of expert committees were gathering dust and the Supreme Court orders had been blatantly ignored.

In the past, a series of orders came from the apex court. But Shifting orders for dairies, dhobi ghats, cremation sites, petha units, have been shelved. Transport companies emitting pollutants on the Yamuna Kinara Road, have not been shifted either.

Repeated pleas by environmentalists to free the Yamuna banks of encroachment have fallen on deaf ears.

The National Green Tribunal has been struggling with its orders on clearing encroachments on the Yamuna floodplains. After years of dilly-dallying even the boundaries of the flood plains have not been clearly demarcated, the campaigners complain.

Forest land in the Soor Sarovar area has been reduced as groups of vested interests managed to secure land for developing commercial activities. Local green activists have lamented the apathy of the elected Vidhan Sabha and Lok Sabha members towards the Yamuna, the lifeline of the city.

A dry and polluted Yamuna remains a constant threat to the safety of the Taj Mahal, say the activists of the Braj Mandal Heritage Conservation Society. Water in the Yamuna was required

for the good health of historical monuments along the Yamuna's banks, because the foundations need continuous moisture and a pollution-free ambience, Society's president Surendra Sharma said.

The Society in a letter recently reminded the Union Transport Minister Nitin Gadkari of his promise to start a ferry service for tourists between Delhi and Agra. In his election campaign speech at the Agra College ground, BJP President Amit Shah had promised that Yamuna cleaning would be taken up on top priority after the elections. Even Prime Minister Narendra Modi had spoken of steps to save the Yamuna.

Having announced the construction of a barrage downstream of the Taj Mahal, Uttar Pradesh Chief Minister Yogi Adityanath has suddenly developed cold feet, the green activists said. Despite repeated demands, the Yamuna Barrage project, downstream of the Taj Mahal, hangs fire. The river activists also demanded a comprehensive National Rivers Policy and a Central Rivers Authority. Green activist Shravan Kumar Singh said that despite persistent demands, so far no initiative had been taken to desilt and dredge the river bed, which had become hard owing to pollutants, preventing seepage and percolation of water.

Environmentalism Chaturbhuj Tiwari said, "Though the Supreme Court had categorically directed ban on entry of cattle into the river and shifting of dhobis (washermen) polluting the river, no effort has been made by the district authorities in this direction." The meeting called for a white paper on the expenses incurred by various government agencies on cleaning the Yamuna between Delhi and Agra.

Air Pollution Dropped By 88 Per Cent During Lockdown, Turns Severe Again

Date:-6-June-2020, Source: mid-day.com



The Sanjay Gandhi Borivli National Park in Mumbai during the lockdown.

Even though the pollution levels in six major cities plummeted during the initial phase of the lockdown, it is on the rise again as the country gradually opens up, a recent study has revealed. According to the Centre for Science and Environment (CSE), PM 2.5 levels across Delhi, Mumbai, Kolkata, Chennai, Hyderabad and Bengaluru

dropped by a phenomenal 45-88

per cent during the pandemic-induced lockdown period. The analysis, however, found that the "pollution registered a comeback" as the nation opened up pursuant to lockdown 4.0.

"In the six cities, there was a two-six times increase in PM 2.5 levels during lockdown 4.0," said the report. According to the findings, the national capital saw the steepest rise of four to eight times, as compared to two to six times in other cities. The initial decrease in pollution could be attributed to no industrial activity, reduced on-road traffic and temporary halt on construction activities. Sunita Narain, Director General of Centre for Science and Environment said that the analysis showed the nation needed an intervention at such a massive scale to make skies blue and our air and lungs clean.

"It tells us that there should be no question, therefore, on the key sources of air pollution in our country: emissions from vehicles and industry," she added. CSE also presented a charter of environmental demands to ensure a better, cleaner and more sustainable environment, life and air quality. It stated that reducing pollution from heavy-duty vehicles, switching to clean vehicles, using clean power and providing green economic stimulus were a few strategies which could help retain the healthy air.

Centre's executive director Anumita Roychowdhury said the nation must ensure that pollution levels do not go back to 'normal' - what they were before the lockdown.

India can use the corona virus crisis to frame a cleaner air pollution policy

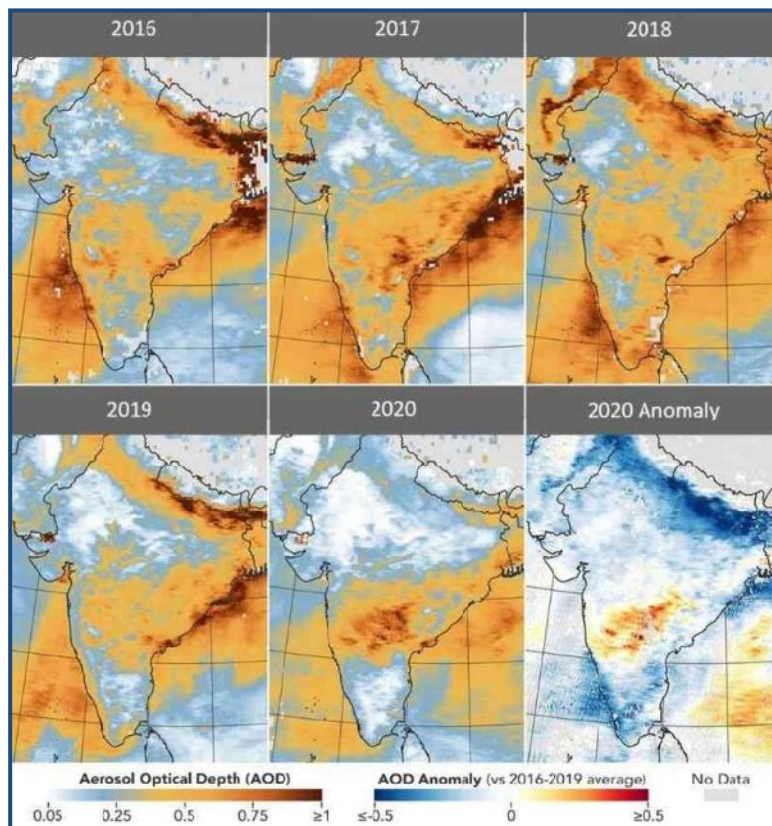
Date:-7-June-2020, Source: scroll.in

After India shut down in response to Covid-19, people started posting stunning photos of the Himalayas, visible from 200 km away in Punjab for the first time in decades. Photos flooded Twitter, the Indian and global media.

Environmental activist Sant Balbir Singh Seechewal captured the excitement. "We can see the snow-covered mountains clearly from our roofs. And not just that, stars are visible at night. I have never seen anything like this in recent times," he told the SBS Hindi news service. Seechewal is a veteran campaigner against air pollution with more than 30 years' experience.

Newly-clean skies have stirred hopes that regional action on South Asia's lethal air pollution may be possible despite years of false starts and failure. Furthermore, links between poor air quality and chronic health conditions that jeopardise the survival of Covid-19 patients now make tackling pollution more pressing than ever.

"The whole pandemic experiment and resulting shutdown of human activities have shown us that clearing the air is possible, with both short- and long-term planning and implementation of environmentally friendly policies," said Pawan Gupta, a research scientist studying



Data shows aerosol optical depth or AOD measurements over India from March 31 to April 5 each year from 2016 to 2020. The sixth map shows a strong anomaly in AOD in 2020 compared to the average for 2016-2019. Source: Terra Satellite's Moderate Resolution Imaging Spectroradiometer via The Third Pole

transboundary airflows with the Universities Space Research Associations at The NASA Marshall Space Flight Centre in Alabama, USA.

Covid-19 risk

NASA's Terra satellite observed a 20-year low for deadly aerosols – tiny, airborne particles that can penetrate the lungs and heart – in Northern India's Indo-Gangetic Plain at this time of year. Gupta who studies trans-boundary airflows and pollution, said a drop was expected but "I have never seen them so low."

Air pollution routinely kills millions each year – it contributed to more than five million deaths or up to 22% of all deaths in South Asia in 2012, according to a scoping study

by The Energy and Resources Institute.

Furthermore, if Covid-19 becomes established, without a vaccine or cure, air pollution will exacerbate the death rate in any outbreak. Clinical experience so far, and early studies suggest patients with pre-existing heart and lung problems are more likely to die.

Regional cooperation

"Many understand that we'll have a new normal," said Bharati Chaturvedi, the founding director of Chintan Environmental Research and Action Group. "We need to take advantage of that, and enforce, even accelerate, some policy shifts. I think states should implement those policies they have, as those exposed to air pollution are more vulnerable."

"The Indian Prime Minister has called upon the region to use the SAARC [South Asian Association for Regional Cooperation] framework to fight coronavirus. We can follow this framework to solve what is essentially Covid in slow motion, i.e., air pollution," she added.

Air pollution crosses national boundaries, but attempts to tackle it at the regional level in the past have come up against political tensions. “Air pollution cannot be effectively reduced unless India and Pakistan cooperate”, said Rafay Alam, an environmental lawyer and Yale World Fellow from Pakistan. “I fear politicians are abandoning their responsibilities by playing politics. You can’t cooperate if you’re blaming one another for the problem.”

Regional airflows push pollution far from its source. Pollutants – including smoke from crop burning – are regularly driven Southeast by seasonal post-monsoon winds crossing over Pakistan and North India into Bangladesh and the Bay of Bengal. The transported pollution often reaches parts of Southern India and Sri Lanka too. An inter-governmental data sharing agreement could provide a basis for countries to establish baseline data and reliable reports, and recommend solutions, possibly using SAARC’s existing framework.

Data sharing

Although satellite data like that studied by Gupta is freely available, it needs to be supplemented by continuous ground-based observations, which are lacking. Civil society attempts to monitor air quality using machines that NGOs and individuals have bought “cannot replace reference-grade equipment,” he said.

India currently shares some data online but it is patchy. Ground measurement in Pakistan, Bangladesh, Nepal and Sri Lanka are insufficient, and Afghanistan lacks a ground measurement network.

“Given the bitter political discourse in South Asia, it is best to focus on things that can be done and create a sense of trust and momentum going forward,” said Alam. “South Asian cooperation in the shape of a South Asia Data Network could be simply recording and sharing data, and carrying out joint research into health impacts,” he explained.

There are good reasons to pursue modest goals, as political animosity between India and Pakistan has derailed hopeful regional initiatives before.

In 1998, the governing council of the South Asia Cooperative Environment Programme adopted the Male Declaration on Control and Prevention of Air Pollution and its likely transboundary effects on South Asia. Irfan Tariq, an ex-director general at Pakistan’s Ministry of Climate Change, said, “Pakistan met the financial obligations and on the basis of it, we generated data on air quality.”

He added that India was a major shareholder in the Male declaration, yet “they never shared any data, and the UN environment officials backed out of the agreement. Without India’s collaboration, the contribution by Nepal and Sri Lanka wasn’t significant.”

Pakistan stopped sharing air quality data in 2013 after internal politics dealt a blow to its own data collection. Environmental matters ceased to be a federal responsibility and were devolved to the provinces following an unrelated constitutional amendment.

“The capacity was diluted and the monitoring mechanism was affected,” said Tariq.

Alam said that because Pakistan’s federal and provincial governments have to cooperate, “It may take 15-20 years to come up with a basic vision statement that everyone agrees on, something longer than a political cycle, so that it can stand the test of time.”

Meanwhile, there may be other international frameworks that can be built on. Alam cited the ASEAN Agreement on Transboundary Haze Pollution, signed in 2002 and ratified by all signatories by 2014, as an example of how to get antagonistic neighbours to the table.

“Indonesian crop burning severely affected Singapore. In the ASEAN agreement, Indonesia became the 10th country to enter the agreement for monitoring and health studies. That is an enabling mechanism.”

Alam favours building cross-border trust by installing air quality monitors in Afghanistan and sharing the results with universities. He said, “Cooperation and trust may lead to emission reductions, improving fuel quality along the Grand Trunk road, which runs from Afghanistan to Pakistan to Kolkata” in India.

A toxic political atmosphere can heighten sensitivities around data sharing. “Determining the emissions produced by any country and its role in global warming is a sensitive matter, which countries may not wish to share,” Tariq pointed out, citing how past research has shown coal-fired power plants in India contributed to smog in Pakistan.

Hostility within Pakistan over Westward flowing dirty air during the monsoon is a problem, added Alam. In such situations, the solution is to look inwards, Tariq said, citing Pakistan’s first electric vehicle policy and an initiative to clean up the brick kiln sector as “successful examples.”

Abandon or revive

Bidya Banmali Pradhan worked on the implementation of the Male Declaration and wants it revived. She heads the Air Pollution Solutions Programme at the International Centre for Integrated Mountain Development, an intergovernmental institution with eight Himalayan member states, including China. She said it is easier to revive an existing ministerial-level agreement than invent a new one.

“[International Centre for Integrated Mountain Development] was assisting the Ministry of Environment of Nepal to implement it. It had a robust system, [but] somehow the Male

Declaration could not be implemented as it was envisioned. Air doesn't respect boundaries and we must revive that agreement. We could look at the drawbacks of this one and try to improve it," said Pradhan.

There are also other, more modest ways to grow regional cooperation and data sharing outside international treaty structures, through sub-national bodies such as cities and provinces, as well as academic institutions.

The International Centre for Integrated Mountain Development is working to create an air pollution dashboard providing the public with data for the Hindu Kush Himalayas and South Asian countries, and was part of setting up the Federation of Asian Brick Kiln Association, which has Pakistan, India, Bangladesh and Nepal on board.

Chaturvedi also advocated municipal and civil society links, teaming up similar cities like the coastal cities of Mumbai, Chennai or Karachi with Sri Lankan cities "to see how they can fight this. This means scientists, pollution boards, environmental protection agencies and civil society – each has a role."

Learning from lockdown

Talking during the Covid-19-forced lockdown, Abdus Salam, a chemist at the University of Dhaka, said, "We are learning a lot looking at which industries and activities are closed right now, and finding out which the bigger pollutants are."

As a steering committee member of the International Global Atmospheric Chemistry's networking group for Monsoon Asia and Oceania, Salam has seen the benefits of collaboration, sharing data through scientific meetings and running a training programme for young researchers to involve them in air quality research.

Activists and analysts also take heart from the lockdown itself, as it has shown that lifestyle changes are possible and raise questions about how to make them economically sustainable. "This has provided an opportunity to think differently," said Pradhan.

Like many, she hoped it will prompt sustained changes in work and travel, investment in cleaner fuels for transport and cooking, changes to supply chains, systems to evaluate home-working and renewed South-South cooperation – she is a firm believer in pressing for coordinated governmental action – to learn and share good practices.

India ranks 168th on Environmental Performance Index

Date:-9-June-2020, Source: nationalheraldindia.com



India has ranked 168th out of 180 countries in the 2020 Environmental Performance Index (EPI), according to researchers at Yale and Columbia universities, who say India's decarbonization agenda needs to accelerate, and the country faces a number of serious environmental health risks, including poor air quality.

In the 2020 EPI - a biennial scorecard of national results on a range of sustainability issues - Denmark has ranked first in the world, followed by Luxembourg, Switzerland, the United Kingdom, France, Austria, Finland, Sweden, Norway and Germany in the top 10 countries. While Japan has ranked 12th, the United States of America ranks 24th, and China stands at 120th.

Now in its 22nd year, the EPI report has become the premier metrics framework for global environmental policy analysis, ranking 180 countries on 32 performance indicators across 11 issue categories covering environmental health and ecosystem vitality. The 2020 EPI features new metrics that gauge waste management, carbon dioxide emissions from land cover change, and emissions of fluorinated gases - all important drivers of climate change. The findings were released in June 2020.

According to the researchers, high-scoring countries generally exhibit long-standing commitments and carefully constructed programs to protect public health, conserve natural resources, and reduce greenhouse gas (GHG) emissions.

India comes in near the bottom of the global rankings at 168th place worldwide, and only Afghanistan (178th place) ranks below India in Southern Asia. Leading the region is Bhutan (107th), with relatively high scores in biodiversity & habitat protection. Sri Lanka (109th) and Maldives (127th) round out the top three countries in Southern Asia, followed by Pakistan (142nd), Nepal (145th), and Bangladesh (162nd).

The researchers say that India struggles to perform well on several of the 2020 EPI's environmental issue categories. For air quality, India and Pakistan both rank at the very bottom of the 2020 EPI, at 179th and 180th places, respectively. By comparison, low air quality also continues to plague China, although its recent pollution controls and other environmental

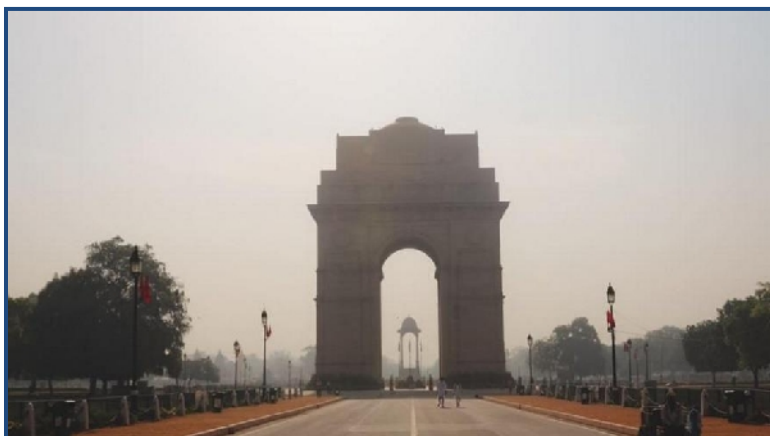
investments have helped it climb to 120th place in the EPI, 48 places ahead of India's 168th overall ranking. On biodiversity and habitat, India places 148th in the world, failing to maximize the conservation potential of its protected areas, especially in marine ecosystems. Perhaps most critically, India places 106th in the world on climate change mitigation.

"As one of the world's most significant emitters of greenhouse gases, India should be applauded for recent gains in renewable energy investments. However, the data show India is not on track to decarbonize quickly enough to avoid the worst impacts of climate change. Low EPI scores for India suggest a need for national sustainability efforts on a number of fronts, including air and water pollution, biodiversity protection, and the transition to a clean energy future. EPI rankings have long highlighted the environmental challenges that India faces. India's 168th ranking in the 2020 EPI reflects our improved knowledge about the current state of the world. Ten years ago, these same metrics would have given India a rank of 163rd in the world. The EPI finds essentially no overall improvement in India's environmental performance over the past decade, though there are gains and losses on individual issues," they said in a statement. The 2020 EPI reveals that global progress on climate change has been halting. Despite its high regional ranking in the 2020 EPI, Sri Lanka's climate change score dropped by 12.5 out of 100 over the past decade, due to heavy reliance on fossil fuels, and India's score dropped by 2.9. China, by contrast, improved its climate change score in the last ten years by 24.5.

Meeting the goals set out in the 2015 Paris Climate Change Agreement requires sustained cuts in emissions of all greenhouse gases, and the 2020 EPI finds that no country is decarbonizing quickly enough to meet these climate change goals. Some of India's neighbours do excel on individual greenhouse gas reductions, most notably Sri Lanka on methane and Pakistan on fluorinated gases, they noted.

Cleaner, greener: Can architects help maintain natural correction?

Date:-10-June-2020, Source: downtoearth.org.in



Air pollution kills an estimated seven million people worldwide every year, according to the World Health Organisation. It also says that 9 out of 10 people breathe air containing high levels of pollutants.

Getting to visit Delhi amid the novel coronavirus disease (COVID-

19) lockdown and breathing fresh, breezy air reminded me how lackadaisical we were in realising that the air we were breathing was unhealthy for us. My mind was flooded with excuses we keep telling ourselves for not having a better environment.

As architects, we consider ourselves to be the facilitators of a sustainable future. But are we creating one?

Many communities underwent a revival of sorts during the lockdown, creating a possibility that probably didn't exist pre-COVID-19. What can we do, as architects, to make use of this revival? Can we create new 'normals' in our daily practice which have little or no negative impact on the air quality? Can we help air quality.

A public health emergency was declared in the national capital New Delhi for having an air quality index (AQI) of more than 900 — way over the 500-level that qualifies as 'severe-plus' — in November, 2019. The city, home to many historical and architectural marvels, was hidden behind a screen of smog.

According to the Delhi Pollution Control Committee officials, 30 per cent of air pollution is caused due to dust emanating from construction sites.

A developing country like ours that has resorted to urbanisation and industrialisation to eradicate other problems such as poverty and hunger, issues like air and water pollution are often ignored or not given the attention it deserves. Infrastructure is the backbone of any growing economy, which implies that a complete ban on construction is not feasible.

So the need of the hour is to identify the various sources of pollution due to the construction industry, for which eco-friendly alternatives can be implemented / suggested. These sources are identified as:

Construction dust at the construction site. The process of mixing concrete alone, for example, is estimated to contribute 10 per cent of the coarse pollutants to Delhi's air, according to a study of Indian Institute of Technology Kanpur.

Pollution due to volatile organic compounds from indoor building materials such as paint, polish, wall finishes, synthetic flooring materials

Mobility of construction material from the sources to the site and the waste consisting of building materials that is not treated or segregated properly

Excess use of heating ventilation and air conditioning systems due to lack of passive cooling and heating techniques

Low provision of air circulation inside a building due to space crunch or poor design skills

The nationwide lockdown that lasted for more than two months renewed hopes for better air. The AQI level was noted to be as low as 87 in some areas of Delhi (as recorded on April 1, 2020).

Architects and other people associated with the construction industry have a crucial role to play. From conceptualisation to completion, there are eco-friendly alternatives that can be chosen to reduce the impact of our work on air quality.

We need to strictly ensure that guidelines laid down by the various national government bodies like Central Pollution Control Board, NCT and Model Building bye-laws for construction to minimise its impact on air quality are rigorously followed. They include:

Construction material transported on vehicles from the source to the site should be covered properly

Keeping the ground at construction sites wet to let the dust settle and inhibit it from spreading

Setting tarpaulin around construction sites and covering mounds of sand with dust barrier sheets.

Avoiding on site grinding and cutting and casting work, promoting pre-fabricated buildings, increasing the use of vernacular materials are some other things that can be followed.

Using materials having negligible impact on air pollution

A person spends 87 per cent of his / her time indoors. The material choice of the interior of the building, hence, should be given utmost importance, not only by the basis of its appearance and aesthetics but also by the impact it has on the indoor air quality.

Many complain about Sick Building Syndrome, caused by the use of materials that contain pollutants that have high content of volatile organic compounds (VOC) such as paint and polish. But, there are some alternative products which we can use that can have less impact on air quality:

Wall finishes

Paints, laminates, wallpaper and plaster can be a source of volatile organic compounds inside a building. It would be recommended to use the building frame materials which if left raw and exposed, are sustainable and aesthetically appealing. Other alternatives for finishes are paint.

There are three categories of paints available in the market depending on their content of VOC which would be recommended:

Zero VOC: Less than 5 gram per litre

Low VOC: 5-200 gram per litre

Natural paints: Made up of natural components like tree resins, water, essential oils etc.

Flooring

We should try to avoid using synthetic flooring materials like laminates, vinyl, stone plastic composite and marmoleum as most of them are petroleum-based synthetic products made up of polyvinyl chloride resin along with additives such as plasticisers, stabilisers, pigments and fillers that contain toxic substances.

These also need adhesives and glues to be produced and fixed with the floor slab. But adhesives contain formaldehyde that has adverse effects on human health. Tiles, natural stones like marble, kota stones and slates, concrete flooring, carpeted flooring are among some options that can be explored.

We can also eliminate the sources of poor air quality in the building. One way of doing this is by moulding. A Mould is a fungus which can grow on building materials when exposed to nutrients, sufficient amounts of water and adequate temperature that can have toxic impact on the air quality.

It is the most common way for us to know that the building has some internal damage in the structure. We cannot change the nutrient or temperature of the building, but we can ensure that the moisture content is negligible by doing by providing enough ventilation so the humidity level is low.

Some other ways are:

Plumbing system: Taking critical care of the plumbing system so that there is no internal or external water leakage. All the fixtures and joints to be thoroughly checked so that no scope of failure is left.

Avoiding the generation of cracks by providing a building structure which is strong enough to withstand the building loads and weather conditions so that infiltration of water through these cracks is eliminated.

Design the building according to the estimated rainfall in the area, which removes any failure due to overflow of water

Volatile organic compound content in a material reduces with time, hence after the completion of the project, the clients should be advised to move it into a building after so that its effect can be reduced.

We can also introduce new products / techniques that help in reducing the AQI level. One of them is use of titanium dioxide, which is a smog cleaning material. Hempcrete, a replacement of concrete using hemp, lime and water, can also be used. Hemp is an organically fast produced material and is also a high carbon absorbing plant.

Producing a ton of cement gives off approximately 850 kilogram of carbon dioxide, hence using lime instead of cement will reduce around 80 per cent CO₂ compared to the conventional method.

We should increase outdoor air supply, which can be done via

Mechanical means: HVAC systems

Natural means by creating more openings like doors, windows, perforated walls. We can use a dust-proof screen.

Passive techniques such as air tunnels, courtyards, light shafts etc.

One should regularly clean the house so that dust on the floor and walls does not re-circulate and act as an active source of pollution.

Wind, rain, lockdown keep pollution levels in check

Date:-10-June-2020, Source: hindustantimes.com

Strong winds, frequent showers and vehicular and industrial restrictions during the two-and-a-half month-long lockdown have helped keep pollution levels in the national Capital in check.

On Wednesday, the average Air Quality Index reading of the city was recorded at 152, in the 'moderate' range. This, however, dipped further to reach 128 in lower end of the 'moderate' range after some parts of the city witnessed thunderstorm and heavy rain, with wind speed touching 40-50kmph. Light rainfall was also recorded in parts of the city on June 3, June 4, June 5 and June 7, which also helped keep pollution under control.

On Wednesday, the maximum temperature at the Safdarjung observatory, considered the official recording of the city, was 41.5 degrees Celsius. At the Palam observatory, the maximum temperature recorded during the day was 43.6 degrees Celsius. However, after the evening's rain, the temperature at Safdarjung fell by four degrees and at Palam, the temperature fell by

seven degrees, according to IMD. The temperature is expected to fall further by 2-3 degrees in the next few days, the IMD forecast said.

“Cyclonic circulation over north Rajasthan and a trough from north Pakistan to the low-pressure area over the Bay of Bengal was observed on Wednesday, which resulted in the thunderstorm and rain in the Delhi-NCR region. This not only helped bring the temperature under control, but it also helped blow away pollution particles,” Kuldeep Srivastava, head of India Meteorological Department’s regional weather forecasting centre, said.

Recordings maintained by the Central Pollution Control Board (CPCB) show that since March 25, when a nationwide lockdown was announced, the AQI readings of Delhi have largely remained in the ‘satisfactory’ category. Even though the pollution levels in the city are generally lower in summers when compared to winters, this year’s levels were much lower compared to previous years.

Data from 2015 to 2019 shows that in the period between March and June, the pollution levels usually remain in the latter end of the ‘moderate’ or in the middle range of the ‘poor’ category.

Scientists at IMD said that along with the restrictions on human activities since March 25, the national Capital has also benefitted from the increased number of western disturbances (WDs) that have crossed the city this year. Even if the WDs did not bring rain on several occasions, they did result in increased wind speed that caused pollution particles to dissipate. From June 1, when the lockdown restrictions were lifted, the AQI levels have remained in the ‘moderate’ zone.

Data shows that six WDs passed Delhi in March and six in April, which is unlikely for these months. This trend, however, began in January, when nine WDs passed Delhi. Seven WDs passed the city in February. Usually, on an average, the months of January to June see four WDs each.

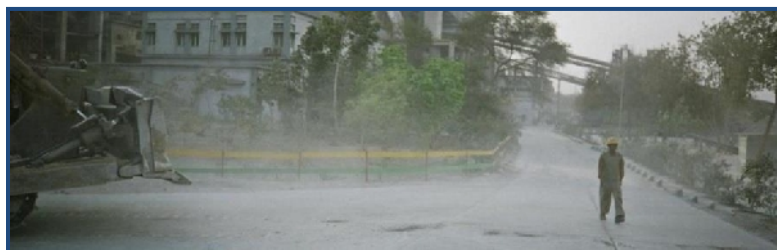
Pawan Gupta, a senior scientist (earth sciences) at the National Aeronautics and Space Administration’s (NASA) Universities Space Research Association (USRA), agreed that there has been a visible dip in the pollution levels all over northern India, including Delhi. Gupta is heading a study at NASA to examine the effect of the lockdown on pollution levels in India by studying the aerosol optical depth (AOD) levels, recorded through satellite images.

AOD is an indirect proxy for air quality that shows how solid and liquid particles in polluted air block sunlight. It represents particle loading in the entire atmosphere from the surface to top-of-the-atmosphere as opposed to PM2.5 levels, which are measured at the surface.

“There are a lot of factors behind the reduction in pollution levels, along with restrictions in human activities such as vehicular movement and industrial operations and fires. The weather has also played an important role,” Gupta said.

No mention of regional coordination to curb air pollution in 102 city plans, finds study

Date:-11-June-2020, Source: downtoearth.org.in



None of the 102 city-specific clean air plans in India proposed a regional coordination mechanism across state boundaries to curb air pollution, a new study published by Council on Energy,

Environment and Water (CEEW) on June 10, 2020 stated.

Pollution sources from outside a city's boundaries account for at least 30 per cent of the pollutants there, according to another study. Yet, there are no clear guidelines on establishing a mechanism to address the issue.

Outside sources can contribute about 15-50 per cent pollutants to a city, according to a research. Delhi, for example, experiences severe pollution due to stubble burning in the neighbouring states.

The city plans were approved under the National Clean Air Programme (NCAP). NCAP is a five-year action plan by the Union government with 2017 as the base year. It was started in 2019 and aims to reduce concentration of particulate matter 2.5 and 10 by 20-30 per cent by 2024.

Delhi's action plan lists three action points for mitigating pollution from regional sources. But there is a catch.

“There is neither a clear delineation of responsibilities nor any guidelines for institutionalising coordination between state governments,” the study, *How Robust are Urban India's Clean Air Plans? An Assessment of 102 cities*, said.

It is an evaluation of the approved city action plans based on four components — legislative framework, accountability, source information and cost of measures.

Clean air plans for only 25 cities contain collated information about emission sources, the absence of which has resulted in plans being replicated. The review indicated that nine states

with multiple non-attainment cities have used the same set of action points and timelines across all cities.

Cities that consistently show poorer air quality than the National Ambient Air Quality Standards (NAAQS) are termed non-attainment cities.

“Uttar Pradesh has 15 non-attainment cities, the second highest after Maharashtra. With the exception of Anpara, all have identical plans with the same 56 actions for transport, road dust, vehicles, waste burning, industries, and construction and demolition. They are all without any interim targets. Similarly, Rajasthan has five non-attainment cities and identical plans for all five,” it said.

The study also underlined that the residential sector, despite its sizeable contribution to air pollution, has not received much attention. For instance, studies have identified that addressing residential emissions, such as biomass for cooking will help with achieving the NAAQS.

Even after the launch of Pradhan Mantri Ujjwala Yojana (PMUY) in 2016, the number of households across Indian states that use Liquefied Petroleum Gas (LPG) as a primary fuel remains low.

“Most action plans have targeted LPG coverage while neglecting the wider adoption of LPG as a primary fuel,” the report said.

Moreover, 90 per cent of the city specific plans have no budget outlines. Only plans for nine cities have listed budgetary requirements for executing all action points.

“The cost of execution of the plans ranges from Rs 89 crore in Dimapur, across these nine cities, the least densely populated city, to Rs 16,780 crore in Mumbai, the most densely populated city,” the study noted.

It also reiterated the problematic absence of a legal mandate for implementation and reviewing of the NCAP. Apart from Delhi’s clean air plan, other city-specific clean air plans do not have a legal mandate.

“Unlike in the United States and the European Union, where states and member nations are legally mandated to periodically update clean air plans for regions that violate air pollution standards, city clean air action plans in India were drafted in response to an order by the National Green Tribunal. Therefore, there is cause for concern that the preparation of plans might remain a one-time exercise,” it said.

Multiplicity of agencies was another problem with the absence of a single body or agency that could be held responsible for the implementation of each city’s clean air plan.

Over 40 per cent of the action points listed fall under the purview of multiple agencies. Pollution control boards are in charge of only 24 per cent of the mitigation activities listed in the plans, while 37 per cent come under the ambit of municipal corporations and urban local bodies, which are infamous for underdeveloped finances.

Goodbye, pollution! In Kolkata, 15 lakh people hit roads on cycles since June 1

Date:-12-June-2020, Source: timesnownews.com



It's good news for cycle manufacturers in Kolkata!

Clean air, healthy lifestyle and social distancing - keeping all the factors in mind, lakhs of people in Kolkata have been going to work on cycle amid the ongoing coronavirus crisis. COVID-19 might have brought the world to a standstill, but the virus has also forced the people to take their health seriously. Throughout the lockdown, images of a clean environment also did the rounds

on social media. And one way through which people of Kolkata

have decided to solve both the purposes is by giving up electric vehicles and cycling their way to work! At a time when the automobile industry is undergoing one of its worst phases ever, shopkeepers in Kolkata have witnessed a huge spike in the sales of cycles.

In fact, by cycling to offices, people are also maintaining social distancing by avoiding traveling in jam-packed public buses and other modes of public transport. As reported by The Times of India, around 15 lakh people have hit the road on cycles since June 1.

The report added that the cycle manufacturers are working round the clock, given the new interest among the public in Kolkata. The Environment crusaders couldn't have asked for anything better as the pollution level, in all likelihood, is expected to go down while the people will also get clean air to inhale. "A silent revolution is taking place. Pandemic has pushed us to explore the age-old bicycles as a prominent mode of transport for office-goers. Our CM is the biggest champion of bicycles. She has changed the lives of lakhs of girls in Bengal by giving cycles to them. Her decision of doing away with the ban on cycling on roads will change the way people commute to work," Ajay Mittal of NGO Kolkata Clean Air, was quoted as saying by TOI.

Irrespective of their earning capacities, even professionals are opting to go to their offices on a cycle keeping several factors in mind.

“The bicycle offered me a rare sense of freedom of movement. I used to travel by AC buses from my Parnasree home to my office in Dalhousie and use my car for weekend trips or visiting friends and families. Parking was a major headache, for which I had stopped driving to work. When lockdown restrictions were eased, I decided to cycle to work. My family was surprised, but I bought a fitness bike costing Rs 18,000,” said Siddhartha Mukherjee, a chartered accountant. Let’s hope, at a time when the pollution levels are rising across the country, Kolkata can set the right example for many!

Can India chart a low-carbon future? The world might depend on it

Date:-14-June-2020, Source: newsindiatimes.com



Vehicles move on a busy road in Ranchi, India.

RANCHI, India – Dusk was falling as Sadanand Jha drove his electric three-wheeler through the streets of this north Indian city, passing vegetable markets, tea stalls and tiny storefronts on a cool evening before the pandemic.

He wove in and out of rush-hour traffic, darting to the curb to pick up passengers – some of them cranky and all of them in a hurry. The night air was alive with the sound of thudding engines, but Jha’s battery-powered royal blue rickshaw zipped along with only a whirring noise.

Until recently, Jha, 35, had been one of the vendors he now passed by in a blur. But then he spotted a new type of three-wheeler on the streets of Ranchi, the capital of one of India’s poorest states. The inexpensive, brightly colored vehicles spelled opportunity, a chance to earn more money and be his own boss.

With a bank loan and small down payment, Jha joined the ranks of an unlikely army of new-energy entrepreneurs. About 1.75 million electric rickshaws ply India’s roads – more than the

total number of electric cars sold in the United States. The scrappy, slightly anarchic industry is a homegrown success story in India's fight against climate change and debilitating air pollution.

It's a small leap forward in a much longer race. As the world confronts a changing climate, India is a crucial unknown, and its decisions could either doom efforts to curb greenhouse gas emissions – or jump-start them.

Daily emissions worldwide decreased by as much as 17% during the coronavirus pandemic, scientists say, as economies staggered under the impact of lockdowns and stay-at-home orders. But experts believe that such effects on emissions are likely to be short-lived.

India's lockdown – one of the world's most stringent – crushed economic activity in this nation of more than 1.3 billion people. By one estimate, India's carbon dioxide emissions fell by 30% in April compared with the same month in 2019, according to analysts at the website Carbon Brief. Pollution also fell dramatically, bringing blue skies to New Delhi, notorious for its bad air.

The shutdown is now easing. While the restrictions carried a steep human and economic cost, they also suggested the possibility of a different future. India is expected to become the most-populous country in the world by 2027. It is also a nation that intends to make major leaps in its development in the coming decades. Achieving such leaps will require considerably more energy than India currently consumes.

How India generates that energy will have global repercussions. India's challenge is to become a more prosperous country “without putting out enough carbon to break the world,” said Ajay Mathur, a former Indian climate negotiator and a member of Indian Prime Minister Narendra Modi's council on climate change.

India is now the planet's third-largest emitter of carbon dioxide, although it is still well behind China, the world's largest emitter, and the United States. Measured per person, however, India's emissions are ranked 140th in the world (the United States is 14th and China is 48th).

But India's emissions are set to rise in the years ahead as economic growth propels demand for energy. The latest estimates indicate that emissions in India grew 1.8% in 2019. That's a much slower pace than in 2018, although much of the deceleration was due to a sluggish economy. Coal will also remain a major part of India's power sector in the coming decades, and the country is still building coal-fired plants.

India will be “a critically important part of the emerging trend in global emissions,” said Andrew Light, a senior climate negotiator for the United States under the Obama administration. Not only is India one of the world's largest and fastest-growing emitters, he said, but it also faces

acute vulnerabilities from a changing climate, including rising sea levels, melting glaciers and extreme weather events.

So far, no country has managed to lift itself out of poverty without a concomitant surge in emissions. China's spectacular economic rise, for example, led to an explosive jump in its carbon emissions.

"When people think of India, they have the shadow of China in their minds," said Navroz Dubash, an expert on climate change at the Center for Policy Research in New Delhi. "People think, 'Oh my goodness, India might do the same thing,' " he said. "If you think [India] will be a China repeat, it's a fearful story. But it's actually a huge opportunity."

Indeed, India is the only major country in the world where actions to combat emissions are compatible with the goal of limiting global warming to an average of 2 degrees Celsius (3.6 degrees Fahrenheit), according to Climate Action Tracker, a joint initiative by two climate research organizations based in Germany. By contrast, the group says that China's actions are "highly insufficient" with respect to that goal, while those of the United States are worse – it deems them "critically insufficient."

In the coming years, India will need policies that not only lower pollution and carbon emissions but also create jobs for its growing workforce. In that regard, the spread of electric rickshaws is instructive. While India has struggled to increase the number of electric cars on the roads, battery-powered rickshaws have flourished with little help from the government and without any kind of charging infrastructure.

Unlike in the United States, where the transportation sector is the largest single contributor to emissions, in India the sector accounts for about a tenth of the total.

But its contribution is growing quickly as vehicle ownership expands. A government target of having 30% of vehicles running on battery power by 2030 appears out of reach, because such vehicles currently account for only a small fraction of new sales.

Meanwhile, Indian officials say they will meet two major pledges under the Paris agreement on climate change ahead of schedule. India has promised to ensure that 40% of its electricity-generation capacity comes from non-fossil fuel sources by 2030. It will also reduce its "emissions intensity" – a ratio of total emissions to gross domestic product – by at least one-third compared with 2005 levels. India has increased its solar-energy capacity more than twelvefold since 2014 and launched initiatives to save electricity.

That has put the two Paris pledges within reach. "We are now at the stage where much, much to our surprise, we may reach both of these goals well before 2030, possibly in early 2020s,"

Mathur said. “The question can also be asked: Should India’s targets have been more? But in 2015, nobody would have committed to that.”

In 2017, President Donald Trump announced that he was withdrawing the United States from the Paris climate agreement, a move that nullified the country’s commitment to cut emissions. China, meanwhile, made two major pledges under the accord, vowing to reduce its emissions intensity by at least 60% by 2030 and to generate 20% of its power from non-fossil fuels.

Some experts say that India can and must do more. “We should increase our ambition,” said Chandra Bhushan, a noted environmentalist. If the economics are right, he adds, India even has a chance to jump ahead to low-carbon, energy-efficient technologies.

“The rich would like to remain as they are,” Bhushan said. “I very strongly believe the poor will leapfrog the technology because it is affordable.”

Dahru Mahli grew up in a village with no road in Lohardaga, a district in north India that is one of the country’s least developed areas. His father was a farm laborer. As a teenager, he migrated to Ranchi, a city about 50 miles away that is now home to 1 million people. For 21 years, he drove a bicycle rickshaw, pedaling customers around town before falling exhausted into bed each evening. He earned about \$2.50 a day.

Then, a couple of years ago, he saw an electric rickshaw zipping past on the city’s streets. Mahli decided to rent one to see if what he heard was true: This was a way to make more money. Not only did he increase his take-home pay to about \$7 a day but the work was far less strenuous than his old job. A little over a year ago, he took out a bank loan to buy a new electric rickshaw for his eldest son for a little more than \$2,000.

Auto rickshaws – also sometimes called tuk-tuks – are a cheap and vital form of passenger transport in India, where car-ownership rates are low and public transportation remains limited. There are more than 3 million fuel-powered auto rickshaws in India, according to the latest available figures. They have three wheels, carry three to six passengers – more if you’re willing to squeeze – and run on diesel fuel, gasoline or compressed natural gas.

Smaller vehicles far outnumber cars in India for reasons of affordability. According to government figures, there are about 187 million scooters and motorcycles in the country compared with about 28 million cars and taxis. The government now believes the best prospects for electric vehicle sales are in two-wheelers, three-wheeled rickshaws and buses – not cars.

The rise of electric rickshaws was largely unplanned. At first, the size and speed of the vehicles – the fastest they go is about 20 miles an hour – meant that they escaped regulation under

existing motor-vehicle laws. “No permit, no license, no documentation required,” recalled Ashish Keshri, an electric rickshaw dealer in Ranchi, the capital of the state of Jharkhand.

That quickly changed as the number of electric rickshaws, or “e-rickshaws” as they are known here, multiplied. In 2017, city officials found that there were at least 1,300 such vehicles and issued them passes to ply certain routes. But their number continued to multiply. They “grew like anything,” said Saurabh Verma, Ranchi’s former transport manager. There are now about 7,000 e-rickshaws registered with the authorities.

Teslas they are not: Powered by four large lead-acid batteries stored just under the passenger seats, e-rickshaws often have plastic windshields (or none at all). They come in a bewildering array of colors and brands – Indian Buggy, Queen, Terra Motors, Pushpak, Yatri, Etron, Kuku, Saarthi. They’re airier and easier to board than their fuel-powered equivalents, although less sturdy.

Ranchi may be the only city in the world where the municipal authorities found themselves grappling with a surfeit of electric vehicles. Such vehicles are “very good” for the environment, said Vijay Vijayvergiya, the city’s deputy mayor. But they are also “undisciplined,” he said, which created “a very vast problem for traffic.”

The battery-powered rickshaws thronged the city’s main thoroughfare, picking up passengers at will and snarling the already considerable congestion on an avenue named after Mohandas Gandhi, India’s revered independence leader.

There were other issues, too: While most drivers charged the vehicles’ large lead-acid batteries at home, some delivered them to garages that steal electricity, said Verma.

The rapid spread of e-rickshaws raised hopes that India could accelerate a broader shift toward electric vehicles. The government even mulled a move to require all two-wheel and three-wheel vehicles to go fully electric by 2026.

But it stepped away from such hard deadlines as India’s economic growth slowed well before the pandemic hit. “It will be a natural process,” Nitin Gadkari, the minister for road transport and highways, said in an interview last year. Having a “time limit is not the concept.”

For years, India viewed global efforts to rein in emissions mainly as a “diplomatic problem” and a “source of pressure” to be resisted, said Dubash, of the Center for Policy Research. After all, developed countries had created the climate crisis, so it was their responsibility to fix it. Before the signing of the Paris climate accord in 2015, India’s environment minister repeatedly said that the developed world should “vacate carbon space” because “countries like India are coming.”

Such views are changing – and some say the tone is being set at the top. Like Trump, Modi is a right-leaning politician who espouses a strident variety of nationalism. But unlike the American leader, he does not deny that human activity is causing climate change. Modi is a “climate champion,” said Light, the former U.S. negotiator. The Indian prime minister is “personally committed in a way that we have not seen before on this particular issue in India.”

For the Indian government, the fight against climate change aligns with other objectives, including combating devastating air pollution and promoting energy independence. “We are spending too much of our budget on importing crude oil,” said Gadkari, the transport minister. “The principle of self-reliance is also equally important.”

In 2018, India installed almost as much new solar generating capacity as the United States did. Speaking at the United Nations in September, Modi said India would more than double its target for installed renewable-energy capacity to 450 gigawatts, although he did not commit to a time frame. “If we get to 450 gigawatts by 2030, it changes India’s infrastructure,” said Bhushan, the environmental activist. “That will be the right target.”

Electric rickshaws also have a role to play in India’s battle against emissions – provided they are charged by cleaner forms of energy. The vehicles are “a local solution to a local problem,” said Ambuj Sagar, an expert on climate change at the Indian Institute of Technology in Delhi. They’re going after “a small part of transport emissions but one of the worst niches,” because the shorter, last-mile trips they make are likely to be more polluting.

Among the electric rickshaw drivers on the streets of Ranchi, there is very little talk about the environmental impact of their work. In a state where the per-capita income is less than \$800 a year, e-rickshaws represented a scarce commodity: a way for people with comparatively little formal education to increase their earning potential.

Until recently, the drivers of the electric vehicles sold vegetables for a living, worked as security guards or pedaled bicycle rickshaws. Jha sold car parts to small vendors for more than a decade and earned about \$170 a month.

A friend tipped him off to the opportunity presented by electric rickshaws. Jha started by renting one – and doubled his income. “It’s good to be your own boss,” he said, as he piloted his battered rickshaw on a loop around downtown Ranchi on a sunny afternoon.

While Jha has frustrations – the vehicle can overheat and spark if overloaded – his biggest complaint has been with the city authorities. To alleviate traffic jams, in September they banned e-rickshaws from Ranchi’s main thoroughfare, depriving drivers of a major source of income (they staged a protest, to no avail). Dealers, too, complained bitterly about the impact of the city’s decision on their businesses.

A far larger disruption lay ahead. In late March, when India's lockdown began, all commercial transportation was banned on Ranchi's streets. Jha's rickshaw sat unused inside the gate of the small, unfinished building where he lives, its batteries removed to prevent damage. The restrictions on drivers were finally lifted earlier this week, but Jha fears business won't be the same again.

He still hopes for a return to something like normal times. He remembers his daily drive home along narrow and bumpy roads, passing people leaving work and doing last-minute vegetable shopping. As he pulled into his gate, his elder son, 10, would dangle a black extension cord down from the second floor. Jha would plug in a boxy charger connected to two wires under the seat of his rickshaw, then flip a switch. Upstairs, there was a cup of tea and dinner, and the next morning, another day of driving.

Climate change: Green building practices for a sustainable future

Date:-16-June-2020, Source: [financialexpress.com](https://www.financialexpress.com)



Over the past several months of lockdown, most of the world has been confined to a major source of emissions: our buildings

Our air quality, in particular, has significantly improved as transportation all but halts, reducing emissions and lessening our notorious pollution problem by unheard-of levels.

As India continues its COVID-19 pandemic lockdown – the largest in the world – it is coupled with an unexpected side effect: a dramatic decrease in pollution. Our air quality, in particular, has

significantly improved as transportation all but halts, reducing emissions and lessening our notorious pollution problem by unheard-of levels. As the government begins its plans to reopen, it begs the question: is there a way to continue on the progress made with the reduction in our environmental footprint even as we attempt a return to “business as usual”?

Over the past several months of lockdown, most of the world has been confined to a major source of emissions: our buildings. They account for more than 40 percent of global energy use and one third of global greenhouse gas emissions, according to the UNEP Buildings and Climate Change Report. When closely associated factors like infrastructure and transportation are included, this number continues to rise. And while transportation will undoubtedly begin to

increase our carbon emissions once lockdown is lifted, the infrastructure we build and invest in can make all the difference for our future.

Through green building design and construction, we have the opportunity to reduce our impact on the climate and improve the resilience of our communities against climate risk. And India is already a leader at this as the fourth largest market in the world for green building, with significant increases expected in the next three years.

Buildings experience life cycles, which take them through design, construction, maintenance and deconstruction. During these cycles, the building sector is responsible for an enormous amount of global energy use, resource consumption, waste and greenhouse gas emissions. And those cycles need to be improved upon to ensure the health of the planet – and the health of those buildings' occupants. That's where green building practices come in.

Green buildings do a number of important tasks, fundamentally shifting the structure into a more efficient, healthy and sustainable space, that does less harm to the planet while improving the wellbeing of its occupants through five key pillars:

Energy efficiency is prioritized through analytics-based energy centralization and efficient appliances, reducing utility costs.

Water efficiency technologies are applied at the source, reducing the strain on groundwater levels. Rainwater harvesting and water recycling strategies can further provide water independence for buildings, an invaluable resource for areas like Chennai that experience water insecurity.

Waste reduction is put into effect through multi-pronged efforts, including recycling, composting, and using more durable products, to ensure that less waste is sent to landfills.

Carbon emission reduction is enacted throughout the building's lifecycle, from the use of lower impact construction materials to reducing the carbon costs of daily operations through efficient heating and cooling systems.

Improved human experience through higher air quality, natural lighting and a focus on healthy spaces provides a higher quality of life for occupants.

Particularly during this global pandemic, the world is seeking confidence in the spaces we are confined to. Through green building practices, we have the opportunity to reinforce the health of these spaces for occupants, while simultaneously protecting India's natural resources and improving our own impact on the environment. As we move out of lockdown, India will have to re-envision the way society is run in ways we can't currently imagine. But we can look to the future equipped with the knowledge that this period of dramatically reduced emissions

benefitted both the planet and our health. And we know that there are ways to use this momentum. The buildings we create today will last for the next 50 to 100 years and influence the lives of everyone who occupies them. By continuing to adopt green construction, design and retrofitting, India is poised to become a global leader.

Half of Global Population Exposed to Rising Air Pollution

Date:-17-June-2020, Source: india.com



Air pollution

Despite global efforts to improve air quality, half of the world's population is exposed to increasing air pollution, and according to the WHO, more than four million deaths annually can be attributed to outdoor air pollution. Also Read - Air Pollution Can be a Major Risk Factor For Development of Multiple Sclerosis

in Urban Areas

Vast swathes of the world's population are experiencing increased air pollution, says the study conducted in association with the World Health Organisation (WHO). Also Read - Population of Birds-Butterflies Surge in India Amid COVID-19 Lockdown, Biologist Credits Lack of Noise And Air Pollution

Air pollution constitutes major, and in many areas increasing, threat to public health, according to the study published in the journal Climate and Atmospheric Science. Also Read - Thanks to Lockdown, Air Pollution at 20-year Low in India For This Time of Year, Says NASA

"While long-term policies to reduce air pollution have been effective in many regions, notably in Europe and the US, there are regions that have dangerously high levels of air pollution," said study researcher Gavin Shaddick from the University of Exeter in the UK.

In some regions air pollution was five times higher than WHO guidelines, and in some countries it was still increasing, Shaddick added.

Major sources of fine particulate matter air pollution includes inefficient use of energy by households, industry, agriculture and transport sectors, and coal-fired power plants. In some regions, sand and desert dust, waste burning and deforestation add to it.

Although air pollution affects high- and low-income countries alike, low- and middle-income countries experience the largest burden with the highest concentrations seen in central, eastern, southern and south-eastern Asia.

For the study, the research team examined global air quality trends between 2010 and 2016 against the backdrop of efforts to reduce air pollution, both through short- and long-term policies.

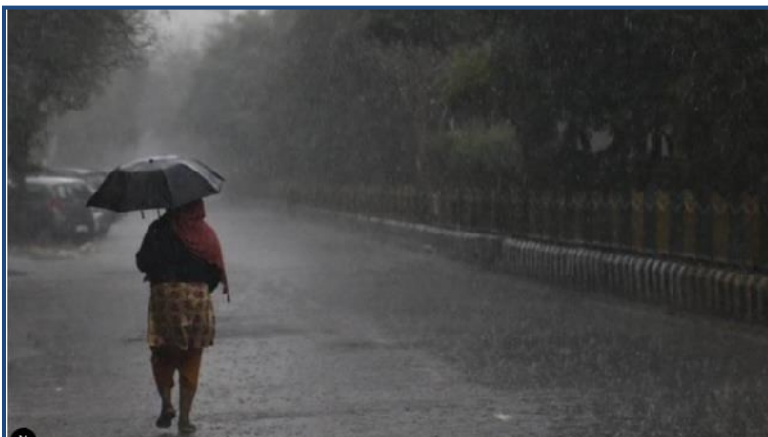
The team used ground monitoring data together with information from satellite retrievals of aerosol optical depth, chemical transport models and other sources to provide yearly air quality profiles for countries, regions and the world.

This methodology constitutes a major advance in the ability to track progress towards the air quality-related indicators of the United Nation's Sustainable Development Goals and to expand the evidence base of air pollution's impact on health.

"Although precise quantification of outcomes of specific policies is difficult, coupling the evidence for effective interventions with global, regional and local trends can provide essential information for the evidence base that is key in informing and monitoring future policies," the authors wrote.

During 'unlocking', rain helps keep pollution levels in check in some cities: Study

Date:-18-June-2020, Source: indianexpress.com



The Air Quality Index for PM 2.5 has continued to be in the 'good to satisfactory' category so far and the monsoon is expected to maintain these levels, he said.

A fortnight into the first phase of 'unlocking' the nationwide lockdown, scientists at the System of Air Quality Forecasting and Research (SAFAR) have noted the continuing trend of declining pollutant levels, mainly particulate matter (PM) 10 and PM 2.5.

"This period has been marked by several rainy days which has helped wash away particulate pollutants," said Dr Gufran Beig,

project director of SAFAR. However, he pointed out that there were signs of increase in levels of another pollutant, Nitrogen dioxide, which had declined considerably during the lockdown phase.

The highest increase in Nitrogen dioxide levels during 'unlock 1' was found in Mumbai, where it increased by almost 50 per cent. "For other cities, including Pune, the increase was marginal," said Dr Beig, adding that despite an increase, levels of the pollutant were well within permissible limits.

The Air Quality Index for PM 2.5 has continued to be in the 'good to satisfactory' category so far and the monsoon is expected to maintain these levels, he said.

Nitrogen dioxide (released during traffic emissions), PM 2.5 (atmospheric particulate matter that has a diameter of less than 2.5 micrometers) and PM 10 (atmospheric particulate matter with a diameter of less than 10 micrometers) are among some of the major pollutants which, when exposed to for a long period of time, can cause respiratory disorders.

SAFAR scientists, who monitored pollutant levels during the three lockdown periods in Pune and other major Indian cities, had compared it with levels recorded last year and found significant reduction.

Indians strongly support measures to limit air pollution: survey

Majority of Indians support stricter laws and enforcement to tackle air pollution following the Covid-19 crisis — which led to a drop in pollution levels due to the lockdown — according to findings of a public perception survey that was released by Clean Air Fund (CAF), in association with global market research firm YouGov.

The online survey sample was selected from countries including India, UK, Poland, Bulgaria and Nigeria. The poll, the first to pose these question citizens in several countries, highlighted that at least 71 per cent of people surveyed were concerned about air pollution as a public health issue, and 76 per cent as an environmental issue. In India, these numbers are higher, with 94 per cent respondents believing that air pollution affects their general health, while 86 per cent are concerned about it as a public health issue.

Apart from more clean air zones in cities and improved public transport services, the survey found huge support for re-purposing roads in cities to allow more space for walking and/or cycling. The findings are published in the report 'Breathing Space' of the Clean Air Fund – a philanthropic initiative to tackle air pollution around the world.

“As lockdowns are eased and economies restarted, people are clear that they do not want a return to toxic air. That would simply replace one health crisis with another,” said Jane Burston, executive director of the Clean Air Fund.

Greater Noida: Builders fined for not taking dust control measures

Date:-20-June-2020, Source: hindustantimes.com

Noida: The Uttar Pradesh Pollution Control Board (UPPCB) on Saturday slapped a fine of ₹5 lakh on a builder developing a group housing project in Greater Noida for not taking adequate anti-pollution measures during construction. This is the second time in the past two days that the UPPCB has slapped a fine on entities over irresponsible construction activities leading to air pollution.

On Thursday, another builder was imposed a penalty of ₹5 lakh over the same reason. Officials said Thursday’s fine was the first in the district after construction was allowed to restart from May 4, following weeks of lockdown to curb the spread of the coronavirus (Covid-19) disease.

“We had received a complaint through social media that construction activities in a Greater Noida sector were creating inconvenience and generating a lot of dust. Upon inspection, it was found construction was leading to dust. Construction materials like sand were also not covered. There were no dust controlling measures taken by the builder, that’s why an environmental compensation of ₹5 lakh was imposed,” said Archana Dwivedi, regional officer, UPPCB.

“An official letter has been sent to the city magistrate to collect the fine of ₹5 lakh each from both builders,” Dwivedi added.

As construction activities restarted in Gautam Budh Nagar, the district has been seeing a slight drop in air quality. The air quality index (AQI) during the national lockdown had come down to the ‘satisfactory’ category (AQI of 50 to 100). However, the current trend of air quality is under the ‘moderate’ category, which is an AQI of 100 to 200.

“The air quality in the region is a cause of concern again as it’s deteriorating slowly with construction activities resuming in the region. At some places in NCR, the air quality is back to the ‘poor’ category and the volume of both PM2.5 and PM10 is increasing. Also, during summers, dust from construction activities contributes to PM2.5 levels. It is highly advised to ensure that C&D (construction and demolition) and dust mitigation guidelines are adhered to,” said Shambhavi Shukla, programme officer (air quality), Centre for Science and Environment (CSE).

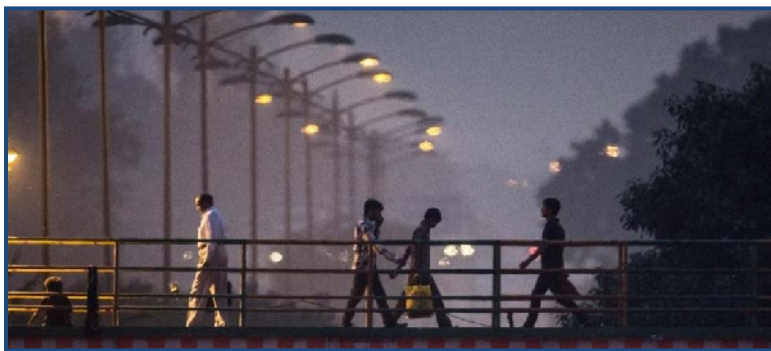
Earlier this month, it was revealed in an RTI that only 10 out of 45 major construction sites and industries have installed anti-smog guns -- a major pollution control measure. The anti-smog

gun, as directed by the Supreme Court in January, should be used in the NCR at project sites dealing with excavation, material handling and other dust-generating activities.

India wants to make its cities more pedestrian-friendly after coronavirus lockdown

Date:-21-June-2020, Source: scroll.in

India will make its streets and markets more accessible to pedestrians and cyclists as it emerges from one of the world's strictest coronavirus lockdowns, a move urgently needed to curb pollution and improve liveability, urban experts said.



An advisory issued by the Ministry of Housing and Urban Affairs recommended the pedestrianisation of up to three markets in each city, and adding more bicycle lanes. City authorities must select the markets by June 30, and begin

implementing short-term measures from October 1, it said.

“Covid-19 presents us with an opportunity to reimagine streets for people,” Durga Shanker Mishra, the ministry’s secretary, said in a statement last week. “As cities look to ease the lockdown and provide safe, affordable and equitable modes of transport, the need for pedestrianisation of market spaces through walking- and cycling-friendly cities is of utmost importance.”

While cities worldwide ease lockdown restrictions, some are closing roads to vehicles, adding bicycle lanes, widening pavements and handing over parking spaces to cafes.

In India, authorities should consult with vendors and residents on immediate measures such as barricades, road closures and repurposing of parking spaces, the urban affairs ministry said.

Authorities in India – home to more than half the 10 most polluted cities in the World Air Quality Report index – can also use unclaimed and under-utilised public spaces to increase walkability, it added.

Pedestrianisation of streets and market places is “not only feasible, but the only viable option”, and key to restoring safety, vibrancy and liveability in communities, said Jaya Dhindaw, director of urban planning at research firm World Resources Institute India.

“For the longest time, pedestrian and cycling infrastructure has been the lowest priority despite the fact that non-motorised transport is affordable, people-friendly and offers huge social, economic and environmental benefits,” she said on Wednesday.

“What seems like a necessary step to aid movement during the health crisis definitely has the potential to re-wire cities’ mobility trends,” she told the Thomson Reuters Foundation.

Under India’s Smart Cities programme, which aims to make 100 urban centres more liveable and sustainable, some cities had already been promoting public transit and bicycle lanes. Chennai has carved out more than 100 km of pedestrian-friendly streets, the urban affairs ministry noted.

Chennai’s efforts paid off during the lockdown, said Raj Cherubal, chief executive of Chennai Smart City Ltd. “We should use the coronavirus as an excuse to rejig our streets and our approach to public transit,” he said. “India doesn’t have a choice but to do this to limit emissions, and curb congestion and pollution.”

With India grappling with an economic downturn caused by the pandemic, authorities facing shrinking budgets will need to be innovative in their mobility plans, Dhindaw noted. “Small-ticket items like non-motorised transport infrastructure expansion and improvements that got left out in the scramble for Metro and light-rail will now see renewed interest,” she said. “In the long term, it will lead to more equitable and inclusive cities.”

Pollutants enter Delhi via three distinct air corridors during winters: Study

Date:-22-June-2020, Source: hindustantimes.com



The latest study showed that in each of these corridors, some specific chemicals were found in the air in much higher quantity, which suggested that certain industries were the worst polluters.

Scientists have identified at least three distinct air corridors that act as carriers of pollutants to Delhi from places far and wide, including Nepal in the east, and Iran and Pakistan in the north-west, during winter, when the national capital’s air quality is at its worst.

The study -- the first real-time source apportionment analysis of Delhi, as the data was collected once every 30 minutes during two

successive winters in 2018 and 2019 -- was conducted by a team of 15 researchers from the Indian Institute of Technology (IIT)-Kanpur; IIT-Delhi; Laboratory of Atmospheric Chemistry (LAC), Switzerland; Physical Research Laboratory; Ahmedabad; and Laboratoire des Sciences du Climat et de l'environnement, France.

The samples from the study were collected from the campus of IIT-Delhi.

“Contrary to the popular belief, we’ve found that pollutants enter Delhi through three distinct corridors during winter. While the north-west corridor primarily brings pollutants from Pakistan, Punjab and Haryana; Uttar Pradesh makes up for the north-east and the east; and Nepal, too, accounts for the east,” said SN Tripathi, head, civil engineering department, IIT-Kanpur, and one of the authors of the study.

A joint study -- conducted by The Energy and Resources Institute (TERI) and Automotive Research Association of India (ARAI) two years ago -- had shown that 64% of Delhi’s pollution is extraneous.

Around 34% of the pollutants traced their origins to the Delhi-National Capital Region (NCR) and 18% from the north-western parts of the country.

While 13% of pollutants were from other parts of south Asia and beyond. The latest study showed that in each of these corridors, some specific chemicals were found in the air in much higher quantity, which suggested that certain industries were the worst polluters.

“Winds coming from the east were found to be carrying metals such as lead, copper and cadmium because of the presence of lead-based industries in the region. Similarly, elements such as selenium, bromine and chlorine were found to be predominant in winds blowing from the north-west sector. While selenium and bromine were found in industries dealing with drugs and chemicals among others, and chlorine emitted from brick kilns, landfill sites that burnt garbage and other factories,” he added.

The scientists detected at least 35 elements of which 26 were found in higher quantity than the rest, making up nearly one-fourth of the total mass of the coarser particles, known as particulate matter 10 (PM10).

“The study was a real-time source apportionment analysis, as the data was collected once every 30 minutes. We also found that Delhi is in the grips of pollution peaks twice daily. The first peak occurs between 3am and 8am the next one around 10pm,” said Dilip Ganguly, associate professor, Centre for Atmospheric Studies, IIT-Delhi.

Dr. Prashant Gargava, member-secretary, Central Pollution Control Board (CPCB), the country’s apex pollution control body, said: “This was a research & development (R&D) project, which

was commissioned by the CPCB. It has provided some high-resolution data. We'll analyse the data after we receive a complete report to utilise them for further policymaking decisions."

"The study could open new vistas for air quality management in the country. Such studies will help us determine the presence of toxicity of each pollutant in the air and its harmful side effects. We need to conduct similar studies throughout the year to get a sense of the impact of pollution on Delhi," said D. Saha, ex-head, air quality laboratory, CPCB.

Delhi's cleaner air during lockdown may have helped produce more solar power: Study

Date:-23-June-2020, Source: outlookindia.com

Boston, Jun 23 (PTI) Based on data collected in Delhi, scientists report that the reduction in air pollution due to lockdown measures enforced in the country may have led to more sunlight reaching solar panels, resulting in the production of more clean energy.

The findings, published in the journal Joule, noted that in late March, the amount of sunlight reaching the solar panels in Delhi increased about 8 per cent, compared with data from the same dates from 2017 to 2019.

According to the researchers, including those from the Massachusetts Institute of Technology (MIT) in the US, Delhi is one of the most polluted cities on the planet, with the sudden implementation of lockdown in India at the start of the pandemic improving the air quality drastically.

"That means that reductions in air pollution happened very suddenly, making them easier to detect," explained study first author Ian Marius Peters from Helmholtz-Institut Erlangen-Nurnberg for Renewable Energies in Germany.

Peters and his colleagues had earlier assessed how haze and air pollution impact the quantity of sunlight reaching the ground, and the effect of air pollution on the output of solar panels in Delhi.

The photovoltaic (PV) solar energy system they had installed in Delhi for the previous work was still in place, and they could use it to collect data on the amount of solar radiation reaching the PV installation, called the level of insolation. The scientists found that the insolation at noon increased by about eight per cent.

Based on the information on air quality and particulate matter, they suggested that reduced pollution levels were a major cause for the rise in energy levels.

"The increase that we saw is equivalent to the difference between what a PV installation in Houston would produce compared with one in Toronto," Peters said.

"I expected to see some difference, but I was surprised by how clearly the effect was visible," he added.

Combined with their earlier results, the scientists believe the new findings provide a solid foundation to further study the impact of air pollution on solar resources. They also hope to find increased output of power from solar panels in other areas where air was cleaner due to lockdown measures.

"The pandemic has been a dramatic event in so many ways, and the world will emerge different than how it was before," Peters said. He said the lessons learned from the different measures implemented during the pandemic may provide an opportunity to "flatten the climate curve."

"I believe solar panels can play an important role, and that going forward having more PV installations could help drive a positive feedback loop that will result in clearer and cleaner skies," Peters added. PTI VIS VIS

Air pollution dropped 28% in Bengaluru during lockdown

Date:-24-June-2020, Source: bengaluru.citizenmatters.in

An analysis of air quality data has shown that air pollution (measured as PM2.5) was reduced by an average of 28% in Bengaluru during COVID-19 lockdown. The analysis was done by the Centre for Research on Energy and Clean Air (CREA), using data collected by Bengaluru's Healthy Air Coalition. Additional analysis of satellite data confirms this downward trend.



Silk Board Junction near-empty during the lockdown.

The Healthy Air Coalition had set up a network of 30 air quality monitors across the city (in places frequented by groups most at risk from air pollution) to provide publicly-accessible data on air pollution.

The Coalition has spent 12 months collecting data from 26 stationary air quality monitors across Bengaluru. Data for a 45-day

period before the lockdown (February 8 to March 23) was compared with data from a 45-day period during lockdown (March 25 to May 8) to better understand the impact of reduced economic activity and transport on air quality.

The reduction in pollution levels varied for locations across the city, ranging from 14% at Halasuru hospital to 75% at Bellandur lake.

Aishwarya Sudhir, Coordinator of the Healthy Air Coalition said, “It appears that pollution from PM2.5 has been cut by more than a quarter on average. In some places air quality has actually met WHO safe levels, possibly for the first time in two decades”.

Before COVID-19, pollution – from traffic, solid waste burning, residential cooking and heating, and dust from road works and construction – led to constant poor air quality, failing to meet even Indian air quality standards, and substantially out of line with WHO air quality recommendations.

Emissions from vehicular pollution are a key contributor to air pollution in Bengaluru, which is the most traffic-congested city in India. Cases of child asthma, upper respiratory infections, chronic pulmonary disease, as well as heart attacks in young people are reported to be on the increase. Doctors and health professionals point to chronic exposure to air pollution as a possible cause.

Air pollution leads to seven million premature deaths each year globally. According to the Lancet, 12.5% of deaths in India are due to poor air quality, and half of those deaths are of people below age 70.

Dr K R Bharath Kumar Reddy – Pediatric Pulmonologist & Director, Shishuka Children’s Hospital, said: “A significant improvement in air quality in Bengaluru during the lockdown indicates the contribution of traffic to air pollution. Drop in levels, more so in areas known to be tech-corridors during a period of work-from-home, also points to this. This reiterates the need for us to take traffic regulation more seriously and implement strategies to control vehicular emission. We have also witnessed a significant drop in respiratory symptoms in children during the lockdown. The improvement in air quality could be an important contributing factor for this.”

Scientists have reported improvements in air quality during lockdown globally, in cities from Beijing to London, Milan to Delhi. While this occurred at enormous social and economic cost, it has illustrated the health and environmental benefits of reduced fossil fuel use in transport and energy.

The way forward

Healthy Air Coalition has written an open letter to the Mayor of Bengaluru on June 22, calling for a 'Healthy Recovery', which builds upon solutions such as the Yulu bikeshare system and the electrification of transport.

Transport sector plays a large role in air pollution in Bengaluru. It is also clear, from the "forced experiment" of reducing transport during lockdown, that the city can achieve breathable air quality through systematic, concrete steps, such as:

- Building people-friendly, safe Non-Motorised-Transportation systems for walking and cycling;
- Reducing the use of cars;
- Shifting to cleaner fuel and renewable-energy-powered electric vehicles;
- Enhancing public transportation system capacity and quality by running them on electric energy and increasing the numbers and frequencies, i.e., electric buses, suburban railway and metro etc.;
- Reducing contribution from the construction sector by taking proper safeguarding measures during construction and transportation of construction materials;
- Reducing waste generation and its disposal at landfill sites or in waste-to-energy plants by refusing unnecessary packaging material or plastics, and reusing and recycling whatever possible;
- Providing 24-hour electricity through aggressive adoption of roof-top solar energy and other renewable energy sources to reduce the use of DG sets for electricity needs; and
- Adopting stringent emission standards for brick kilns and industries to reduce pollution at source.

Monsoon rains may hit Gurugram in next 24 hours

Date:-24-June-2020, Source: hindustantimes.com

While the national capital received the monsoon's first rain on Wednesday, Gurugram remained dry. According to the India Meteorological Department (IMD), the city is likely to receive rainfall in the next 24-48 hours as the southwest monsoon advances further into Haryana.

The maximum temperature on Wednesday was at 34.5 degrees Celsius, which was lower by roughly three degrees from Tuesday's 37 degrees Celsius. The minimum temperature on Wednesday was recorded 28 degrees.

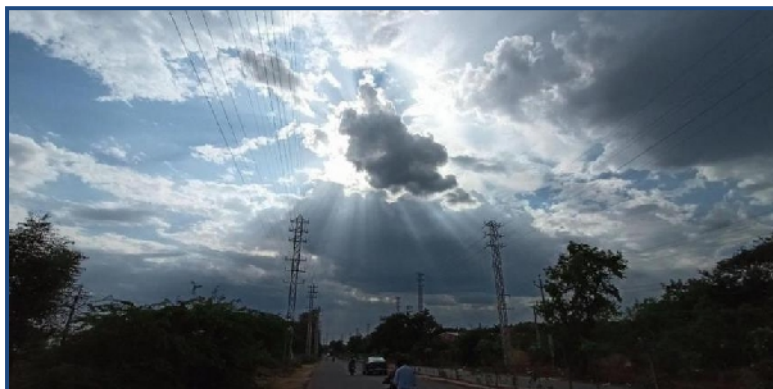
According to the IMD's weekly forecast, temperature is expected to drop by about two degrees and settle around 33 degrees Celsius on Thursday with the possibility of rain. As per the IMD's Palam observatory, which is the closest manual weather observatory to Gurugram, moderate rainfall may be expected on Thursday. Cloudy skies with spells of thundershowers have also been predicted by the weather department for Thursday. The minimum temperature is expected to settle at 28 degrees Celsius on Thursday.

While Delhi had received rains on Wednesday, the arrival of the season is likely to be declared officially on Thursday as the met department is waiting to see how much it rains over 24 hours, said Kuldeep Srivastava, head of the IMD's regional forecasting centre in Delhi. He added that with further advancement of southwest monsoon in Haryana, conditions were fertile for monsoon rains in Gurugram and other cities across the national capital region.

Air quality in the city was 'satisfactory' on Wednesday for the second consecutive day, recording 77 on the Central Pollution Control Board's air quality index (AQI) bulletin. This was an improvement from the previous day's recording of 88 in the 'satisfactory' category. The improvement was attributed largely to an increase in wind speed. According to the early air quality warning system for the NCR, the air quality is likely to remain in the 'satisfactory' to 'good' category on Thursday.

Ozone levels increased during lockdown, says CSE

Date:-25-June-2020, Source: newindianexpress.com



There was a rapid rise in PM2.5 during the lockdown relaxation and rise in pollution levels during Lockdown 4.0 when restrictions were relaxed.

NEW DELHI: The analysis of summer air quality during the national lockdown which started on March 25 presented a mixed trend. While the PM2.5 and NO2 curves fell and flattened dramatically in cities, a phenomenon that hogged the

national attention is the increase in tropospheric ozone pollution which even breached standards in

several cities, according to the Centre for Science and Environment (CSE).

The CSE looked at data on two major air pollutants emitted from burning fossil fuels: nitrogen dioxide (NO₂) and fine particulate matter known as PM_{2.5}.

The CSE did an analysis of 22 mega and metropolitan cities in India. The cities covered by the CSE analysis are Delhi-NCR (including Faridabad, Ghaziabad, Gurugram and Noida), Kolkata, Chennai, Mumbai, Ahmedabad, Ujjain, Bengaluru, Hyderabad, Jaipur, Jodhpur, Patna, Vishakapatnam, Amritsar, Howrah, Pune, Guwahati, Lucknow, and Kochi.

There was a rapid rise in PM_{2.5} during the lockdown relaxation and rise in pollution levels during Lockdown 4.0 when restrictions were relaxed.

The average level for lockdown 4.0 compared to the average of the cleanest of the other lockdown phases was higher in Chennai by 118 per cent; in Jaipur and Amritsar by 109 per cent; in Visakhapatnam by 108 per cent; in Pune by 80 per cent; and in Delhi by 43 per cent.

According to CSE researchers, ozone is primarily a sunny weather problem in India that otherwise remains highly variable during the year. It is a highly reactive gas; even short-term exposure (one hour) is dangerous for those with respiratory conditions and asthma.

Ozone is not directly emitted by any source but is formed by photochemical reactions between oxides of nitrogen (NO_x) and other volatile organic compounds (VOCs) and gases in the air under the influence of sunlight and heat. Ozone can be controlled only if gases from all sources are controlled.

Anumita Roychowdhury, executive director-research, and advocacy, CSE said: “This pandemic-led change in air quality has helped us understand summer pollution. Normally, every year, winter pollution is what draws our attention.

The characteristics of summer pollution are different: there are high winds, intermittent rains and thunderstorms, and high temperatures and heatwaves. This is in contrast to winter - with its inversion, lower mixing height of air, and cold and calm conditions that trap the air and the pollutants in it.”

If the maximum eight-hour average for 24 hours is considered (as the environment Protection Agency does to capture the health risks), then more than two-thirds of the lockdown days in Delhi-NCR cities and Ahmedabad had at least one station that exceeded the standard. In Ahmedabad, the city-wide maximum eight-hour average exceeded the standard on 43 days; in Ujjain, it exceeded on 38 days.

Air pollution in Delhi falls by 32.5%

Date:-26-June-2020, Source: timesofindia.indiatimes.com

Nagpur: Thanks to the lockdown, the air pollution in New Delhi saw a 32.5% decrease, reveals a latest study, with an interactive tool developed by dealchecker blog. The study analysed how lockdown and travel restrictions have altered pollution rates globally. It has taken into consideration over 80 cities around the world, allowing users to visualize the pollution levels in April 2019 compared to the same period in 2020.

The study revealed that amid coronavirus lockdown, air quality in the capital saw a 32.5% improvement in April 2020 compared to April last year. It measured the amount of particles in the atmosphere with a diameter of 2.5 micrometers or less (PM2.5). PM2.5 are dangerous particles that can go into lungs causing serious health ailments.

As per the study, the average level of PM2.5 in Delhi in April 2019 was 171.63 micrograms per cubic meter (mpcm). Post the lockdown, it dropped to 115.83 mpcm in April this year. "This change has resulted in the improvement of air quality in Delhi," the study stated.

It added that cities around the world have seen pollution rates drop after governments introduced alterations to lifestyle and travel patterns for millions of people around the world. "Global patterns in 2020 make for good reading for environmental enthusiasts, with 83% of the cities in the study showing improvement in air quality," it added.

Days with both extreme heat and extreme air pollution becoming more common in South Asia

Date:-27-June-2020, Source: theprint.in



People walk past the India Gate monument shrouded in smog in New Delhi.

Days of extreme high heat and extreme air pollution are both increasing worldwide. Last November, New Delhi experienced a week of the worst air pollution in human history. The entire city shut down and planes couldn't see well enough to land. Not long before that, Western Europe was slammed with two record-breaking heatwaves that

The big idea

Days of extreme heat and extreme pollution do not often overlap, but our two teams at Texas A&M wanted to see if the number of these double extreme days was increasing and explore what the health risks of that might be.

To test this, we used a computer model to look at the co-occurrence of extreme heat and extreme air pollution in South Asia. The model incorporated trends in greenhouse gas and air pollution emissions from industrial and residential sources, population growth, migration trends and even how air pollution is affected by weather, terrain and nearby oceans.

We predict that the frequency of days with both extreme heat and pollution – and the number of people that will be affected by those days – could massively increase by 2050.

We focused on South Asia because it's already a climate change hot spot and its population is projected to increase from 1.5 billion today to 2 billion by 2050. Under a worst-case climate change scenario and with little reduction in CO₂ and other pollutants, days with both extreme heat and extreme pollution would increase in frequency by 175% in the region, resulting in roughly 78 days a year with those double whammy conditions.

Additionally, the amount of land that would experience this double threat for 60 days or more a year would increase tenfold from 2000 to 2050 – from 2% to more than 25% of all of South Asia. This will also lead to more than 52% of the population being exposed to more than 60 days of this double hazard.

Why it matters

Both extreme heat and air pollution have severe negative effects on the human body.

Extreme heat increases the likelihood of heat exhaustion and heat stroke, but can also worsen chronic ailments such as heart disease. As part of an effort to better understand how extreme heat affects mortality rates, we are currently studying the health effects of heat extremes here in Texas.

Air pollution is known to lead to asthma, heart disease, pregnancy complications and other severe health effects.

So what happens when a person experiences both at the same time?

Scientists know that when a person experiences air pollution in addition to another simultaneous stressor, they become more susceptible to both. This has been shown for combinations such as air pollution and smoking, as well as air pollution and COVID-19.

It is hard to say exactly what effect a prolonged exposure to the double threats of heat and air pollution would have on human health as there have only been a few cases studies looking at the combined effects of both. The results, though sparse, do suggest that more people die when the two conditions co-occur.

What still isn't known

The full health effects from a combination of extreme heat and extreme pollution are largely unknown, especially in many developing nations where studies haven't been done and the extremes are expected to get more severe. Billions of people are expected to experience these conditions in the coming decades, but researchers know little about what the risks are.

Which populations – both demographically and in terms of chronic diseases – are most at risk? Just how dangerous are these double extreme days to human health? Where are the most at-risk populations?

It is thus important to develop an empirical understanding of the relationship between health outcomes and multiple environmental stressors like heat and air quality.

What's next

Learning who is most at risk is important, but taking preventative measures, everyone together, should also be considered.

Using our models, we found that reducing carbon dioxide and non-CO₂ air pollutant emissions – even by a moderate amount far less than what would be required to meet the 2 degrees Celsius target in the Paris agreement – would prevent the most severe outcomes.

Even under a very moderate emission reduction scenario called RCP6.0 – where emissions peak in 2060 – the frequency of double extreme days would increase by only 58% by 2050, compared to the 175% we are headed for.

The population and land area to experience extended exposure to this hazard would be less than half of what was projected in the business-as-usual scenario.

These increases are still nothing to look forward to, but they show that mitigation efforts can make a big difference. In our view, the world needs to act swiftly and, for example, seize the opportunity of current economic recovery to invest in greener energy. Our future generations do not deserve a dirty, hot future.

Lockdown improves air quality in Delhi, Mumbai, reveals NASA dashboard; details

Date:-28-June-2020, Source: [financialexpress.com](https://www.financialexpress.com)

A latest analysis by the three renowned space agencies- NASA, the Japan Aerospace Exploration Agency and the European Space Agency has revealed that concentration of nitrogen dioxide (NO₂) has dropped to its lowest level in April this year.



A reduction of about 40-50 per cent has been witnessed in air pollution levels.

Air quality in Delhi, Mumbai improves! A latest analysis by the three renowned space agencies- NASA, the Japan Aerospace Exploration Agency and the European Space Agency has revealed that concentration of nitrogen dioxide (NO₂) has dropped to its lowest level in April this year since July 2018 over Delhi and Mumbai region in India. According to the data provided on the Covid-19 Earth Observation Dashboard, the concentration of

nitrogen dioxide in the atmosphere started reducing from March 16 and dropped significantly during the first phase of the nationwide lockdown imposed to curb the Coronavirus transmission across the country.

All the three agencies have put their data together and tracked the changes in the atmosphere. The data has been collated and presented in a Covid-19 Earth Observation Dashboard. The aim is to track all the changes taking place regarding the economic activity, agriculture and atmosphere during the Coronavirus pandemic.

In a statement released on the dashboard, the agencies said “India has shown less air pollution during lockdown that too in selected cities, such as New Delhi and Mumbai.” It added that when the time frames of this year and last year are compared, a reduction of about 40-50 per cent has been witnessed in air pollution levels. However, it highlighted that the reductions in NO₂ content is not consistent across the country. While a dip has been seen in Delhi and Mumbai, North-eastern states in India showed constant levels of air pollution on the back of ongoing operations in plants that are coal-based as electric power generation did not reduce during lockdown.

As of April 13, the NO₂ levels in the tropospheric region over Delhi had dropped to 31.3 micromoles per square meter (μmol/m²). This is the lowest level witnessed after July 9, 2018, according to Covid-19 Earth Observation Dashboard. When compared to the same period in 2019, the NO₂ concentration over Delhi was recorded at 113.9 μmol/m² which is more than three times the level recorded in April 2020.

Delhi records sudden spike in air pollution

Date:-29-June-2020, Source: livemint.com

- Experts say, the sudden spike in air pollution is due to a mild dust storm blowing in Rajasthan, wind direction changing and moist air coming in
- The Air Quality Index in 30 out of 36 stations was above 200 micrograms per cubic till 1 pm on Monday.

NEW DELHI : Witnessing azure skies and breathable air for the last three months, Delhi on Monday recorded deterioration in its air quality, with particulate matter with diameter of 2.5 and 10 microns, too small to be filtered out of the human body, standing at 52 and 297 micrograms per cubic respectively.

Gufran Beig, Project Director of System of Air Quality Weather Forecasting and Research (SAFAR), said that the sudden spike in air pollution is due to a mild dust storm blowing from Rajasthan.

"Since the wind direction is changing and moist air is coming in, the air quality in Delhi will become better by tomorrow," Beig told IANS.

Central Pollution Control Board (CPCB) data showed that the overall air quality near Delhi Technical University (DTU) area stood at 326 micrograms per cubic, followed by 308 at Narela and 307 at Mundka.

Out of 36 stations, the AQI in as many as 30 stations was above 200 micrograms per cubic till 1 pm on Monday.

The System of Air Quality Weather Forecasting and Research categorises air quality in the 0-50 range as good, 51-100 as satisfactory, 101-200 as moderate, 201-300 as poor, 301-400 as very poor, and above 400 as severe.

According to SAFAR's website, "PM 10 (coarser dust particle) is the lead pollutant. AQI is likely to improve to moderate category by tomorrow, and further improvement is expected by July 1."

Researchers indicated that PM 10 and PM 2.5 will be 170 and 47 micrograms per cubic on Tuesday.

With no vehicles plying on the roads or industries shut due to the lockdown since March 25, Delhi's air quality had improved drastically.

According to a study conducted by the Indian Institute of Technology (IIT), Delhi, if the low levels of air pollution reached during the lockdown period are maintained, India's annual death toll could reduce by 6.5 lakh.

Mumbai witnesses its cleanest air day since monitoring began in city

Date:-30-June-2020, Source: hindustantimes.com



The AQI forecast for Wednesday is at 10 and is likely to be the best since the monitoring started in 2015.

Overnight rain and high speed winds helped Mumbai record its lowest air pollution levels on Tuesday since air quality monitoring began in 2015. It has equalled the all-time low air quality recorded on September 4, 2019.

The pollutant-measuring indicator -- air quality index (AQI) for PM2.5 pollutant, the breathable particulate matter that is 2.5

microns in size or smaller, which can cause health hazards, as they can be easily inhaled -- was 12, or in the "good" category, according to the System of Air Quality Weather Forecasting and Research.

The AQI forecast for Wednesday is at 10 and is likely to be the best since the monitoring started in 2015.

Tuesday's AQI equalled the all-time improved air quality over the past five years, which was recorded on September 4, 2019, at 12.

On Tuesday, Mumbai's air was cleaner than major international cities such as London (21), Tokyo (52), Sydney (25), and Singapore (25).

However, New York's AQI topped Mumbai's at 10.

Researchers from the System of Air Quality and Weather Forecasting And Research (SAFAR), under the Union Ministry of Earth Sciences, said a combination of factors had led to improved air quality in Mumbai.

“The coronavirus disease (Covid-19)-induced lockdown restrictions had brought down the PM concentration to its background levels because of lack of human-induced emissions of greenhouse gases. It takes time for PM levels to rise again even after emissions resurface. Intense rainfall over Mumbai between Monday night and early Tuesday morning, the high moisture content in the city’s air, combined with wind speed ranging at a maximum of 30 kilometres per hour (kmph) allowed swift dispersion of pollutants close to the surface,” said Gufran Beig, director, SAFAR.

“This is a characteristic of the monsoon season but it is getting further enhanced due to lockdown restrictions that are in place since mid-March. AQI and PM concentration is likely to remain in the ‘good’ category, as more rains are predicted over the city in the coming days,” he added.

The concentration of PM_{2.5} was as low as 7 micrograms per cubic metre (µg/m³) against the prescribed limit of 60µg/m³ for 24 hours is considered a national safety standard and 25 µg/m³ as the World Health Organization (WHO) safety standard. PM_{2.5} levels are likely to fall further to 6 µg/m³ on Wednesday and 10 µg/m³ on Thursday, said SAFAR authorities.

PM₁₀ (large coarse particulate matter of 10-micron size or smaller) was 14 µg/m³ against the safety limit of 60 µg/m³. It is expected to be 11 µg/m³ on Wednesday and 16 µg/m³ on Thursday.

SAFAR authorities categorise AQI levels for PM_{2.5} in the 0-50 range as good; 51-100 as satisfactory; 101-200 as moderate; 201-300 as poor; 301-400 as very poor and above 400 as severe.

All 10 locations, where AQI was monitored in the city, recorded “good” air quality and it didn’t cross 30.

Colaba had the cleanest air with an AQI of 2, followed by Mazgaon (5), Bhandup and Chembur (8), Borivli (10), BKC (15), Andheri (16), Malad (17), Worli (18), and Navi Mumbai (26), the highest.

July 2020

Air quality in Delhi remains in 'moderate' category, overall AQI rises to 102

Date:-1-July-2020, Source: ptcnews.tv



The air quality in the national capital remained in the 'moderate' category for the second consecutive day on Wednesday. According to the latest estimates updated by System of Air Quality and Weather Forecasting And Research (SAFAR), the overall air quality index (AQI) has increased to 102.

Meanwhile, several parts of Delhi witnessed air quality in the 'moderate' category on Wednesday. As per the Central Pollution Control Board (CPCB) estimates updated at 9.30 am, the air quality in ITO, Lodhi Road, Dwarka, IGI Airport (Terminal-3), Bawana, DTU, Jawaharlal Nehru Stadium, and Mundka was recorded in 'moderate' category with an AQI of 127, 123, 119, 106, 143, 119, 102 and 113 respectively.

Likewise, there were some areas in Delhi including Anand Vihar and RK Puram that recorded air quality in the 'satisfactory' category with an AQI of 87 and 86 respectively.

The AQI between the range of 51 and 100 is said to be 'satisfactory' or 'very good', 101-200 is considered 'moderate', 201-300 is the category of 'poor'. While 300-400 is 'very poor', 401-500 is under the 'hazardous' category.

As per the SAFAR forecast, the overall AQI in the national capital was in the 'moderate' category on Tuesday. The rain has helped with the sudden improvement in air quality in the region.

Lockdown in India has Halved Smog and Increased Solar Power

Date:-2-July-2020, Source: azocleantech.com

According to a new study, the countrywide lockdown in India from March 24th to May 17th, 2020, to prevent the spread of COVID-19 has led to unpredicted results—smog over the national capital of New Delhi was reduced by 50% and solar power generation increased.



The national lockdown in India has reduced the smog and raised solar power generation in New Delhi, one of the most polluted cities in the world.

Peters is the lead author of the study reported in the *Joule* journal on June 19th, 2020.

Earlier, the researchers had investigated how air pollution and haze modify insolation—the amount of sunlight that reaches the ground and impacts solar panels. However, Peters reports that India's strict lockdown, imposed on March 24th without any prior notice, rendered it considerably simpler to measure

insolation.

IQ AirVisual, a Swiss-based group that gathers air quality data worldwide, rated New Delhi as the world's most polluted capital city in 2019, for the second straight year.

Fine atmospheric particulate matter that measures less than $2.5\ \mu\text{m}$ (PM_{2.5}) is a major component of air pollution that tends to remain in the air for longer periods compared to heavier particles.

PM_{2.5} is typically soot produced due to the inefficient burning of fuel by factories, vehicles, and household heating. The particles can scatter or absorb light before it reaches the ground.

The study discovered that in late March 2020, PM_{2.5} levels over New Delhi declined to almost 50% of the levels recorded at the same time the previous year, where low levels were maintained throughout most of April.

This correlated with an 8.3% increase in insolation at a solar installation located in central Delhi after 20 March than readings from 2017 to 2019. In April 2020, there was an average increase of 5.9% in insolation.

According to Peters, the bonus was improved air quality over New Delhi. "If you were to replace many of the prime sources of air pollution with electrified sources, it should result in an improvement in the air quality."

Although the team did not gather power generation data, Peters noted that it generally depends on insolation levels. He added that due to the low-profit margins on solar installations,

an increase of this level could significantly contribute to a difference in the economics of solar investments.

According to Michael Bergin, an engineer at Duke University who has also analyzed the influence of air pollution on solar panels, the impact could be much higher since reduced air pollution also denotes settling of less dirt on solar panels, which further obstructs sunlight.

Since several solar installations are not set up in urban areas that record the worst pollution, Peters confesses that it does not give a clear picture of the effect this phenomenon could have on India's wider solar industry.

However, according to Martin Wild, a climatologist from ETH Zürich in Switzerland who investigates the effect of air pollution on solar radiation, the evidence indicates that the effects are not just limited to areas where air pollution is generated. "We've come to the conclusion that it's really a large-scale effect, not just an urban effect," he noted.

Lockdown helps metro cities achieve 95% of clean air target

Date:-3-July-2020, Source: socialnews.xyz

New Delhi, July 3 (SocialNews.XYZ) The coronavirus-induced nationwide lockdown has resulted in Delhi, Mumbai, Kolkata and Bengaluru achieve 95 per cent of their 2024 National Clean Air Programme (NCAP) targets in a short span of 74 days, according to an analysis.

In a bid to improve the air quality, the National Clean Air Programme was proposed in 2019 with an aim to reduce particulate matter, which is too small to be filtered out of the body, by 20-30 per cent by 2024.

Researchers from Respirer Living Sciences and Carbon Copy analysed the average air quality during the four phases of the national lockdown in the four cities. PM 2.5, PM 10, nitrogen dioxide, carbon monoxide, ozone, and benzene were tracked to monitor the implementation of the programme.

The entire data was sourced from air quality monitors set up by the state pollution control boards under the aegis of the Central Pollution Control Board (CPCB).

According to the study, the restrictions on economic activity between March 25 and June 8 saw pollution levels plummet across the country and offered researchers an opportunity to track baseline pollution levels.

The drastic drop in pollution levels during the lockdown teaches lessons in India's air pollution management which need to be incorporated in achieving the country's clean air targets, said the study.

According to CEO of Respirer Living Sciences, Ronak Sutaria, four cities which were analysed managed to better their NCAP target by around 30 per cent, with Kolkata bettering its target by over 50 per cent.

Experts claim that the lockdown gave them an opportunity to understand background pollution levels, major sources of air pollution construction, brick kilns, vehicles, and industrial activity -- stalled due to the lockdown.

Delhi, Mumbai, Bengaluru and Kolkata attain 95% of clean air targets during lockdown

Date:-3-July-2020, Source: citizenmatters.in



The clampdown on all non-essential activities due to the COVID-19 pandemic has led to a significant decline in air pollution levels in major cities across India, including Mumbai.

The clampdown on all non-essential activities due to the COVID-19 pandemic has led to a significant decline in air pollution levels in major cities across India.

Researchers from Respirer Living Sciences and Carbon Copy have analysed average air quality during all four lockdown phases in India as well as concentrations of PM2.5, PM10, nitrogen dioxide (NO₂), carbon monoxide (CO),

ozone (O₃), and Benzene during individual phases for Delhi, Mumbai, Kolkata and Bengaluru, as part of their on-going National Clean Air Programme (NCAP) Tracker project to monitor the implementation of the NCAP.

Four cities witness clean air

From March 25 to June 8, 2020, four different phases of the lockdown showed a variety of restrictions being imposed on human-induced sources of air pollution, that not only led to clean air but allowed researchers to carry out studies tracking base levels at mega cities in India affected by poor air quality.

The trends established that the unprecedented lockdown measures resulted in these four cities achieving 95% of their 2024 NCAP targets in a short span of 74 days.

The entire data has been sourced from air quality monitors set up by the state pollution control boards under the aegis of the Central Pollution Control Board and recognised as official data, which is being used by the NCAP. In the centre's attempt for cities to have better air quality, the NCAP was notified in January 2019 seeking to reduce particulate matter (breathable pollutants that can easily enter the lungs and cause ailments) by 20-30% by 2024.

Over the course of the year, 122 non-attainment cities were added to this list and air pollution action plans were developed and approved for 102 of them.

The lockdown period helped the researchers understand the effects of anthropogenic (human-generated) emissions on the environment. This period is a marker for policy-makers on how they can achieve what has been planned for in the coming four years, in a relatively shorter period.

During a webinar hosted by Delhi-based communications initiative, Climate Trends, Dr Sagnik Dey from Indian Institute of Technology, Delhi explained that out of the eight primary polluting sources in India, four were completely closed during the lockdown period — namely construction and industrial activity, brick kilns and vehicles.

According to Carbon Copy that analyses India's Power Sector, between March 25 and June 8, power demand plummeted by 19.9% year-on-year due to a decline in industrial activity. Coal-fired thermal power plants are one of the key sources of air pollution in India. Meanwhile, sources like household emissions, open burning, diesel generators and dust were operational during the lockdown period.

The total shut down was an opportunity to understand the background pollution levels in India, which will be present even in the best-case scenario. "The PM_{2.5} levels ranged between 20-49 µg/m³ across the four cities during the lockdown, which indicates that the levels cannot go below that. The WHO guideline for clean air level is 10 µg/m³," explained Dr Sagnik Dey, Coordinator of Centre for Excellence for Research on Clean Air (CERCA) at IIT-D.

Challenges in assessing overall pollution status

The tracker also analysed PM_{2.5} and PM₁₀ levels in these four cities across 2017, 2018 and 2019 to demonstrate the effectiveness of the NCAP in bringing down pollution, taking levels in 2017 as the base year.

While Kolkata witnessed an approximate 24% improvement in PM levels in 2019 in comparison to 2018, Mumbai averaged at 16%, Bengaluru at 19.8% and Delhi at 6.4%. But this improvement falls short of the NCAP targets.

Delhi's PM_{2.5} annual average level in 2019 was 109.2 µg/m³, the PM_{2.5} target for Delhi in 2019 as deemed by NCAP was 70.9 µg/m³. This means that Delhi needed to achieve a reduction of 35% in 2019 to achieve its NCAP target.

Similarly, Mumbai's PM_{2.5} annual average in 2019 was 36.1 µg/m³, while the target for the city was 28 µg/m³, therefore Mumbai also fell short by 22.4% in meeting its NCAP targets in 2019. Meanwhile, Kolkata fell short by 16% and Bengaluru by 12.1% in their respective NCAP targets in 2019.

Ronak Sutaria explains that comparing the yearly data has nuances and the results are however not so simplistic. While the 2019 data was available from the online monitoring network as part of the Continuous Ambient Air Quality Monitoring (CAAQMS) programme, data for 2017 and 2018 comes from the manual monitors under the National Air Quality Monitoring Programme (NAMP). "Comparing the data across these years gets challenging. Also, the manual monitoring data for 2019 is not yet available for the key winter months, making it further difficult to establish conclusive findings if there's an actual improvement in pollution levels in 2019," Ronak said.

Need for green recovery model

The drastic drop in pollution levels during the lockdown teaches lessons in India's air pollution management which needs to be incorporated in achieving the country's clean air targets. Experts state that the pollution levels can be brought down dramatically if India focuses its energy towards a green recovery model which is less emission-intensive. The drastic reduction in pollutants across cities strengthens the fundamental need for managing air quality as a regional issue, across the same air shed, such that gains of clearer skies can happen along with growth and economic activity. For Delhi, which saw an average decline of 30% in PM_{2.5} values in the lockdown, the solutions are complex. A recent real-time source apportionment study by IITs Kanpur and Delhi establishes that the national capital is exposed to 35 heavy metal pollutants from 3 regional air corridors from the North-West, North-East and East.

"Bringing all economic activity to a halt brought about gains in air quality which have otherwise been envisaged as part of the next five years, to be achieved through the NCAP. Lessons from the lockdown make it clear that city action plans need to be much more comprehensive in their strategy and approach to air pollution management," stated Aarti Khosla, Director, Climate Trends.

Clean Air Target Of 2024 For Metro Cities Sees Them Achieve In Only 74 Days, Thanks To Lockdown

Date:-4-July-2020, Source: indiatimes.com



While the coronavirus pandemic continues to put life at a standstill, the only upside amidst the crisis has been the fact that pollution levels have drastically come down due to the lockdown.

The result of the restrictions on vehicular movement and industrial activities, has resulted in Delhi, Mumbai, Kolkata and

Bengaluru achieve 95 per cent of their 2024 National Clean Air Programme (NCAP) targets in a short span of 74 days, according to an analysis.

A team of researchers from Respirer Living Sciences and Carbon Copy analysed the average air quality during the four phases of the national lockdown in the four metro cities. PM 2.5, PM 10, nitrogen dioxide, carbon monoxide, ozone, and benzene were tracked to monitor the implementation of the programme.

The entire data used during the analysis was sourced from air quality monitors set up by the state pollution control boards under the aegis of the Central Pollution Control Board (CPCB).

According to the study, COVID-19 induced lockdown which led to restrictions on economic activity between March 25 and June 8 saw pollution levels plummet across the country and offered researchers an opportunity to track baseline pollution levels.

Maybe it is late, but we can turn around: Addressing the rise of Smog in North India

Date:-5-July-2020, Source: timesofindia.indiatimes.com

I still remember the news on Nov 1, 2019, where the newspaper headline highlighted that the residents of New Delhi were submerged under a thick layer of smog, causing severe respiratory problems along with headaches and teary eyes. The air quality index touched 530, which is tagged as 'severe plus' or 'emergency level.' Moreover, the particulate matter's quantification was cited to be 500 $\mu\text{g}/\text{m}^3$ (PM 10) and 300 $\mu\text{g}/\text{m}^3$ (PM 2.5), which raises the question 'if this is the current scenario, where are we heading to?'

I remember the Environment Pollution (Prevention & Control) Authority of the National Capital Region had declared the incident a 'public health emergency' and advised the residents to minimize personal exposure to the outdoors. Smog in Northern India is a burgeoning event that has kindled from the past decade, especially in the winters. Works of literature cite multiple factors that stimulate smog formation, including motor vehicle emission, emission from power plants (coal-based and other industrial sectors), burning of domestic and agricultural wastes. The meteorological factors, especially in states like Haryana and Punjab, do not favor high wind speed. We simply catalyze the process by producing unchecked emission level both from the industrial and the domestic sector. It's not only the case of these two states. In fact, the entire Indo-Gangetic plain has emerged as the 'hotspot,' where the annual particulate matter level remains more than double than the benchmark value. The emission sourcing from 700 million people dwelling in this region, coupled with the natural dust that is brought in from the western arid region (in the summers), collectively degrades the air quality level of entire Northern India.

While a detailed study is still to be conducted, which circumscribes the impact of the health owing to the surge of smog, the records suggest that cardiovascular and respiratory cases derived from smog heightened recently. The neonatal mortality rate in the states in North India has climbed up, elevating the risk of diabetes, cancer, cataracts, and cognitive impairment.

A report published in 2018 revealed that air pollution contributed more respiratory and allied diseases (respiratory infections, chronic obstructive lung disease, heart attacks, stroke, diabetes, and lung cancer) in India than tobacco usage. The prediction cited by Energy Policy Institute at the University of Chicago using the Air Quality Life Index claimed that the Indo-Gangetic plain should experience a reduction in the life expectancy by about 7 years, primarily due to the elevated levels of the particulate pollution.

Clean air shall always be a dream for the people living in Northern India if events continue to shape as it is tuning now. The government had tried to shut down all backdated coal-based power plans along with making the vehicular emission laws more stringent and restricting unwanted movement of the trucks across the cities; nothing seems to work out significantly both as a short term and long term plan. Although we are experiencing a slight dip in the air pollution levels, we still need to curb 65% of the pollution to bring the limits back to the national standards.

We should realize that we should be that slight change, which may revolutionize the current escalation of the pollution levels in these states. From initiating campaigns and educating people, we should take the first step in not letting our states cross the tipping point. To be honest, if the scenario continues, not only the North Indian states but the entire country shall flip over the equilibrium of the environment, which then can't be reverted.

How an Indian Architect is Sucking Carbon Emissions Out of the Air and Turning it into Stylish Tiles

Date:-7-July-2020, Source: goodnewsnetwork.org

An Indian architect has developed a revolutionary new way to serve the housing needs of a population, while also fighting air pollution.

Tejas Sidnal is the mastermind behind Carbon Craft Design: a Mumbai-based startup that specializes in capturing carbon emissions from the air and turning it into stylish tile.

Using a device called the AIR-INK, the company is able to draw CO₂ out of the polluted city air, combine it with a mixture of marble chips and powder, and then press it into elegantly-designed tiles.

Since Sidnal says that India is in need of maintaining the world's third largest housing industry, his sustainable tile recipe can help meet the industry demand for building materials in an eco-friendly way.

Air pollution to affect economy of cities

Date:-9-July-2020, Source: timesofindia.indiatimes.com

LUCKNOW: Lucknow's economy is estimated to lose 6% of the city's annual GDP due to air pollution in the first half-year despite a strict lockdown.

According to a new online tool by IQAir AirVisual and Greenpeace Southeast Asia, health damage from air pollution is expected to cost 1% to 5.8% of cities GDP in the major metropolitan cities of the world in the first half of this year. Of all 28 cities studied, Delhi bears the highest economic cost of air pollution as a percentage of GDP due to the impacts of PM_{2.5} and NO₂ pollution.

Air pollution in Lucknow is linked to the loss of an estimated 3,000 lives in the first half of 2020, despite a strict Covid-related lockdown.

The estimation is also expected to grow bigger in the upcoming winter season.

While some cities have seen a temporary return of blue skies as a result of quarantine restrictions, these gains were reversed as soon as lockdowns ended.

Research shows that long-term air pollution exposure increases the risk of severe Covid-19 infections and death.

Chronic air pollution exposure is associated with diseases such as hypertension, diabetes, cardiovascular disease, and chronic lung disease. Patients with these conditions are at a greater risk of hospitalization with Covid-19.

As governments look to rebuild economies, it is more important than ever that investments are directed toward green, just and sustainable sectors of society, said Avinash Chanchal, climate campaigner at Greenpeace India.

The Greenpeace Southeast Asia/IQAir AirVisual counter applies an algorithm to ground-level air quality data to calculate the projected cost of air pollution from PM2.5 and NO2 in cities around the world since January 1, 2020. The counter uses real-time air quality data from IQAir AirVisual's database, combined with scientific risk models, as well as population and health data.

PGCA Hails JK Pollution Control Board For Air Quality Improvement In Jammu, Srinagar

Date:-11-July-2020, Source: republicworld.com

The Parliamentarian Group for Climate Action (PGCA) has lauded the efforts and initiatives taken by the Jammu and Kashmir Pollution Control Board towards improving the air quality of non-attainment cities of Jammu and Srinagar.



In a communication sent to Chief Secretary of J&K, BVR Subrahmanyam, Rajya Sabha member Vikas Mahatme congratulated the UT of Jammu and Kashmir in general and the JK pollution control board (PCB) in particular for mandating the use of retrofitting emission control devices for DG sets above 125 KVA for commercial diesel-driven

vehicles of 1500 CC rating as per BS-IV standards, an official spokesman said on Friday. Mahatme said that following J&K's example, many other states, including Maharashtra, Tamil Nadu and Haryana, have also mandated the use of retrofitting emission control technology for DG sets.

The PGCA plans to highlight the efforts of JK PCB to improve the air quality as per the National Clean Air Program (NCAP) during the monsoon session of Parliament.

Chairman of JK PCB Suresh Chugh expressed gratitude for the recognition of the efforts of the board, including the transport department, by the PGCA.

He appealed to all the stakeholders to implement the orders of the PCB regarding retrofitting PCDs in DG sets and diesel-driven commercial vehicles in order to reduce the carbon footprint of the emissions.

Coronavirus: While Indians were rejoicing over clear blue skies, indoor pollution was rising

Date:-12-July-2020, Source: scroll.in



While Indians rejoiced over clear, pollution-free skies during the nationwide lockdown to contain Covid-19, which is still partially in force, they paid little heed to a silent killer that may have grown more dangerous during this time: household or indoor air pollution, known as HAP.

The lockdown from March 25, which saw more meals being cooked at home than usual, may have led to an almost 2% – or about 150 tons per day – increase in total household PM 2.5 emissions in India, according to the preliminary findings of a yet-to-be published study by the World Resources Institute India, the Indian chapter of a global think-tank researching environmental and developmental issues.

Moreover, with an estimated 50% of the population that is usually away during peak cooking hours being confined indoors, the number of people affected by HAP is likely to have increased significantly, the study found.

Particles of PM 2.5 – fine inhalable particulate matter that can enter the blood-stream – are emitted when solid biomass fuels such as wood, charcoal and dung are burnt for cooking or heating. About 78% of India's 1.3 billion population uses these solid fuels for their primary and secondary needs, according to WRI-India's calculations.

"Indoor air pollution, while not as much in the public eye as ambient air, is a silent killer, especially among the urban poor and the rural population, who use solid biomass fuels," said Ajay Nagpure, head of WRI-India's air pollution division, who is leading this research.

About half a million Indians die prematurely every year due to diseases caused by HAP exposure, including heart disease, strokes, respiratory diseases and lung cancer. Young children, women and the elderly are the worst affected. The main policy step taken by the government to address the cost to human health of HAP has been to incentivise households to use clean liquefied petroleum gas for cooking, in place of polluting biomass fuels, but the impact has so far been limited, we reported, and experts have asked for more sustained and targeted efforts to achieve this.

The average daily concentration of PM 2.5 inside a home using solid cooking fuel can be anywhere in the range of 163-600 micrograms per cubic metre, according to this study. This is between six and 23 times the safe level of daily air pollution exposure of 25 µg/m³ recommended by the World Health Organisation.

Outdoor vs indoor pollution

On March 25, India shut down all transport, most industries and commercial activities with the start of its lockdown. In the weeks that followed, the country – home to 14 of the world's top 20 most polluted cities – saw outdoor air pollution plummeting exponentially, IndiaSpend reported on June 24. For example, the Central Pollution Control Board found that outdoor air pollution in Delhi had halved over 20 days, from March 25 to April 15.

On the other hand, WRI-India's research showed that the indoor air pollution story was very different. In order to estimate household pollution levels during the lockdown, WRI India researchers collated three kinds of data: the projected state-wise population figures for India for 2020, state-wise cooking fuel usage by households, for both primary and secondary purposes, and the number of meals consumed in a day by urban and rural homes, along with details of consumption patterns, including where meals were eaten and who provided them. These figures were obtained from surveys conducted by Census of India and National Sample Survey Office.

The researchers estimated that during the first two months of the nationwide lockdown, when people mostly stayed inside their homes, 3% of the meals that the urban and rural Indian population eats outside their households had shifted indoors where, as we said, 78% of India's 1.3 billion population used polluting fuels as their primary or secondary fuel for cooking. The meals cooked at home during this period included those normally purchased from restaurants, those supplied by employers and those provided by the government or charitable organisations.

Based on this calculation, WRI-India researchers estimated that urban households recorded a 3% daily increase in PM 2.5 emissions and rural households recorded an increase of almost 2%.

However, the rise in rural India – 121 tons per day – is more than five times that of urban India – 22 tons per day – because of the larger number of rural households.

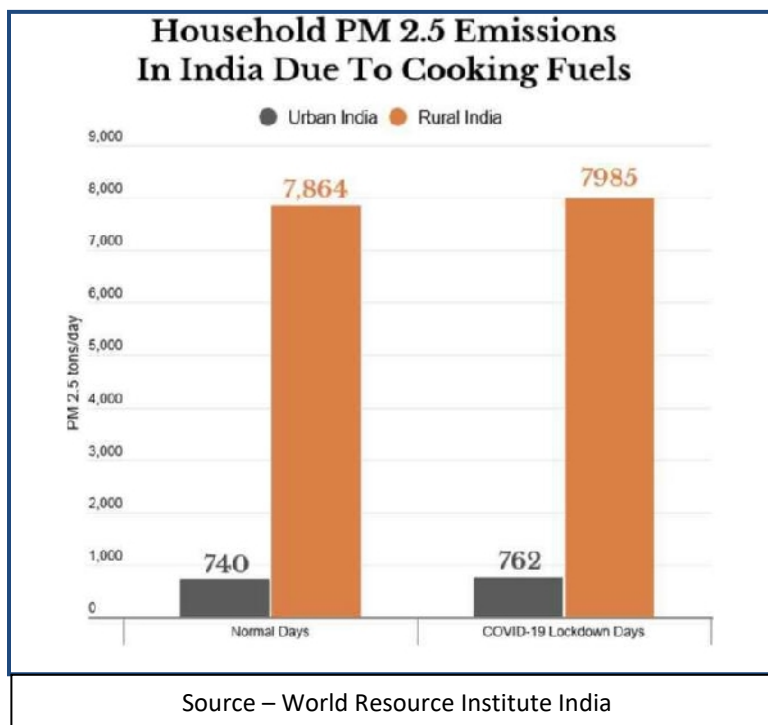
The national daily average household emission for PM 2.5 increased from nearly 8,600 tons to about 8,750 tons per day during the lockdown, according to the WRI-India analysis.

WRI-India’s estimates for daily household PM 2.5 emissions were more accurate than previous studies, Nagpure said, because they had taken into account PM 2.5 emissions for both primary and secondary usage of solid fuels, instead of accounting only for primary usage. Primary usage refers to solid fuels being the primary source of cooking in a household and secondary usage refers to solid fuels being used alongside clean fuels such as LPG.

Biggest indoor emitters

Nagpure also suggested that the household emission levels of PM 2.5 might be even higher during the lockdown than WRI-India’s research had shown, since several LPG users may have stopped using costly LPG after having lost their jobs or sources of income.

“Social distancing under Covid-19 may have reduced travel-related emissions, but it has very likely also disrupted the supply of LPG, thereby increasing the emissions within households,” said Hem Dholakia, an independent policy researcher.



Although India has partially relaxed its lockdown, this will not necessarily lead to a significant fall in indoor pollution levels, according to Nagpure. “During the partial relaxation of the lockdown, the increase in daily emissions that we have recorded may go down,” he told IndiaSpend. “But it is not just a matter of people leaving their homes; the avenues for meals outside the home, including community kitchens and restaurants, also need to be open,” said Nagpure.

Kerala, with an increase of 20 tons a day in PM 2.5 emissions; Maharashtra at 15 tons; West Bengal at 14 tons; and Jharkhand at 12 tons are emerging as the biggest indoor emitters among

states in this study, which will explore the variations between states in generating household emissions. Nagpure told IndiaSpend that the level of emissions in a particular state depends on the factors such as the overall population of the state or Union territory, the proportion of people eating outside the home, and the share of the population using biomass for cooking.

In Kerala, which is the top emitter according to this study, 50% of the rural households use clean cooking fuels such as LPG, but they do not use it exclusively, and also make use of hazardous fuels in the kitchen, IndiaSpend reported in April 2018.

Other major contributors to household air pollution include such as Andaman and Nicobar Island, Chandigarh, Dadra and Nagar Haveli, and Daman and Diu, the study has found.

Deadly exposure

With about 50% of India's population – that is, people who normally leave their homes to work or go to school, during peak cooking hours in households – staying indoors during the lockdown, the number of people exposed to increased levels of HAP had also greatly increased, the study found.

Of particular concern is the increased exposure to household PM 2.5 emissions of those more prone to develop respiratory illnesses due to such exposure, such as children and the elderly, and of worsening exposure to women, who already bear the brunt of HAP since they do most of the cooking.

Newborn and under-five children are the most vulnerable, with their underdeveloped lungs. Indoor air pollution caused 66,800 deaths of under-five children in India in 2016, 10% more than 60,900 deaths of under-five children caused by outdoor air pollution in the same year, according to a study by the WHO, IndiaSpend reported in October 2018.

Results from a study of men and women over 60 showed a higher prevalence of asthma in households using biomass fuels than those using cleaner fuels.

Along with posing a health risk through direct exposure, HAP is also one of the largest contributors of outdoor or ambient air pollution in India. "About 30% of ambient air quality exposure on average is linked to household sources – the single largest contributor nationally," Santosh Harish, fellow at the Center for Policy Research, a Delhi-based think-tank, told IndiaSpend.

In 2015, one in four deaths from particulate pollution in India was due to household biomass burning, IndiaSpend reported in January 2018. The same month, we also reported that even brief exposure to particulate pollution at lower than standard levels can be deadly.

Boosting LPG use

The central government launched its flagship cooking energy programme, Ujjwala, in 2016 to alleviate the public health burden of HAP by providing a subsidy and loan for the upfront cost of acquiring an LPG connection. Since the launch, over 80 million connections have been issued so far, IndiaSpend reported on May 11, 2020.

Still, having a free connection is not enough. Steep recurring expenses for LPG, the easy and often cost-free availability of solid fuels and the poor availability of LPG in rural areas continue to limit the extent to which households use LPG for cooking needs, we reported.

As part of the relief response to Covid-19 under the banner of the Pradhan Mantri Garib Kalyan Package, over 80 million Ujjwala beneficiaries were awarded three free LPG refill cylinders for three months from April 1, 2020. This means 80 million cylinders were to be distributed every 30 days. However, only 68 million cylinders were distributed over 50 days to May 20, government data showed. Assuming one free cylinder went to a single family, about 12 million families had not received their first free cylinder almost two months into the lockdown that started on March 25.

The way forward

The provision of free LPG cylinders as part of Covid-19 relief measures is a welcome step, and should ideally be continued as part of a social protection package to bring down HAP levels, Harish said. However, he stressed that the LPG subsidy regime should be overhauled, making it better targeted towards those who really need it and towards reaching greater numbers of such people. Subsidising urban middle class consumers through this scheme was a poor allocation of resources, he said.

Targeted policies to further improve the affordability of LPG refills for poor households, promoting its use at the community-level, reducing the distance travelled to procure LPG and ensuring predictable and regular cash flow to the poor would facilitate sustained use of clean cooking fuels, our May 11, 2020 report said.

Delhi breathes easy as air quality improves to 'good'

Date:-13-July-2020, Source: timesofindia.indiatimes.com

NEW DELHI: The air quality of the national capital improved drastically on Monday, with the particulate matter with a diameter of 2.5 and 10 microns, which are too small to be filtered out of the body, mounting to 49 and 22 micrograms per cubic.



Air quality of the national capital improved drastically on Monday

The System of Air Quality Weather Forecasting and Research categorizes air quality in the 0-50 range as good, 51-100 as satisfactory, 101-200 as moderate, 201-300 as poor, 301-400 as very poor and above 400 as severe.

"A marginal deterioration in air quality is expected. The AQI is likely to stay in satisfactory to the moderate category for the next two days," the Centre-run System

of Air Quality Weather Forecasting and Research

predicted.

As per the forecast, PM10 pollutants are expected to increase to 56 on Tuesday, which falls in the 'satisfactory' category while PM2.5 pollutants are expected to rise up to 26, which falls under the 'good' category.

The capital city had witnessed the cleanest air quality of the year with the overall AQI at 42, under the 'good' category, in March when the nation-wide lockdown was imposed.

According to a study conducted by the Indian Institute of Technology (IIT) Delhi, if the low levels of air pollution reached during the lockdown period are maintained, India's annual death toll could reduce by 6.5 lakh.

IIT Kanpur Professor Develops Technology To Monitor Air Quality



Date:-14-July-2020, Source: republicworld.com

The Air Quality Index (AQI) has greatly deteriorated over the years. Further, cities like Delhi have recorded unusual amount of air pollution in the last few years. Pollution in Delhi has been a matter of great concern for

authorities.

It is extremely difficult to calculate the toxicity content of air. In order to calculate the toxicity, it is necessary to check the particulate content in the air. Particulate matter (PM) amounts to about 2.5 microns in size.

Recently a professor of IIT Kanpur, Tarun Gupta developed a technology to monitor air quality. As per reports, the device designed by Gupta has been sent for commercial production. Gupta has reportedly been working on the design since 2013. Further, the project has been funded by the Department of Atomic Energy.

In an interview with a media portal, Tarun Gupta said that the Department of Atomic Energy approached him because they wanted to monitor traces of uranium and thorium in the air. He further mentioned that the department wanted him to monitor elements in areas where radioactive elements were mined. Gupta also said that several cities would be able to identify air samples at 15 minutes to 2-hour intervals with the help of his technology. According to him, this technology would help authorities to calculate the toxicity content of the air. Further, he said that such knowledge would help in determining state and local policies. He also mentioned that the technology developed by him was much cheaper than the existing technologies which help to test the air quality.

As per reports, IIT Kanpur has sent the device to Airshed Professional Private Ltd, a firm owned by IIT Kanpur alumni, Dharendra Singh. This technology will also ensure better particulate collection. The particulate matter can even be collected at low pressures with the help of this technology. Certain high volume respirable dust samplers can be easily added to the device without affecting its set-up in any manner.

As of date, real-time monitors and manual monitors are used to checking India's air quality. At present India has about 230 real-time monitors and about 800 manual air pollution monitoring units. However, these devices only help to measure PM10 contents.

Delhi's Connaught Place Gets Anti-Smog Gun To Reduce Air Pollution

Date:-15-July-2020, Source: thelogicalindian.com

The cannon-like dust suppression machine can help reduce pollution by spraying atomised water into the atmosphere. In an effort to reduce the rising air pollution levels in Delhi, the New Delhi Municipal Council (NDMC) on Monday, July 13, introduced the first 'anti-smog gun' at Central Park in Connaught Place. Dharmendra, Chairperson of the NDMC, in the presence of Amit Singla, secretary, and other officials of the civic body inaugurated the machine, which has been installed on a trial basis. If the trial is deemed successful, more such installations will be



made. The machine costs Rs 13 lakh and it can cover an area measuring up to 27,000 to 37,000 square metres (sqm). According to officials, the cannon-like dust suppression machine can help reduce pollution by spraying atomised water into the atmosphere.

"The anti-smog Gun is designed to create an ultra-fine fog consisting

of very fine water droplets (less than 10-micron size) of atomised water. These tiny water droplets are thrown in the larger area with the help of high-speed fans, which absorb even the smallest dust particles in the air," an NDMC official was quoted by The New Indian Express. Consequently, the machine can help clear the dust and pollution particles from the environment and also reduce PM 10 and PM 2.5, the official added. NDMC may place more anti-smog guns at India Gate, Sarojini Market, Gole Market, and major intersections such as AIIMS and Dhaula Kuan.

"We will examine the performance of the anti-smog gun and may employ more machines accordingly at India Gate, Rajpath, and Metro or other construction sites. Soon, the National Building Construction Corporation (NBCC) will start massive construction in Sarojini Nagar and these machines can help to bring down dust pollution levels there," the official added. The Delhi government had used an anti-smog gun at Anand Vihar, one of the highest polluted spots in the city, in 2018. However, the machine was less effective in containing the levels of particulates.

The interplay between the pandemic and pollution | Analysis

Date:-16-July-2020, Source: hindustantimes.com

Air quality was gradually gaining political salience in India over the last few years, but the coronavirus pandemic and the deepening economic recession may now change the speed, and possibly direction, of progress. As the country battles a public health crisis of staggering proportions, we must remind ourselves that we do not have the luxury of tackling air pollution at a later point. Air pollution is a risk factor that, based on current information, has a long-term mortality and morbidity burden greater than Covid-19, given the severity of pollution levels. It also increases the risk of infections such as Covid-19. Although restrictions during the lockdown



As we set in motion recovery plans, we must remember that air pollution-linked deaths and disease must also be tackled with the urgency they deserve

mechanically led to temporary improvements in air quality, as economic activities resume, air pollution too will return to plague us.

In the context of air quality management, our analysis reveals that the disruptions caused by the pandemic, and actions taken in

response to these are likely to result in three sets of outcomes, each offering a different call to

action: New opportunities to accelerate transitions, dilution of safeguards in the guise of incentivising economic recovery that need to be contested, and avenues for sustaining recent progress.

The first set of outcomes present opportunities to set a new agenda, or provide an impetus to existing policy measures. These opportunities, when harnessed, will allow us to lock-in infrastructure or accelerate behavioural changes that are well-aligned with improved environmental and health outcomes, particularly air quality. We identified five such opportunities.

One, providing increased, better-targeted subsidies as part of a social protection package to allow poor households to use LPG as their primary cooking fuel. This would be consistent with the three LPG cylinders included in the Garib Kalyan Yojana package. Two, sustaining the increased rate of shifting away from paddy cultivation in Punjab and Haryana due to labour constraints, and ensuring that the alternatives (for example, maize, cotton) are viable for farmers. Three, focusing the demand for vehicle scrappage policies towards the replacement of old, heavily polluting vehicles, especially trucks. Four, retiring old coal power plants so that newer or less polluting plants can meet a larger fraction of power demand, while likely easing the financial crisis in the sector. Finally, increased acceptability and experience with work-from-home and online meetings need to be sustained to reduce commute by private vehicles and taxis.

In the second set lie potentially regressive outcomes, which need to be firmly contested. Some of these outcomes arise from the government's efforts to dilute environmental safeguards, formally or informally, while citing the need for urgent economic recovery and improving the "ease of doing business". For instance, the Draft Environmental Impact Assessment Notification

2020 that is currently under consideration will have massive implications for the country's air quality. It dilutes the process to obtain environmental clearance, reduces the categories of projects and activities that will have to undergo impact-assessment scrutiny, curtails public consultation processes significantly, and proposes procedures to deal with violations that are legally untenable, and will effectively allow environmental offences to be condoned at very little or no cost to the violator. Another example is the government's tacit support to power plants that have failed to comply with the 2015 emission standards by extending the deadlines. The health costs of their non-compliance can no longer be ignored, and the pandemic cannot become yet another basis for delaying compliance. Finally, the call for greater transparency in monitoring, inspection and enforcement data from the pollution control boards becomes more urgent to ensure dilutions in day-to-day regulation do not go unnoticed.

In the third set are areas that we believe will not be directly impacted by the pandemic, but where we need to actively sustain the discourse, develop ideas and make progress on longer-term systemic improvements. The framework of the National Clean Air Programme (NCAP) needs continued strengthening, in particular on developing uniform processes for identifying non-attainment cities and to track inter-year air quality improvements.

The first year of NCAP (2019-20) was hobbled by its modest budget. However, this year, the newly-allocated performance-based grants linked to air quality from the 15th Finance Commission (FC) substantially increases the resources available to the large cities — totalling Rs 4,400 crore to 42 urban agglomerations with million-plus populations. Effective utilisation of these funds needs significantly greater efforts by state and municipal governments to engage with civil society in prioritising actions. Further, the grants need to be sustained over the 2021-26 period of the 15th FC, and need to shift — together with NCAP — towards managing air quality at the regional, “airshed” level. At the same time, investments in sustainable infrastructure, and improvements in public services that will lead to cleaner air will need to be undertaken in parallel with developing the knowledge base on sources and air quality monitoring.

The pandemic has appropriately brought about an urgent response, given the scale of its effects. As we set in motion recovery plans, we must remember that air pollution-linked deaths and disease must also be tackled with the urgency they deserve.

Toxic air reduced by 54% in 5 cities during lockdown

Date:-17-July-2020, Source: daijiworld.com

New Delhi, Jul 17 (IANS): The Covid-19 lockdown reduced dangerous air pollutants in five Indian cities -- Chennai, Delhi, Hyderabad, Kolkata, and Mumbai -- by up to 54 per cent saving 630

people from premature deaths, a team of UK scientists, led by an Indian-origin researcher have found.

In late March 2020, a complete lockdown of internal and external borders together with social isolation measures came into effect in India, affecting the lives and mobility of its 1.3 billion population.

"Covid-19 has had a devastating effect on the lives and livelihoods of billions across the world," said study researcher Prashant Kumar, Professor at the University of Surrey in the UK.

"This tragic global event has allowed us to quantify the impact that human activity has had over our environment and, in particular, our air quality," Kumar added.

For the study, published in the journal *Sustainable Cities and Society*, the research team studied the levels of harmful fine particulate matter (PM2.5) originating from vehicles and other non-vehicular sources in the five Indian cities from the start of the lockdown period until 11 May 2020.

The team analysed PM2.5 distribution and contextualised their findings against those from other cities from across the world.

They also explored potential factors influencing differences between divergent concentration changes in different cities, as well as aerosol loadings at a regional scale.

In their work, the research team compared these lockdown air pollution figures with those from similar periods of the preceding five years.

The results showed that the lockdown reduced concentrations of harmful particles across all five cities, from a 10 per cent reduction in Mumbai up to a 54 per cent reduction in Delhi.

These reductions in PM2.5 were found to be comparable to reductions in other cities across the world, such as in Vienna (60 per cent) and Shanghai (42 per cent).

The team also investigated the monetary value of avoided premature mortality due to reduced PM2.5 concentrations, and calculated that the reduction may have saved 630 people from premature death and \$690 million in health costs in India. The team pointed out that the present lockdown situation offers observational opportunities regarding potential control systems and regulations for improved urban air quality.

"While the reduction in PM2.5 pollution may not be surprising, the size of the reduction should make us all take notice of the impact we have been having on the planet," the study authors wrote.

Delhi's air quality remains in 'satisfactory' category; overall AQI clocks at 77

Date:-18-July-2020, Source: timesnownews.com



Delhi NCR pollution today

New Delhi: For the second consecutive day, the air pollution levels in the national capital stood in the 'satisfactory' category with the overall Air Quality Index (AQI) clocking at 77 at 6 am on Saturday, according to the Centre-run System of Air Quality and Weather Forecasting And Research (SAFAR). Prominent pollutants such as PM2.5 and PM10 were recorded at 77 and 40 respectively.

Air quality in various areas of Delhi

As per the data released by the Central Pollution Control Board (CPCB), several areas in the national capital such as Dilshad Garden (IHBAS), Indira Gandhi International Airport (T3), Dwarka Sector 8, Matura Road and Anand Vihar recorded the air quality in the 'satisfactory' category with the overall AQI docking at 98, 91, 95, 86 and 93 respectively. Meanwhile, the air pollution levels in Lodhi Road, Mundka, ITO and Bawana stood in the 'moderate' category with the overall AQI standing at 106, 101, 126 and 112 respectively.

SAFAR's forecast

As per SAFAR's forecast, PM10 particles are expected to drop to 62 on Sunday morning, which falls in the 'satisfactory' category while PM2.5 particles are expected to plunge to 32, which falls under the 'good' category. The pollution monitoring system also said, "Under the influence of strengthening easterlies, fairly widespread rainfall over the plains of northwest India is likely for the next three days. Further improvement in Delhi air quality to the lower end of the satisfactory category is predicted for the next two days."

Air quality in other major cities

Neighbouring Noida in Uttar Pradesh also recorded the quality of air in the satisfactory category with the concentrations of PM10 and PM2.5 particles standing at 69 and 59 respectively. Other major cities such as Pune, Mumbai and Ahmedabad recorded the air quality in the 'good'

category with the overall AQI at 25, 33 and 45 respectively. SAFAR attributed the 'good' air in the aforementioned cities to strong lower-level wind convergence which is keeping the monsoon active over Konkan and Gujarat region.

Air quality in 'good' category after rains; likely to get better tomorrow

Date:-21-July-2020, Source: cityspidey.com



New Delhi: With the monsoon showers lashing the national capital in the last two days, the air quality has significantly improved to 'good' category on Tuesday.

As per the System of Air Quality and Weather Forecasting And Research (SAFAR), Delhi's overall Air Quality Index (AQI) recorded

at 47.

The concentrations of PM10 and PM2.5 particles recorded at 47 and 22 respectively at 6 am on Tuesday.

The air quality is also expected to get better in the coming days. The pollution monitoring system predicted the air quality to improve on Wednesday.

On Wednesday, PM10 particles are expected to decline to 33, while PM2.5 particles are expected to drop to 16.

The India Meteorological Department has said that Delhi is likely to witness heavy rains at isolated places over the next two days.

They said that as the monsoon is also running through the region, moderate to heavy rains are expected in the next 24 hours.

Massive Earth Foundation Study Reveals How COVID-19 Unravelling The Causes Behind Indian Air Pollution

Date:-23-July-2020, Source: businessworld.in

Massive Earth Foundation, India's leading non-profit entity focussing on solving pollution and climate change issues through actionable research today unveiled its latest study correlating the problems of clean air and the ongoing lockdown triggered by the COVID-19 pandemic.

According to the study, GDP growth in emerging and growing economies have seen the corresponding decline in the quality of air. In the last 5 years, 14 out of 20 most polluted cities were in India. While 14 top Indian cities remain highly polluted, Delhi, the country's capital, became an unwitting symbol of being one of the most polluted cities locally as well globally.

MEF's study reveals that massive crop burning that happens in neighboring states during winter months and corresponding smog in Delhi has become the focal point of research for experts, governments and industry bodies. Huge campaigns and initiatives along with appropriate carrot and stick policy were launched in neighboring states to solve the issue of paddy stubble burning so as to solve the problem of Delhi's air pollution. But the problem still persisted and in fact snowballed.

The study observed that the change in the air quality for the better over the last few months though completely unintentional has happened due to the ongoing COVID-19 pandemic. According to MEF, while COVID-19 continues its catastrophic impact on human lives, the ensuing lockdown to combat the virus had induced a unique A/B testing mode for air pollution study.

Shailesh Vikram Singh, founder Massive Mobility & Massive Earth Foundation, "For the first time ever since modern IoT sensors were deployed for air monitoring, there is AQI data with minimal economic activity. This created an optimal scenario for conducting A/B testing, a popular tool in the startup world to do scenario testing. This testing also settled the conflicts within statisticians regarding causes of air pollution whether it is paddy, coal, Diwali crackers or broken transportation. COVID19 lockdown demonstrated that cities in India also have base AQIs that are comparable to European or North American cities but once economic activity & vehicular traffic even marginally restarted, AQI levels started increasing."

It is important to note that March, April & May are ideal months to study base AQI instead of AQI being highlighted in the months of October to January. The reason being in March to May, Air humidity & Air temperature levels are not in any extremes as there is no impact of monsoon. The impact of pollen & some dust storms is offset by some pre-monsoon showers. Further, the amount of crop fires is limited & there are no Diwali firecrackers.

On the other hand, AQI gets highlighted in October to January period. According to MEF, in India air pollution is directly linked to Delhi & not any other major city. During this period air pollution is severe (AQI more than 500) for a couple of weeks first due to the combination of Diwali & Paddy stubble burning. And then again AQI reaches close to 500 mark in January due to smog caused by a combination of air pollution, low air temperature & humidity.

Singh further added, "What is important to understand is that pollution that is studied in March to May eliminates other environmental pollution & establishes a base level for air pollution

across India. This base level pollution continues throughout the year as vehicles emit gases, industries & power plants burn fuels. The data analysis has shown that the baseline of air pollution in India has shifted to 200 level from desired 60, not because of thermal coal plants, paddy stubble burning or because of Diwali crackers bursting but it is due to broken public transport infrastructure."

According to MEF study, India which has 400% fewer buses available in comparison to even countries like Thailand, due to which citizens had to invest in their own private transportation assets. While this led to unprecedented sales of two-wheelers and cars making it one of the biggest markets for such vehicles in the world, it also led to congestion and very high consumption and burning of fossil fuel.

This further dented India's AQI levels and led to a shift in the baseline AQI from 60 (highly desirable) to 200 (very unhealthy). Hence the focus of policymakers should be on electrification of the transportation system in the country. According to MEF, this can also be a Rs 5 lakh crore revenue opportunity and can leapfrog India to the top league of electric mobility. This will not only save precious forex but will also create a healthy and wealthy India.

Delhi's air quality deteriorates slightly as overall AQI reaches 70

Date:-27-July-2020, Source: timesnownews.com



During the week, PM10 pollutants are expected to reach the figure of 90, which falls under the 'satisfactory' category

New Delhi: The air quality of Delhi remained in the 'satisfactory' category on Monday morning as the overall air quality index (AQI) was recorded at 70. The rise in AQI was observed as there was an increase in the concentration of both, PM10 and PM2.5 pollutants.

According to the System of Air Quality and Weather Forecasting And Research (SAFAR), PM10 pollutants in Delhi were recorded at 70 on Monday morning, which comes under the 'satisfactory'

category and PM2.5 pollutants were recorded at 34, which comes under the 'satisfactory' category as well.

As per the forecast, PM10 pollutants in Delhi are expected to rise up to 77 on Tuesday, which falls in the 'satisfactory' category while PM2.5 pollutants are expected to rise up to 37, which falls under the 'satisfactory' category.

During the week, PM10 pollutants are expected to reach the figure of 90, which falls under the 'satisfactory' category and PM2.5 pollutants are expected to reach the figure of 44, which also falls under the 'satisfactory' category.

In Pusa, PM10 pollutants were recorded at 56, which comes under the 'satisfactory' category while PM2.5 pollutants were recorded at 50, which comes under the 'good' category. Meanwhile, in Lodhi Road, PM10 pollutants were recorded at 56, which comes under the 'satisfactory' category and PM2.5 pollutants were recorded at 65, which comes under the 'satisfactory' category. In Noida, PM10 pollutants were recorded at 64 and PM2.5 pollutants were recorded at 66. Both PM10 and PM2.5 pollutants were in the 'satisfactory' category on Monday.

India reduced air pollution by 10.7% in 2018, Lucknow most polluted, finds study

Date:-28-July-2020, Source: theprint.in



Delhi engulfed by toxic smog

New Delhi: India has seen a 10.7 per cent reduction in particulate pollution levels from 2016 to 2018, which translates to an almost one year gain in life expectancy of an average Indian, according to the latest data released by researchers from the University of Chicago.

According to the Air Quality Life Index (AQLI) — the pollution index that measures the impact of particulate air pollution on life expectancy — India was the most polluted country in the world in 2016 with particulate pollution level at 71.7 micrograms per cubic metre.

This level of pollution meant that Indians were losing upto 6.1 years of their lives on average due to air pollution.

The Chicago study published Tuesday revealed that India's pollution level reduced to 63.0 micrograms per cubic metre in 2018.

The study said that an average Indian would live upto five years longer if the air quality in the country met the World Health Organization (WHO) standard, the researchers said.

The WHO benchmark for particulate pollution level is 10 micrograms per cubic metre.

The report also revealed that India is the second most polluted country after Bangladesh. Nepal, Pakistan and Singapore are among the five most polluted countries.

In 2019, the central government had announced the National Clean Air Programme (NCAP) to reduce the 2017 level of particulate pollution by 20-30 per cent by 2024. In 2017, the particulate pollution level was 66.0 micrograms per cubic metre.

The report stated that achieving a nationwide reduction of 25 per cent would increase India's national life expectancy by 1.6 years, and by 3.1 years for residents of Delhi.

Residents of Delhi could see more than nine years added to their lives if pollution was reduced to meet the WHO standard, it stated.

Delhi has, however, seen an overall reduction in pollution levels in 2018 by at least 20 per cent, according to the data.

In 2016, air pollution in Delhi was estimated to reduce life expectancy by over 12 years, the report stated.

Lucknow has the highest level of pollution

Researchers also pointed out that particulate pollution in India has seen an increase by 42 per cent since 1998.

As much as 84 per cent of Indians live in areas that exceed the country's own air quality standards, while the entire population is exposed to levels that exceed the WHO standard, they said.

Lucknow has the highest level of pollution in the country at 114.6 — 11 times higher than the WHO standard. Residents of Lucknow stand to lose 10.3 years of life expectancy if pollution persists, according to the report.

"Though the threat of coronavirus is grave and deserves every bit of the attention it is receiving — perhaps more in some places — embracing the seriousness of air pollution with a similar vigor would allow billions of people around the world to lead longer and healthier lives,"

Michael Greenstone, one of the authors of the report, from the Energy Policy Institute at the University of Chicago (EPIC) said in a statement.

“The reality is, no shot in the arm will alleviate air pollution. For a country like India, the solution lies in robust public policy. The AQLI tells citizens and policymakers how particulate pollution is affecting them and their communities, and can be used to measure the benefits of policies to reduce pollution,” Greenstone said.

The report also stated China has managed to reduce pollution levels by 39 per cent from 2013 to 2018. According to the report, three quarters of the reduction in world’s particulate pollution stems from China.

“If the reductions are sustained, China’s people can expect to live some two years longer,” the report said.

‘Strong policies can reduce pollution’

The report further said that nearly 230 million residents of Uttar Pradesh are on track to lose more than 8 years of life expectancy if the state doesn’t meet the WHO standard.

In 2016, the residents of the state — with 116.5 micrograms per cubic metre pollution level — were on track to lose 10 years of life expectancy.

The pollution level in 2018 was, however, reduced to 97.3 micrograms per cubic metre. This reduction has increased life expectancy of UP residents by almost two years on an average, the report stated.

The researchers said that state governments in India have already been working proactively towards improving air quality.

“History is full of examples of how strong policies can reduce pollution, lengthening the lives of residents,” said Greenstone.

Air pollution cuts Indians’ life expectancy by 5.2 years: Report

Date:-29-July-2020, Source: hindustantimes.com

Pollution levels in India shave off 5.2 years from the life expectancy of the average Indian and it most acutely hits people living in the Indo-Gangetic plains, according to an assessment by the Energy Policy Institute at the University of Chicago, which also showed that the situation had slightly improved between 2016 and 2018.



The National Capital Territory of Delhi is the 15th most-polluted region in the country as per the analysis.

India is the second most-polluted country globally after Bangladesh, while Nepal, Singapore and Pakistan are the other top countries with dirty air. The authors use an air quality life index (AQLI), which takes particulate air pollution and determines the hit it has on life expectancy.

According to the AQLI, India's yearly average particulate pollution concentration of 63.2

ug/m³ in 2018 reduced life expectancy of the average Indian by 5.2 years. The life expectancy lost in 2016 was 6.1 years when the particulate pollution – which is linked to diseases affecting the lungs and heart – was at 71ug/m³.

In 2018, Lucknow's (the most polluted district in the country) residents were exposed to an average annual PM 2.5 concentrations of 114.6 micrograms per cubic metres which is likely to cut short life expectancy by 10.3 years compared.

That makes Lucknow the most polluted district in the country followed by 13 other districts, all in Uttar Pradesh.

The National Capital Territory of Delhi is the 15th most-polluted region in the country as per the analysis, which relies on satellite data. The average PM 2.5 concentration was 106 micrograms per cubic metres which can lead to loss of 9.4 life years compared to if Delhi had met the WHO guidelines for air quality.

The analysis did not include figures from 2019 and 2020.

The report, released in India, Pakistan and Bangladesh on Tuesday evening, showed air pollution problem that was severe in India in the late 90's only worsened further in recent years with an estimated life expectancy loss of 3.4 years in 1998, 4.8 years in 2010 and 6.1 years in 2016.

China, however, stands out as a success story as per the data. Singapore, China and India were the three most polluted countries in 1998 with the Chinese losing 3.6 years of life to pollution but by 2018, China was the seventh most polluted and had improved its life expectancy by 1.3 years. Singapore has also improved.

China declared a “war against pollution” in 2013 with some aggressive reforms. Since then, three-quarters of the world’s reductions in pollution have come from China and it has reduced PM 2.5 pollution by nearly 40% during the period according to the analysis.

“Though the threat of coronavirus is grave and deserves every bit of the attention it is receiving— perhaps more in some places—embracing the seriousness of air pollution with a similar vigour would allow billions of people around the world to lead longer and healthier lives,” said Michael Greenstone, the Milton Friedman distinguished service professor in Economics and creator of the AQLI along with colleagues at the Energy Policy Institute at the University of Chicago (EPIC).

“The reality is, no shot in the arm will alleviate air pollution. The solution lies in robust public policy. The AQLI tells citizens and policymakers how particulate pollution is affecting them and their communities and can be used to measure the benefits of policies to reduce pollution.”

Over 20 years, India’s annual PM 2.5 levels have increased by 42%, taking 1.8 years off the life of the average resident.

A quarter of India’s population is exposed to air pollution concentrations not recorded in any other country, with 248 million people in north India on track to lose more than 8 years of life expectancy if the same pollution levels persist.

There is also emerging evidence that air pollution aggravates Covid-19 complications and increases mortality.

“In northern Italy which is highly polluted covid 19 mortality was 12% compared to southern Italy where it was 4.5 %. There was also a study published by Harvard University which said even with a 1 microgram per cubic metre increase in PM 2.5, covid 19 mortality goes up but it has to be long term exposure to air pollution. These two are landmark studies. Even during the SARS epidemic in 2003 mortality was higher in polluted areas, even during the Spanish Flu in 1918 mortality was higher around coal plants. So, there is a clear link between air pollution and covid 19 mortality and morbidity. This is to do with how air pollution affects the airways and immune system of the lungs,” said Dr GC Khilnani, PSRI institute of critical and pulmonary and critical and former and head of pulmonary medicine at AIIMS.

Delhi's air quality deteriorates slightly as overall AQI docks at 86

Date:-30-July-2020, Source: timesnownews.com

New Delhi: The air quality of Delhi remained in the 'satisfactory' category on Thursday morning as the overall air quality index (AQI) was recorded at 86. The rise in AQI was observed as there was an increase in the concentration of both, PM10 and PM2.5 pollutants.

According to the System of Air Quality and Weather Forecasting And Research (SAFAR), PM10 pollutants in Delhi were recorded at 86 on Thursday morning, which comes under the 'satisfactory' category and PM2.5 pollutants were recorded at 29, which comes under the 'good' category as well.

As per the forecast, PM10 pollutants in Delhi are expected to reduce to 69 on Friday, which falls in the 'satisfactory' category while PM2.5 pollutants are expected to rise up to 23, which falls under the 'good' category.

During the week, PM10 pollutants are expected to reach the figure of 95, which falls under the 'satisfactory' category and PM2.5 pollutants are expected to reach the figure of 32, which also falls under the 'satisfactory' category.

AQI of Noida and other areas

In Pusa, PM10 pollutants were recorded at 74, which comes under the 'satisfactory' category while PM2.5 pollutants were recorded at 48, which comes under the 'good' category. Meanwhile, in Lodhi Road, PM10 pollutants were recorded at 78, which comes under the 'satisfactory' category and PM2.5 pollutants were recorded at 51, which also comes under the 'satisfactory' category. In Noida, PM10 pollutants were recorded at 86, which falls under the 'satisfactory' category and PM2.5 pollutants were recorded at 50 which comes under the 'good' category.

August 2020

Gaps in July air quality data in Gurugram, Faridabad

Date:-2-Aug-2020, Source: hindustantimes.com

Air quality monitoring stations in Gurugram and Faridabad installed in January failed to transmit or capture over a week's worth of data in July, according to the Central Pollution Control Board's (CPCB) national air quality index website.

The two districts have four air quality monitors each, including the new ones - two in Gurugram and three in Faridabad. They record fine and coarse particulate matter concentrations, while also recording the levels of carbon monoxide, sulphur dioxide, ozone, nitrogen dioxide, all of which are calculated to arrive at the air quality index.

While the two new Gurugram monitors are located on the Gurugram-Faridabad Road and sector 51, Faridabad's are located in sector 11, sector 30 and VK Chowk in the New Industrial Township area. After testing, they began operations on March 6.

While March and June went off without a glitch, gaps in data on the CPCB website emerged in July -- the Gurugram-Faridabad Road one missed 11 days' data, sector 51 lost data for seven days. In Faridabad, the one at VK Chowk missed 11 days' data, sector 30 did not have data for four days, while sector 11 lost nearly the month.

JB Sharma, senior scientist and head of the Haryana State Pollution Control Board (HSPCB) air quality cell in Panchkula, initially attributed these deficiencies to a possible lack of upkeep since the lockdown, that began on March 25 just days after the new monitors began transmitting data to the CPCB server in Delhi.

Sharma later said, "I can't say for sure as the matter has just been brought to my attention. It may also be a case of poor internet connectivity or erratic electricity supply, because of which the data is not being reflected in the CPCB server. I will have to check up with the regional officers of the districts before making further comments."

Kuldeep Singh, the HSPCB's regional officer in Gurugram, and Dinesh Kumar, his counterpart in Faridabad, did not respond to requests for comment on Saturday.

Sachin Panwar, a city based air quality scientist, said, "Data from new monitors is valuable so long as it is available to researchers, scientists and policy makers. Gurugram and Faridabad are both very data deficient when it comes to air pollution, and we have been waiting for several years for the situation to change. It is good that we have got these new monitors, but maintaining credible data is a hands on process and regular checks need to be done."

CNG vehicles up 9% in Mumbai region in a year, most are cars and autos

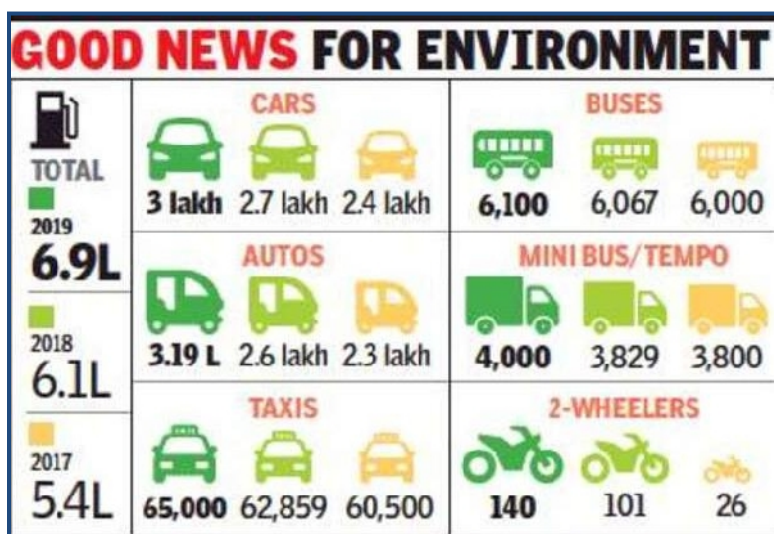
Date:-2-Aug-2020, Source: timesofindia.indiatimes.com



MUMBAI: We are approaching a situation where two out of every 10 vehicles run on CNG, the green fuel. There was a 9% rise in CNG vehicles in Mumbai region in 2019-20 as compared to 2018-19, latest statistics released by Mahanagar Gas Limited (MGL) show. The total number of vehicles registered in 2019-20 was 7.52 lakh as against 6.9 lakh in the same period last year — an increase of 62,000.

A look at the data between 2016-17 to 2019-20 shows that the number of vehicles in the Mumbai metro region has gone up by 2.10 lakh over four years. Of these, the fourth year alone (2019-20) has seen a growth of more than 60,000 vehicles — a welcome development at a time when the economy has not witnessed a very robust growth but has seen quality of air improve.

TimesView



The proportion of CNG-fuelled automobiles in the city has reached a considerable number and is likely to impact on air pollution due to vehicular exhaust. This is a heartening trend and must be backed by tax breaks on new purchases. If private owners are provided incentives and supply of gas at fuel outlets increases, the trend will be reinforced.

Statistics further show that the number of private cars using the green fuel had gone up by 23,000 in the past one year, taking the total CNG car population in the metro region to 3.23

lakh. At the same time, 34,000 new autos were launched on CNG while just 1,000 more taxis were plying on it in 2019-20.

Data shows the number of CNG autos grew by over 1.5 lakh in the past 3-4 years. This has increased the auto population to 3.52 lakh in the region today. The total taxis plying on CNG is over 66,000, statistics say. In comparison, buses and trucks on CNG had a slow growth rate, numbering around 5,000.

MGL managing director Sanjib Datta said: "MGL is committed to provide uninterrupted supply of CNG across the region and to add to our network of 250 CNG stations." He further said petrol price was much higher than the CNG price, and so the latter was the most affordable fuel. The price of CNG was Rs 48.95 per kg while that of petrol was Rs 87.19 a litre on Thursday. Besides, mileage in a CNG-driven vehicle is 60% to 70% more than a petrol-run car.

Also, sources in MGL said that with tax concessions on CNG, several citizens preferred to purchase duo variants — petrol with CNG fuel — especially for hatchback cars. This has pushed the use of CNG among motorists. Many have also got CNG kits retrofitted in existing cars for Rs 40,000 to Rs 45,000 per kit, the sources added.

Transport experts said that the Mumbai metro region should have more CNG and electric vehicles to ensure reduction in emission levels.

CSE Audit@Home survey reveals some promising green trends

Date:-3-Aug-2020, Source: timesofindia.indiatimes.com



CHENNAI: An online environmental survey, conducted by the Centre for Science and Environment, evoked tremendous response as it witnessed participation of over 47,000 students from 28 states with Delhi being on the top with 8,000 participants, said a press release issued by the CSE on Monday.

As the Covid-19 pandemic continues to rage across the country, the CSE has been

working to ensure that environmental learning does not stop while students remain at home

under full or partial lockdown conditions. CSE's Green Schools Programme (GSP) has stepped up with a unique online environmental survey –Audit@Home.

“The survey, which concluded recently, provided students with the opportunity to observe, assess and improve the resource consumption patterns in their households with respect to air, energy, food, biodiversity, water, and waste,” said Ranjita Menon, programme director, environment education unit, CSE.

Open to all students from Class V to XII, the survey was designed in a manner to make students understand various interconnections that play out and add to climate change -- for instance, the relationship between waste management and air pollution. Personalised scorecards were shared with each participant with suggestions to transition to greener practices based on their score in the survey.

“The survey helped students gain insights into the practices followed in their households regarding waste management, food consumption, water and energy usage and others. Becoming aware of their practices is an essential milestone and it is only after becoming aware that one can transform their ways to use as little and save as many resources as possible,” she said.

The survey results pointed towards some promising aspects: 96% of the students who took the survey had energy-efficient lighting in their homes; 67% repurpose or give away food leftovers; and 51% use sustainable modes of transport like walking and cycling for their every-day activities.

The survey results also flagged the areas where interventions may be required: for instance, 55% of the participants do not use renewable energy in any form. The survey results marked the current levels of awareness and future goals of environmental education.

“GSP's Audit@Home is a tool to develop a strategy and roadmap for adoption of resource-efficient measures in households by young environmentalists and in the process, it educates them about the environment in the most pragmatic way -- learning by doing. This initiative has created opportunities for students to spend time away from the screen, observe the practices at home and learn what's best for the environment,” said Menon.

The Green Schools Programme was launched to initiate and strengthen the tools of ecological literacy in schools. Its key initiative, the GSP environmental audit for schools, provides teachers and students with the methodology to audit the resource consumption in schools and supports schools to transition to greener infrastructure and practices.

The GSP network has a national footprint, with more than 7,000 schools across all states carrying out a rigorous audit on environmental practices within their own premises, following a set of activities and tasks. GSP pivoted its initiatives this year due to the pandemic to keep environmental education impactful and relevant with programmes like Audit@Home.

GSP Audit 2020 for schools will be launched as and when the schools reopen.

Project to install smog tower in Delhi will take 10 months: Centre tells SC

Date:-4-Aug-2020, Source: livemint.com

NEW DELHI : The Central government on Tuesday submitted before the Supreme Court that it will apprise it by August 10, when the work can be started on installing smog tower to control air pollution in the national capital.

A bench headed by Justice Arun Mishra was informed by Solicitor General Tushar Mehta, appearing for the Centre, that project to install smog tower will take 10 months and foundation will start immediately.

Mehta further submitted that the Indian Institute of Technology (IIT Bombay) will oversee the smog tower project, TATA will look at the installation, and the Centre will do the funding.

Earlier, Justice Mishra had warned IIT Bombay of contempt proceedings after learning that it has backed out of a court-ordered project to install smog tower in Delhi.

Mehta had told the apex court that IIT Bombay has backed out from the project, following which the bench said that it has to proceed against IIT Bombay and other authorities for delaying the order of the court.

"How can they back out from a government project? We will draw contempt against them (IIT Bombay). What is this nonsense? They cannot withdraw from the project like this. How can they back out from the Central government after this court passed orders? We will punish IIT Bombay. How can they back out after six months?" Justice Mishra had remarked.

A smog tower is a structure designed as large-scale air purifiers to reduce pollution particles in surrounding areas.

The top court had in December last year granted three months to the Centre and the Delhi government to set up a smog tower in Delhi to deal with air pollution.

Before passing the order, the judges had discussed the issue with an IIT Bombay Professor, who is part of the high-level committee examining various technologies, including smog guns, to combat air pollution.

Delhi air quality remains in good category, overall AQI docks at 63

Date:-5-Aug-2020, Source: timesnownews.com

New Delhi: The air quality in Delhi remained in the 'good' category on Wednesday with overall air quality dropping to 63, according to the latest estimates updated by System of Air Quality and Weather Forecasting And Research (SAFAR).

Delhi breathes clean air

Most of the areas in national capital recorded air quality in the 'satisfactory' category on Wednesday morning. According to SAFAR estimates updated at 6.30 am, Alipur, Anand Vihar, Pusa Road, Lodhi Road, Mathura Road, IIT-Delhi and IGI Airport (terminal-3) recorded air quality in the satisfactory category with an AQI of 64, 76, 43, 47, 45, 47 and 47 respectively.

Moderate air in parts of Delhi

However, some parts in Delhi including Chandni Chowk recorded air quality in the moderate category with an AQI of 108.

According to SAFAR, AQI between the range of 51 and 100 is considered as 'satisfactory' or 'very good', 101-200 is 'moderate', 201-300 falls under the category of 'poor'. While 300-400 is considered as 'very poor', levels between 401-500 fall under the 'hazardous' category.

SAFAR prediction

"The overall AQI in Delhi was in the satisfactory category on Tuesday. The AQI in the national capital is likely to marginally deteriorate to the higher end of the satisfactory category for Wednesday. A shift in wind direction to easterly and strengthening of wind speed is forecast. Marginal improvement in AQI is expected by 6th August. Air quality continues to be in the good category for Pune, Mumbai, and Ahmedabad. Under the influence of low-pressure area in the Bay of Bengal, the monsoon southwesterly flow has strengthened and widespread rainfall with isolated heavy rainfall over Konkan. Under good rainfall, AQI is likely to stay good for the next two days. Pune AQI is the best among all four cities," SAFAR forecast said.

Air quality in NCR

After the lockdown on March 25, the air quality in the Delhi-NCR had improved considerably. On Wednesday, Noida and Gurugram registered air quality in the 'good' category with an AQI of 56 and 40. respectively.

Why Delhi woke up to a clear, blue sky

Date:-7-Aug-2020, Source: hindustantimes.com



A set of numbers in this ballpark -- which on Thursday equalled a blue sky with a mix of interspersed high and low white clouds -- coincide only a few times a year in the Capital.

It took a rare confluence of five factors -- strong easterly winds, rain the previous day, low dust and emissions, a high ventilation coefficient, and bright sunshine -- for Delhi to wake up on Thursday to something it rarely does: a clean, clear, cerulean sky.

To be precise, the wind speed was 30-40kmph, 13 mm of rain was recorded at the Safdarjang station on Wednesday, the contribution of dust to the air

pollution was nil, and the ventilation coefficient was 45,000 metres square per second.

A set of numbers in this ballpark -- which on Thursday equalled a blue sky with a mix of interspersed high and low white clouds -- coincide only a few times a year in the Capital.

The data above is from the India Meteorological Department and the Air Quality Early Warning System under the Union ministry of earth sciences.

“There was a cyclonic circulation over Madhya Pradesh that brought light rain on Wednesday. There are strong easterlies blowing at 30 to 40km per hour that helped clear the skies. On August 8, we are expecting a change in wind patterns. A low pressure area is developing again in the Bay of Bengal. We are expecting moderate category rain in Delhi on August 10, 11 and 12,” said Kuldeep Shrivastava, head of the regional weather forecasting centre.

IMD in its Thursday bulletin said strong surface winds will continue to blow over north-west India till Friday.

“The low pressure area that had formed over Bay of Bengal on August 4 now lies over south-west Madhya Pradesh. It is very likely to become less marked by August 7. There is strong south westerly/westerly monsoonal flow over the Arabian sea with wind speed reaching 50-60kmph along and off the west coast. Strong surface winds are likely to prevail over northwestern plains till Friday,” the bulletin said.

According to an explainer by Nasa on why the sky is blue, when sunlight reaches the earth's atmosphere and is scattered in all directions by all the gases and particles in the air, blue light is scattered more than the other colours because it travels as shorter, smaller waves.

"A combination of clouds and radiation from sunlight determines the colour (or the blueness) of the sky," said RK Jenamani, senior scientist, IMD.

"We had a clear sky [on Thursday]. There were less clouds, but not the entire day. We had a mix of high and low clouds but no cumulonimbus clouds, which are associated with thunderstorms," said M Mohapatra, director general, IMD

The combination of factors also cleared the Delhi air. The air quality index (AQI) on Thursday was 69 -- in the "satisfactory" category -- for the second time this week, and also the second time since April 2. Delhi has recorded "satisfactory" air continuously for the past 10 days. The air has also been "satisfactory" for an unusually high number of days since March 25, when the lockdown was imposed, due to a fall in vehicular emissions sparked by reduced traffic flow, according to the Central Pollution Control Board's (CPCB) data.

"There were 60 satisfactory air days this year till July 31, compared to 15 last year. One 'good' air day (AQI less than 50) was also recorded in March," said VK Shukla, in charge of air quality at CPCB.

"Meteorological factors alone cannot bring such a change in air quality. Vehicular emissions are still relatively lower than before the lockdown period. This, in combination means pollutants are dispersing," said Sachin Ghude, a scientist at IMD. A ventilation coefficient, which captures the ability of the atmosphere to dilute and disperse the pollutants over a region, of 6,000 is considered favourable for dispersion..

IIT Delhi And Bihar State Pollution Control Board Tie Up To Establish GIS-Based AQM System

Date:-8-Aug-2020, Source: ndtv.com

New Delhi: The Indian Institute of Technology Delhi (IIT Delhi) and Bihar State Pollution Control Board have signed an agreement to establish a GIS-based information system for air quality management in Bihar. This agreement will enable identifying sources and transport of PM 2.5 at a "very high resolution" and help the board to identify "effective mitigation measures".

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IIT Delhi, Bihar Pollution Board Tie Up For A GIS-Based AQM System

IIT Delhi PI-Dr. Sagnik Dey, Associate Professor, Centre for Atmospheric Sciences, will lead the project with SN Jayaswal, Board Analyst, Bihar State Pollution Control Board, Patna.

A Bihar State Pollution Control Board statement issued said: “Out of the several steps undertaken by the board to monitor and control air pollution, thi particular project nment cities in Bihar, namely Patna,

The mapping, as per the statement, will be done at a “very high resolution” of one square kilometer using satellite and ground-based measurement systems. “These maps will help in developing strategy to minimise exposure with the help of modelling and survey,” the Pollution Control Board statement added.

Using the data from the satellite, districts and villages where open burning is prevalent can be identified. Moreover, a transportation path can also be analysed with these data. A weekly pollution build-up can also be examined to identify critical pollution period, the statement added.

Delhi air clean in lockdown but high pollution seen for few hours after dawn — JNU-DU study

Date:-9-Aug-2020, Source: theprint.in



A deserted road in Delhi in the wake of the total lockdown in Delhi

New Delhi: Delhi’s particulate pollution levels went down drastically during the first three weeks of lockdown imposed in March-end to curb the spread of the coronavirus, but episodic high PM2.5 levels caused a haze to settle over the city just after dawn, according to a new study.

Scientists at JNU and Delhi

University, who conducted the study, took advantage of the lockdown to assess the baseline levels of particulate matter and understand the meteorological conditions at low levels of pollution.

ThePrint has accessed the manuscript of the study, which will be published in the journal Scientific Reports on 10 August.

Delhi has been struggling with poor air quality, especially during the winter months. However, a complex mix of factors, including weather conditions, industrial and vehicular emissions, as well as burning of crop stubble in the months of October and November, has complicated policy decisions around solving the problem of air pollution in the national capital.

Now, for the first time, scientists have been able to observe the interplay of meteorological conditions and low levels of pollutants at a time when industrial and vehicular emissions as well as biomass burning were at the minimum.

A.P. Dimri, a JNU professor who was a part of the study, noted that at the beginning of the lockdown, social media was flooded with people claiming that lower levels of pollution improved visibility, allowing people to see faraway mountain peaks.

“We decided quickly — as soon as lockdown was announced — that we should start recording the observations because it would be invaluable,” Dimri told ThePrint.

“In normal times, we cannot stop vehicular pollution and industry. But nature gave us this unusual opportunity (to study the baseline levels of pollution) — it is like a natural laboratory,” he said.

Surface ozone levels remained high

The team, which also included researchers from Japan, collected pollution level data from Central Pollution Control Board, Delhi Pollution Control Committee and CUPI (Compact and Useful PM2.5 Instrument) from 8 monitoring stations in Delhi during the first three weeks of the lockdown and compared them to the data before the lockdown.

The study found that the PM2.5 levels reduced drastically by upto 70 per cent in the first three weeks since the lockdown was imposed from 25 March. But surface ozone levels remained high during the lockdown.

“It is possible that lower levels of nitrogen oxides in the air increased the ozone pollution level in the air,” Dimri told ThePrint.

He added that the team is now working on understanding the chemistry that would explain the high levels of surface ozone during the lockdown.

Although the overall PM2.5 levels went down, the scientists found that during the early hours of the morning, there was a significant jump in the PM2.5 levels, leading to haze formation.

The professor said that this is an 'exciting' finding, suggesting that moisture evaporating from the ground and trees make fine dust particles, which then aggregate to form particulate matter of 2.5 micron level.

"In the month of March, the temperature touches 30 degrees. It is very unusual to have fog and mists at that time. But the relatively clean atmosphere counter-intuitively allowed this fog to form," he said.

This means that usual pollutants in the month of March made the atmospheric conditions such that it led to the formation of haze.

PM2.5 levels jumped to over 100 mg/m3 after dawn

The haze, however, quickly dissipated within two to three hours as the sun rose, bringing the PM2.5 levels to 15 to 20 microgram per cubic metre. In the early hours of the morning, the PM2.5 levels would jump up to over 100 to 150 microgram per cubic metre.

In the winter, when Delhi experiences the worst of pollution, a thick haze becomes a daily feature. This research showed that the periodic formation of haze in the morning hours might not be strictly due to any episodic burning of crop stubble, and pollution from vehicles, industry or construction sites.

There has also been rainfall in many areas in Delhi, which was again unusual for March, Dimri said. So this study helps us see the meteorological conditions in the absence of pollution, he added.

Bihar Pollution Control Board signs MoA with IIT, Delhi for air quality management

Date:-9-Aug-2020, Source: timesnownews.com

Patna: The Bihar State Pollution Control Board has signed a 'Memorandum of Agreement' (MoA) with IIT, Delhi for setting up of geographical information system (GIS) based platform for air quality management in the state.

The agreement, which was signed on Saturday, will help in identifying sources and transport of PM 2.5 at a "very high resolution" and help the board to identify "effective mitigation measures", a Bihar State Pollution Control Board release said.



Bihar Pollution Control Board signs MoA with IIT, Delhi for air quality management

This particular project will help to identify local hot spot of particulate matter PM 2.5 in the non-attainment cities in Bihar namely Patna, Gaya and Muzaffarpur, it said. IIT, Delhi Associate Professor, Centre for Atmospheric Sciences, Dr Sagnik Dey will be leading the project with his counterpart S N Jayaswal of Bihar State Pollution Control

Board, Patna.

This study will prove to be a crucial step in identifying sources and transport of PM 2.5 at a very high resolution which will help the board to identify effective mitigation measures. The mapping will be done at a "very high resolution" of one square km using satellite and ground-based measurement systems.

"These maps will help in developing a strategy to minimise exposure with the help of modelling and survey," the pollution control board said. Further, using satellite data the study will identify the districts and villages where open burning is prevalent. Additionally, a detailed air mass trajectory analysis will be carried out to identify the transport path of air pollution to the non-attainment cities.

A weekly pollution build-up can also be examined to identify critical pollution period, it said.

Work for installation of smog tower in Delhi has started: Centre to SC

Date:-10-Aug-2020, Source: outlookindia.com

New Delhi, Aug 10 (PTI) The Centre Monday told the Supreme Court that work for installation of smog tower at Anand Vihar in east Delhi has started and soil samples have been taken for examining the structural stability.

Smog tower is a structure designed as large-scale air purifier to reduce air pollution.

Solicitor General Tushar Mehta told a bench headed by Justice Arun Mishra that an memorandum of understanding (MoU) has been signed for the project of installation of smog tower and IIT Bombay and Tata Projects Limited are in touch with University of Minnesota for transfer of technology.

The bench, also comprising Justices B R Gavai and Krishna Murari, was informed by Mehta that as on August 8, site survey has been done and soil samples have been taken and are being examined.

Meanwhile, the bench refused to entertain the contention of an intervenor, who had filed an affidavit raising questions over the effectiveness of smog tower and claimed that money for it would ultimately go to Chinese companies.

The bench said it would hear the issue of smog tower tomorrow (Tuesday).

Besides this, the top court also dealt with the issue of pollution from stubble burning in states including Punjab, Haryana and Uttar Pradesh.

The bench asked the chief secretary of Punjab, who was present in the hearing conducted through video-conferencing, about the steps taken in providing machines and equipment to small and marginal farmers to prevent instances of stubble burning there.

The chief secretary of Punjab told the bench that subsidy is being provided to these small and marginal farmers but they are facing shortage of funds due to the COVID-19 pandemic.

The bench asked the Centre's counsel to apprise it about the subsidy and also about implementation of its orders passed in the matter earlier.

It also asked other stakeholders to give detailed report on the issue of stubble burning.

The bench, which observed that policies need to be put in place now to prevent stubble burning, asked whether Panchayats have been roped in for spreading awareness of various projects for prevention of stubble burning.

It said if the authorities will not take proper steps, then the issue of stubble burning would continue in times to come.

It also sought affidavits on the steps taken by the concerned authorities in dealing with pollution hotspots in the region.

The top court asked Punjab government to apprise it about the steps taken to deal with industries which were found non-compliant with pollution norms.

The bench asked Delhi's chief secretary, who was also present in the hearing, about the steps taken to deal with pollution, including from stubble burning.

Delhi's chief secretary said that several steps have been taken to reduce traffic congestion and also to deal with open waste.

The bench also dealt with the issue of vehicles running on kerosene and said that Centre should formulate rules for preventing it and also confiscate such vehicles.

On August 4, the top court had asked the Centre to "start at the earliest" the work for installation of smog tower at Anand Vihar.

The government had then informed the bench that setting up of smog tower would take 10 months.

The solicitor general had told the apex court that supervision of the project work would be done by Indian Institute of Technology (IIT) Bombay while funding would be provided by the government.

The apex court had earlier questioned the Centre as to why its January 13 order, directing the project to be completed within three months, was not complied with.

It had earlier expressed shock at IIT Bombay's backing out of the smog tower project and said this was "not expected of such institutions".

Earlier, the Ministry of Environment, Forest and Climate Change and the Central Pollution Control Board had filed an affidavit in the top court and claimed that the MoU was not finalised as IIT Bombay has not agreed to take responsibility of overall coordination of project and verification of works to be carried out by Tata Projects Limited, which has been involved by IIT Bombay for construction, operation and maintenance of smog tower.

It had said that funds amounting to Rs 18.52 crore have been sanctioned for the project.

In the stubble burning issue, the top court had last month asked governments of Delhi, Haryana, Punjab, Uttar Pradesh, Madhya Pradesh and Rajasthan about the arrangements made by them for preventing it.

These issues have cropped up before the apex court during the hearing in pollution matter in which it is dealing with several aspects.

In November last year, the apex court had expressed serious displeasure over the failure of state machinery in preventing stubble burning and said that citizens of Delhi-national capital region were "suffocating" due to air pollution and people cannot be left to die in a "gas chamber".

Bees slower, sicker and living shorter lives because of air pollution, study suggests

Date:-11-Aug-2020, Source: independent.co.uk

Breathing toxic fumes due to exposure to heavily polluted air is one of the key contributors to early death all around the world, exacerbating risks posed by lung and heart conditions.

According to the World Health Organisation 9 out of 10 people on the planet breathe air containing high levels of pollutants resulting in around 7 million premature deaths every year.

But despite growing awareness of the risks toxic air poses to humans, almost no research has been done on the impact on the flora and fauna which are dependent on the same air we breathe.

In one of the first major efforts to try to understand the physiological impacts of air pollution on wild plants and animals, scientists from India's National Centre for Biological Sciences in Bangalore show poor air quality could be devastating for organisms we rely on most for our own survival – pollinators such as the honey bee.

After observing declines in the giant Asian honey bee in the urban centres of Bangalore, Geetha Thimmegowda and Shannon Olson set out to understand the causes behind the falling populations of the vital pollinator.

This species of bee produces over 80 per cent of the India's honey, and pollinates over 687 plants in the state of Karnataka alone.

Ms Thimmegowda collected and examined bees from different parts of the city under a high-powered electron microscope.

First, the scientists examined a bee from the Bangalore Life Science Cluster (BLiSC) campus on the northern and relatively low-polluted edge of the city.

This foraging bee was carrying "copious amounts of pollen on her body", ready to pollinate new flowers.

Then they studied a bee from Peenya, an industrial area of the city, and found it was covered in small particles they later found to contain lead, tungsten, arsenic, and a host of other toxic metals.

The tiny pieces of debris, or particulate matter, less than 10 microns in size are known as Respirable Suspended Particulate Matter, or PM10, and are a major component of air pollution.

Any particles less than 10 microns in diameter are able to penetrate deep into the lungs and some can enter the bloodstream.

Particles less than 2.5 microns in diameter, also known as fine particulate matter or PM2.5, are the greatest risk to health.

The discovery of the pollution on this one bee apparently prompted a four-year study of over 1,800 wild bees, the results of which are published this week in Proceedings of the National Academy of Sciences.

The study examined the effects of air pollution on the behaviour, physiology, and molecular aspects of the giant Asian honey bee in Bangalore – one of India's fastest growing megacities.

In collaboration with other scientists from the NCBS as well as the Institute for Stem Cell Science and Regenerative Medicine (inStem) and the The Knight Cardiovascular Institute, the scientists found that bees from more polluted areas of the city exhibited lower flower visitation rates than in less polluted areas.

Bees from more polluted areas also showed significant differences in heart rhythmicity, blood cell count, and the expression of genes coding for stress, immunity, and metabolism, the scientists said.

Repeating these experiments with lab-reared *Drosophila* – a species of fruit fly – found similar effects, suggesting the impact of air pollution is not species-specific, nor likely the result of other environmental factors.

Hema Somanathan, who studies bee behaviour and pollination ecology at the Behavioural and Evolutionary Ecology BEE Laboratory, at the Indian Institute of Science Education and Research, in Thiruvananthapuram, the capital of the Indian state of Kerala, said the study was “hard evidence” that not all was well with wild bee populations around cities in India.

She said: “There are extreme gaps in our knowledge on the status of our wild pollinators in India. This study by Dr Olsson and colleagues is a very important step in addressing this pressing concern.

“Bees are important pollinators in our landscapes, and this study clearly shows how pollution adversely affects the health of bees. The study was done with wild bees naturally visiting flowers in Bangalore city and not in lab assays on reared honey bees kept in hive boxes that may already be stressed or immuno-compromised. Thus, in my opinion this study provides us with hard evidence that all is not well with our wild bees.”

Delhi air quality remains in good category as overall AQI docks at 67

Date:-13-Aug-2020, Source: timesnownews.com



SAFAR: Delhi AQI likely to stay in the lower end of the satisfactory to the good category for the next two days.

New Delhi: With pollution levels going down drastically, Delhi is witnessing a spell of clean air. The air quality in the national capital was recorded in the 'good' on Thursday morning as overall AQI docked at 67, according to the latest estimates updated by System of Air Quality and Weather Forecasting And Research (SAFAR).

Clean air in Delhi

Most of the areas in Delhi recorded air quality in the 'good' category on Thursday morning. According to SAFAR estimates updated at 6.30 am, Pusa Road, Lodhi Road, Mathura Road, IIT-Delhi, Ayanagar, IGI Airport (Terminal 3), Dwarka (Sector 8) recorded air quality in the 'good' category with an AQI of 56, 59, 61, 43, 37, 51 and 46 respectively.

Moderate air in parts of Delhi

However, some areas of Delhi including Chandni Chowk recorded air quality in the 'moderate' category with an AQI of 129.

According to SAFAR, AQI between the range of 51 and 100 is considered as 'satisfactory' or 'very good', 101-200 is 'moderate', 201-300 falls under the category of 'poor'. While 300-400 is considered as 'very poor', levels between 401-500 fall under the 'hazardous' category.

SAFAR prediction

"The overall Delhi AQI was in the lower end of the satisfactory category on Wednesday morning as forecast. Widespread rainfall is likely in major parts of northwest India including Delhi for the next two days. Under this favorable condition, AQI forecast to stay at the lower end of the satisfactory to the good category for the next two days. Widespread rainfall is helping air quality to continue in the good category for Pune, Mumbai, and Ahmedabad. AQI is likely to

stay good for the next two days. Pune AQI is the best among all four SAFAR cities," SAFAR forecast said.

Air quality in NCR

The Delhi-NCR also witnessed a spell of clean air over the last few days. On Thursday, Noida and Gurugram registered air quality in the 'good' category with an AQI of 97 and 47 respectively.

SC seeks plan to install RFID at all toll points in Delhi

Date:-13-Aug-2020, Source: hindustantimes.com



The RFID system is already working at 13 toll points in Delhi. There are total 124 toll points in Delhi.

The Supreme Court has sought a plan from the civic agencies in Delhi for installing Radio Frequency Identity (RFID) system at 111 toll points to electronically deduct municipal toll tax and the environment compensation charge (ECC) from e-wallets of commercial vehicles. The plan has

to be submitted by August 20, the court said.

The RFID system is already working at 13 toll points in Delhi. There are total 124 toll points in Delhi.

The Supreme Court order, passed on Monday, came on a suggestion by Environment Pollution (Prevention and Control) Authority (EPCA) -- an expert statutory body assisting the apex court in matters relating to environment and pollution. EPCA pointed out to the court that with the introduction of RFID technology, it has been possible to check the entry of commercial vehicles older than 10 years. It has further improved online collection of the environment cess, EPCA said. The ECC was imposed on commercial vehicles by the Supreme Court to dissuade their entry into the Capital in order to reduce air pollution.

In its latest report dated January 28, 2020 submitted to the top court, EPCA said, "The results from the 13 entry points are substantial and suggest that the efforts to mitigate pollution have been rewarded. There is a 95% reduction in the total particulate load from trucks entering from 13 locations, as compared to 2015. There is 87-94% reduction in NOx loads from light-heavy duty vehicles entering from 13 locations."

A bench of justices Arun Mishra, Br Gavai and Krishna Murari said, "It is agreed to by the learned counsel appearing for EPCA and the municipal corporation that on all the 111 entry points, RFID should be implemented and that can be done within the budget which is available. Let the steps be taken in this regard for implementation of the RFID and plan be placed on record before the next date of hearing on August 20."

Senior advocate Aparajita Singh assisting the Court as amicus curiae in this matter told HT, "The 13 locations were selected since 80% heavy vehicles used them to enter city. But in the latest assessment, the South Delhi Municipal Corporation (SDMC) informed the court that commercial traffic was increasing at the 111 other entry points to the Capital."

According to the EPCA report, the entry of commercial vehicles at 13 entry points has reduced from a maximum of 38,000 per day to 3,000 per day after the introduction of ECC and RFID system. "The number of commercial vehicles entering Delhi also reduced after the opening of Western and Eastern Peripheral expressways last year," Singh said.

According to the EPCA report, "Vehicle owners (of commercial vehicles) are seeking new entry points to avoid payment of ECC."

To plug this loophole, the EPCA urged the apex court to extend RFID to all entry points of the Capital on an urgent basis. The project, to be undertaken by SDMC, will incur a cost of Rs 36 crore. For the first phase (in 13 locations), Rs 80.94 crore was spent. The total cost for both phases will be Rs 116.94 crore, which is within the stipulated Rs 120 crore sanctioned as project cost by the court, EPCA stated.

A senior official of the South Delhi Municipal Corporation (SDMC), which is the nodal agency to collect ECC in Delhi, said 111 more toll points are to be equipped with RFID for which the SC has asked to submit a report by August 20. "EPCA has convened a meeting to discuss the issue on Thursday. Once the Supreme Court clears the plan, we will start work on it," the official said, requesting anonymity.

Scientists develop indigenous system for real-time remote monitoring of air quality parameters

Date:-14-Aug-2020, Source: outlookindia.com

New Delhi, Aug 14 (PTI) Scientists at Gayatri Vidya Parishad-Scientific and Industrial Research Centre in Visakhapatnam have developed an indigenous system for real-time remote monitoring of air quality parameters, the Department of Science and Technology (DST) said on Friday.

The Air Unique-quality Monitoring (AUM) system is an innovative application of the principles of laser backscattering, statistical mechanics, optoelectronics, artificial intelligence, machine/deep learning, and Internet of Things, a statement said.

It can identify, classify and quantify various pollutants simultaneously (of orders of less than one part per billion) and meteorological parameters, with very high precision, sensitivity and accuracy, it said.

With the support from DST's Clean Air Research Initiative, professor Rao Tatavarti, the director of Gayatri Vidya Parishad-Scientific and Industrial Research Centre (GVP-SIRC) and GVP College of Engineering in Visakhapatnam, has developed the system.

Professor P Arulmozhivarman from the School of Electrical Engineering, VIT University in Vellore and a few others were part of Tatavarti's team.

The AUM system was successfully evaluated during laboratory trials. It was also compared in the field with imported systems from France and Australia, and operated by the Karnataka State Pollution Control Board under the aegis of the Central Pollution Control Board of India, the statement said.

The system had CATS Eco-Systems, Nashik as the technology transfer partner for commercialisation.

"It has been found to be highly sensitive and accurate and capable of simultaneous detection and quantification of all air quality parameters and offers a number of merits over any of the currently available conventional systems," the statement said.

It is portable, compact, low powered and economical, works on plug and play systems, requires no setting up time, and no additional civil infrastructure for housing.

The system also provides information on all gases and meteorological parameters simultaneously.

"It is a non-intrusive remote, real-time monitoring system with very high sensitivities and accuracies and is capable of monitoring in both spatial and temporal domains, with very high sampling frequencies," the statement said.

"Also, the data from spatially separated sensors can be seamlessly streamed to a cloud server, from where digestible real-time encrypted information on the dashboard is made available to users at any part of the world," it added.

Delhi air quality remains in 'good' category as overall AQI docks at 36

Date:-15-Aug-2020, Source: timesnownews.com

New Delhi: The national capital continues to breathe clean air thanks to rains that washed out air pollutants.

The air quality in Delhi was recorded in the 'good' category on Saturday morning as overall AQI dropped to 36, according to the latest estimates updated by System of Air Quality and Weather Forecasting And Research (SAFAR).

Clean air in Delhi

Most of the areas in Delhi recorded air quality in the 'good' category on Saturday morning. According to SAFAR estimates updated at 6.30 am, Anand Vihar, Pusa Road, Lodhi Road, Mathura Road, IIT-Delhi, IGI Airport (Terminal 3), Ayanagar, Dwarka (Sector 8) recorded air quality in the 'good' category with an AQI of 74, 27, 28, 23, 37, 35, 25 and 56 respectively.

Moderate air in parts of Delhi

However, some areas of Delhi including Bawana recorded air quality in the 'moderate' category with an AQI of 161.

According to SAFAR, AQI between the range of 51 and 100 is considered as 'satisfactory' or 'very good', 101-200 is 'moderate', 201-300 falls under the category of 'poor'. While 300-400 is considered as 'very poor', levels between 401-500 fall under the 'hazardous' category.

SAFAR forecast

"The overall Delhi AQI was in the 'good' category on Friday as forecast. Fairly widespread rainfall is likely to continue in major parts of northwest India including Delhi for the next two days. Rainfall helps to clean the atmospheric pollutants through the washout process. Under this favorable condition, AQI forecast to stay at the lower end of the satisfactory to the good category for the next two days. Widespread rainfall is helping air quality to continue in the good category for Pune, Mumbai, and Ahmedabad. AQI is likely to stay good for the next two days. Pune AQI is the best among all four SAFAR cities.," SAFAR forecast said.

Air quality in NCR

The Delhi-NCR also witnessed clean air after rains. On Saturday, Noida and Gurugram registered air quality in the 'good' category with an AQI of 23 and 39 respectively.

Delhi's air quality slips down to 'satisfactory' category as overall AQI reaches 58

Date:-16-Aug-2020, Source: timesnownews.com



The increase in AQI was observed as there was a rise in the concentration of both, PM10 and PM2.5 pollutants

New Delhi: The air quality of Delhi deteriorated slightly and reached the 'satisfactory' category on Sunday morning as the overall air quality index (AQI) was recorded at 58. The increase in AQI was observed as there was a rise in the concentration of both, PM10 and PM2.5 pollutants.

According to the System of Air Quality and Weather Forecasting And Research (SAFAR), PM10 pollutants in Delhi were recorded at 58 on Sunday morning, which

comes under the 'satisfactory' category and PM2.5 pollutants were recorded at 31, which comes under the 'satisfactory' category as well.

As per the forecast, PM10 pollutants in Delhi are expected to rise up to 69 on Monday, which falls in the 'satisfactory' category while PM2.5 pollutants are expected to rise up to 38, which falls under the 'satisfactory' category.

During the week, PM10 pollutants are expected to reach the figure of 81, which falls under the 'satisfactory' category and PM2.5 pollutants are expected to reach the figure of 44, which also falls under the 'satisfactory' category.

AQI of Chandni Chowk and other areas

In Pusa, PM10 pollutants were recorded at 53, which comes under the 'satisfactory' category while PM2.5 pollutants were recorded at 51 which also falls under the same category. In Mathura Road, PM10 pollutants were recorded at 50, which falls under the 'good' category and PM2.5 pollutants were recorded at 51, which falls under the 'satisfactory' category.

Meanwhile, in Lodhi Road, PM10 pollutants were recorded at 48, which comes under the 'good' category and PM2.5 pollutants were recorded at 59, which comes under the 'satisfactory' category. In Noida, PM10 pollutants were recorded at 72 and PM2.5 pollutants were recorded at 56. Both PM10 and PM2.5 pollutants were in the 'satisfactory' category on Sunday.

Air Pollution In Delhi: Punjab, Haryana To Bank On More Machines, Biomass Plants To Reduce Stubble Burning

Date:-17-Aug-2020, Source: swachhindia.ndtv.com



Despite a ban on stubble burning in Punjab and Haryana, farmers continue to defy it as there is short window between harvesting of paddy and sowing of wheat.

New Delhi: The Punjab and Haryana governments have submitted to a Supreme Court-mandated panel their action plans to check stubble burning — a major contributor to extreme levels of air pollution that choke

the national capital in winters. The states have proposed setting up more custom hiring centres (CHCs)

to give farm machinery on rental basis to farmers who cannot afford to purchase the high-end equipment for crop residue management and supplying more balers — a machine used to compress stubble into compact bales.

According to the Central Pollution Control Board, stubble burning contributed significantly to air pollution in Delhi last year with the share of farm fire smoke in particulate matter peaking to 44 per cent in November. The Punjab government has told the Environment Pollution (Prevention and Control) Authority (EPCA) that it has been utilising crop residue through biomass-based power plants and various bio-CNG projects are under process. The state has now proposed to set up a 25-megawatt solar-biomass project.

Punjab has already set up 7,378 CHCs. The state will establish 5,200 more CHCs this year to accomplish the target of having one CHC in each village. The administration will provide 220 balers this year, according to the EPCA. Farmers sell bales to nearby factories, mainly biomass plants, at around Rs. 120 per quintal. Till now, the state has provided 50,185 farm machines to CHCs and individuals.

The state has also launched a mobile application to help farmers rent machinery to manage crop residue. In 2019, the Punjab government doled out incentives worth Rs. 28.51 crore to farmers to cover the cost of diesel used in high-end machinery. This year, the state government has sought from the Centre, saying it will not be able to pay on its own. Last year, Punjab produced around 20 million tonnes paddy residue. Farmers burnt 9.8 million tonnes of it. These figures will be used as a benchmark for the state's performance this year.

The Haryana government told EPCA that a committee has been set up to look into the progress of bio-CNG and bio-ethanol projects and biomass plants to manage crop residue. The state has set up 2,879 CHCs and 2,000 more will be established by October. As many as 791 balers will be supplied by the time harvesting starts. Haryana has deployed 24,705 machines, of which 8,777 are owned by individuals and the rest are with CHCs.

A mobile application is being promoted for providing machinery on rent to farmers. The state has already launched Bhavantar Bharpai Yojana, a scheme for promoting cultivation of vegetables. Around 1,09,000 hectares of land has already been diverted from paddy to other crops such as maize, millet and cotton.

Last year, Haryana produced 7 million tonnes of paddy residue, of which farmers burnt 1.23 million tonnes. The northern states of Punjab, Haryana and Uttar Pradesh attract attention during the paddy harvesting season between October 15 and November 15. Farmers set their fields on fire to quickly clear off the crop residue left behind after harvesting and before cultivating wheat and potato. It is one of the main reasons for the alarming spike in pollution in Delhi-NCR.

Despite a ban on stubble burning in Punjab and Haryana, farmers continue to defy it as there is a short window between harvesting of paddy and sowing of wheat. The high cost of manual or mechanical management of straw is a major reason why farmers choose to burn it. State governments are providing 50 to 80 per cent subsidy to farmers and cooperative societies to buy modern farm equipment for in-situ management of paddy straw, installing paddy straw-based power plants and running a massive awareness campaign against stubble burning. But these measures are yet to make any significant impact on the ground.

City continues to breathe good quality air

Date:-18-Aug-2020, Source: timesofindia.indiatimes.com

IT'S BETTER THAN PAST MANY YEARS

Ludhiana: Despite the Unlock, the industrial hub recorded less pollution in July and August (in the first 15 days) as compared with the corresponding period in the past many years.

The air pollution is measured in terms of Air Quality Index (AQI). It includes the values of combination of many air pollutants like respirable suspended particulate matter (RSPM), oxides of nitrogen (NOx), sulphur dioxide, ozone, carbon monoxide, benzene and xylene, among others.

March, April and May, too, registered cleaner air.

As per the data, the average AQI from March 24, when curfew was imposed in Punjab due to Covid-19, till the month-end was 35.6; for April and May, when the lockdown was in force, it was 48.8 and 79.06, respectively. The average AQI in June (when the Unlock started) was 87.44 and it was 70.53 in July and 52.66 in the first 15 days of August.

It shows that the months after lockdown and Unlock saw AQI in good (below 50) and satisfactory (below 100) categories.

This year's air quality is better when compared with the data of previous years.

The average AQI in April was 48.8 this year, 116.16 in 2018 and 89.5 in 2019. The AQI for May was 79.06 this year, 185.55 in 2018 and 97.5 in 2019.

After Unlock 1, the average AQI for June was 87.44 this year, 151.25 in 2018 and 103.4 in 2019. For July, the value was 70.53 this year and 73.96 and 84.41, respectively, in 2018 and 2019.

The first 15 days of August saw an average AQI of 52.66. It was 65.69 and 88.6 in 2018 and 2019, respectively.

The Punjab Pollution Control Board (PPCB) authorities said there were multiple factors for the positive change.

"First, industrial activity is just 60% of pre-Covid times. Secondly, there is less vehicular movement as people are moving out only if it's necessary. Other factors are: less operation of public transport, including trains, and good and timely monsoon," said Sandeep Behl, senior PPCB officer in Ludhiana.

"Apart from essential services, other activities are not fully operational. This, too, has had a positive effect on AQI in the district," PPCB officials added.

30 new vehicles join enforcement wing fleet of Delhi transport dept

Date:-19-Aug-2020, Source: indiatvnews.com

Delhi transport department on Wednesday strengthened its enforcement wing to intensify action against polluting vehicles in Delhi by adding 30 new vehicles in its fleet. Delhi Transport Minister Kailash Gahlot flagged off 30 new Toyota Innova to the fleet of enforcement vehicles.

These vehicles under enforcement wing of the transport department will be helpful in checking violation of permit conditions, overloading, environment compensation charges, environment



30 new vehicles join enforcement wing fleet of Delhi transport dept

checks as well as to save loss of human life due to pollution caused by such vehicles, hence ensuring protection of the environment by preventing noise and air pollution.

In addition to activities within Delhi, the enforcement wing has 50 teams deployed across Delhi to check more than 120 entry points with neighbouring states. The enforcement wing under transport department is mandated to

enforce the provisions of Motor Vehicles Act, 1988, prosecute non-destined vehicles entering Delhi and implement Supreme Court Road Safety Committee orders.

With a current strength of 469 officers and 94 Civil Defence Volunteers, the enforcement wing of the transport department has been an active frontrunner in ensuring safety and order on Delhi roads along with the Delhi Traffic Police. The enforcement department has issued 42,404 challans, and impounded 7,891 vehicles so far this year. The department issued 11,863 challans during the lockdown period.

"The Enforcement wing has been active participant in all major road safety and environment related initiatives in Delhi, including both editions of ODD-EVEN drive. Even during COVID-19 lockdown, we saw movement of people being strictly and dutifully monitored by the dept," Gahlot said on the occasion. Mentioning that the Delhi government is adding 30 more vehicles to the transport department for strengthening its enforcement duties, Gahlot urged all vehicle users in Delhi to be aware of their duties as responsible citizens and ensure compliance with road safety rules and pollution guidelines.

"Together, let us strive for a cleaner and safer Delhi," he said.

Delhi's air quality turns 'good' as overall AQI plunges to 36, thanks to monsoon

Date:-20-Aug-2020, Source: timesnownews.com

New Delhi: The quality of air in the national capital improved to the 'good' category with the overall Air Quality Index (AQI) standing at 36 at 6 am on Thursday, according to System of Air Quality and Weather Forecasting And Research (SAFAR). Thanks to heavy rains for washing out pollutants from the air. The concentrations of major polluting particles such as PM10 and PM2.5 clocked at 36 and 17 respectively, both falling under the 'good' category.



Delhi NCR pollution today

Air quality in various areas of Delhi

According to the data shared by the Central Pollution Control Board, the overall AQI in Pusa, Delhi University (North Campus), Indira Gandhi International Airport (Terminal 3), Delhi Technological University, Lodhi Road and Sirifort stood at 45, 40, 48, 50, 44 and 45 respectively, all falling under the 'good' category. The air quality in Anand Vihar, Mathura Road, Dilshad Garden (IHBAS) and ITO

docked in the 'satisfactory' category with the AQI figures standing at 93, 68, 55 and 66 respectively. Meanwhile, Bawana and RK Puram recorded air pollution levels in the 'moderate' category with the AQI values docking at 146 and 112 respectively.

SAFAR's forecast

The pollution monitoring system, in its forecast, said that PM₁₀ particles are expected to drop to 29 on Friday morning while PM_{2.5} particles are expected to plunge to 14. However, after three days, the concentration of both PM₁₀ and PM_{2.5} is expected to rise to 44 and 21 respectively.

Air quality in other major cities

Adjoining Noida in Uttar Pradesh recorded 'good' quality air with the concentration of PM₁₀, PM_{2.5} and ozone (O₃) particles standing at 48, 27 and 48 respectively. Other major cities such as Pune, Mumbai and Ahmedabad also recorded the air pollution levels in the 'good' category with the overall AQI values docking at 30, 34 and 26 respectively.

Delhi's air quality remains in 'good' category; overall AQI clocks at 38

Date:-21-Aug-2020, Source: timesnownews.com

New Delhi: The quality of air in the national capital remained in the 'good' category with the overall Air Quality Index (AQI) clocking at 38 at 6 am on Friday, according to System of Air Quality and Weather Forecasting And Research (SAFAR). The concentration of major polluting



Delhi NCR pollution today |

particles such as PM10 and PM2.5 stood at 35 and 23 respectively, both falling under the 'good' category.

Air quality in various areas of Delhi

According to the data shared by the Central Pollution Control Board, several areas in the national capital such as Bawana, Lodhi Road, Delhi Technological University (DTU), Indira Gandhi International Airport (T3), Dilshad

Garden (IHBAS) and RK Puram recorded the air quality in the 'good' category with the overall AQI values docking at 46, 44, 41, 50, 44, 43 respectively. The air quality in other areas such as Pusa, Mundka, Anand Vihar, ITO, Mathura Road and Delhi University (North Campus) stood in the 'satisfactory' category with the overall AQI docking at 54, 68, 87, 55, 63 and 58 respectively. Meanwhile, the air pollution levels in Dwarka Sector 8 and NSIT were recorded in the 'moderate' category with the AQI standing at 187 and 158 respectively. The higher AQI figures in the two places can be attributed to ozone (O₃) concentration.

SAFAR's forecast

The pollution monitoring system said that Delhi's air quality is expected to improve marginally towards the lower end of the 'good' category on Saturday (August 22). PM10 particles are expected to drop to 28 on Saturday morning while PM2.5 particles are expected to plunge to 19. However, PM10 particles are expected to rise to 48 after three days.

Air quality in other major cities

Neighbouring Uttar Pradesh's Noida recorded the air quality in the 'good' category with the concentration of PM10 and PM2.5 clocking at 45 and 40 respectively. Other major cities such as Pune, Mumbai and Ahmedabad also recorded the air quality in the 'good' category.

Study finds reduction in pollutants in first and second lockdown

Date:-22-Aug-2020, Source: timesofindia.indiatimes.com

Department of Environment Studies, Panjab University along with Department of Community Medicine & School of Public Health, Post Graduate Institute of Medical Education and Research,



Chandigarh and Chandigarh Pollution Control Committee studied the impact of COVID-19 lockdown on ambient air quality of Chandigarh. The study recently published in the journal *Chemosphere* titled, 'Impact of COVID-19 lockdown on air quality in Chandigarh, India: Understanding the emission sources during controlled anthropogenic activities' examined the trend of 14 air pollutants, including particulate matter (PM_{10} , $PM_{2.5}$), trace atmospheric gases (NO_2 , NO , NO_x , SO_2 ,

Ozone, NH_3 , CO) and Volatile Organic Compounds (benzene, toluene, o-xylene, m,p-xylene, ethylbenzene) along with six meteorological parameters before and during the COVID-19 lockdown.

The study duration was divided into four parts, a) 21 days of before lockdown, b) 21 days of the first phase of lockdown, c) 19 days of the second phase of lockdown, d) 14 days of the third phase of lockdown. The results showed a significant reduction in all the major pollutants during the first and second phases of lockdown. However, the concentrations of SO_2 , Ozone, and m,p-xylene kept on increasing throughout the study period, except for benzene, which continuously decreased.

Dr Suman Mor, Chairperson, Department of Environment Studies, PU and the lead investigator of the study, highlighted that vehicular pollution contributes as a primary source of air pollution during different stages of lockdown. She added that regional atmospheric transfer of pollutants from coal-burning and stubble burning were identified as secondary sources of air pollution.

Dr Ravindra Khaiwal, Additional Professor of Environment Health, Department of Community Medicine and School of Public Health, PGIMER, who coordinated this study, mentioned that reduction in air pollution is linked to the decline in local emissions and frequent rainfall. He also highlighted that the increase in Ozone concentration seems to be associated with intense solar radiation and high temperature, which enhanced the atmospheric reactivity during COVID-19 lockdown, leading to a rise in Ozone concentration not only in Chandigarh but many cities in India.

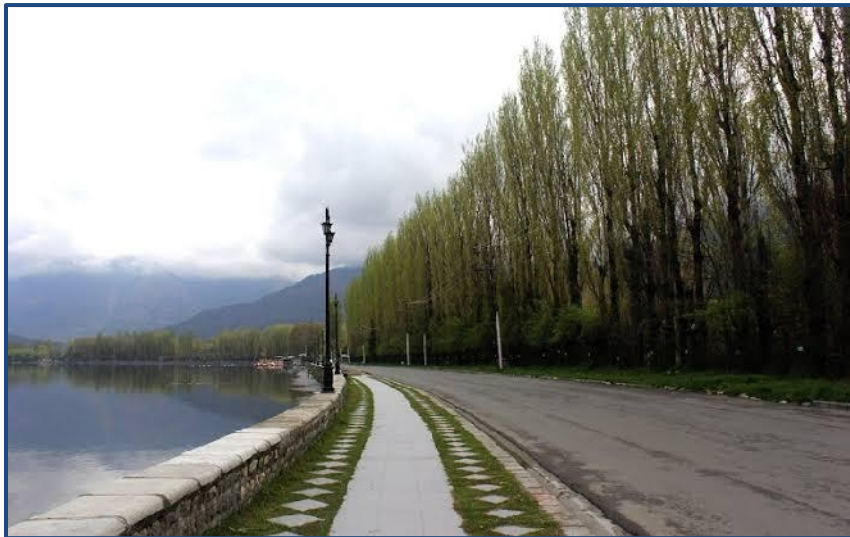
The percentage decrease in the concentrations during 1, 2 and 3 lockdown periods were 28.8 %, 23.4 % and 1.1 % for $PM_{2.5}$ and 36.8 %, 22.8 % and 2.4 % for PM_{10} , respectively. NO_2 concentration was reduced by 23 %, 16.5 %, and 6.1 % in lockdown 1, 2, and 3, respectively, as compared to the average concentrations before the lockdown period.

Air pollution levels drop by 20 percent in Kashmir, thanks to lockdown

Date:-23-Aug-2020, Source: thekashmirmonitor.net

Srinagar: Lockdown seemed to have healed nature as air quality has shown a dramatic improvement in Kashmir for the last five months.

Data compiled by the Pollution Control Board (PCB), Kashmir, has revealed that air pollution levels have dropped by more than 20 percent in Kashmir since March.



Experts attribute the phenomenon to the thinning of traffic and closure of the pollution generating units in the valley.

Figures compiled by the PCB suggest that the air pollution recorded before the imposition of lockdown in February stood at 50ug/m3 which in June had

dropped to 32ug/m3.

For instance, at Jahangir Chowk, the pollution levels have been recorded at 51.09 ug/m3 metric cube in February. It dropped to 38.38 ug/m3 in June.

At Dalgate, the PCB recorded that air pollution has dropped from 48.35 ug/m3 in February to 35.28 ug/m3 in June.

The busiest areas in the uptown area including Hyderpora witnessed a drop of 18 ug/m3 in three months lockdown. In February, PCB recorded pollution level at 48.78 ug/m3, which decreased to 30.66 ug/m3 in June.

An official of the PCB said that majority of the factories and traffic remained closed during the period, which improved the quality of air subsequently.

He said the air quality is much better in rural Kashmir particularly alpine area, where the footfall of people has been lesser this summer.

In April, the air quality had improved to the extent that Pir Panchal mountain range was clearly visible from the summer capital, Srinagar.

India, home to world's most polluted cities including New Delhi, Mumbai, Kolkata, and Bangalore too has seen an improvement in the air quality with the enforcement of lockdown from March 25 to June 8.

As per the analysis carried out jointly by CarbonCopy and Respirer Living Sciences, the four cities achieved 95 percent of the National Clean Air Programme (NCAP) target set by the Centre.

Stubble burning: SC asks Punjab, Haryana and UP to hold meeting with all stakeholders

Date:-24-Aug-2020, Source: tribuneindia.com



The top court—which is seized of a PIL on air pollution in NCR—sought to know from Punjab Chief Secretary if the state can assure that no stubble burning will take place this year.

New Delhi, August 24

The Supreme Court on Monday asked the governments of Punjab, Haryana and Uttar Pradesh to hold meetings with all stakeholders to completely stop stubble burning that converts the entire Delhi-NCR into a virtual gas chamber during October-November.

A Bench led by Justice Arun Mishra asked the

three states to file their respective report before it in four weeks.

The top court—which is seized of a PIL on air pollution in NCR—sought to know from Punjab Chief Secretary if the state can assure that no stubble burning will take place this year.

Additional Solicitor General Aishwarya Bhati told the Bench on behalf of the Environment Ministry that smog towers will be ready in Delhi in 10 months. She said a new technology to dissolve farm residue will be put to test this year.

As the court wasn't satisfied with the affidavits of the Centre and the Delhi Government on smog towers, it asked them to file fresh ones.

During the hearing, advocate Charanpal Singh Bagri, representing farmers, complained that the issue was not being discussed with the farmers.

Despite a ban on stubble burning in Punjab and Haryana, farmers continue to do so because of lack of financial incentives to switch over to environment-friendly farm waste management practices.

Last year, Punjab produced around 20 million tonnes paddy residue of which farmers burnt 9.8 million tonnes of it, while the figures in Haryana stood at 7 million tonnes and 1.23 million tonnes, respectively.

State governments were now providing 50 to 80 per cent subsidy to farmers and cooperative societies to buy modern farm equipment for in-situ management of paddy straw. They're also running an awareness campaigns against stubble burning.

According to the Central Pollution Control Board, stubble burning was an important factor behind air pollution in Delhi-NCR last year, contributing up to 44 per cent of the air pollution in November.

The Punjab Government had earlier told the Environment Pollution (Prevention and Control) Authority (EPCA) that it has been utilising crop residue through biomass-based power plants and various bio-CNG projects are under process. It has proposed to set up a 25-megawatt solar-biomass project.

Both Punjab and Haryana have set up thousands of custom hiring centres (CHCs) to give farm machinery on rental basis to farmers who cannot afford to buy high-end equipment for crop residue management.

The court had on August 10 asked Punjab, Haryana, Delhi and UP to spell out steps taken to stop stubble burning that badly affected air quality in Delhi-NCR on the onset of winter.

It had asked the Chief Secretary about the steps taken to providing machines and equipment to small and marginal farmers so as to dissuade them from burning stubble.

The Punjab Chief Secretary had told the Bench that subsidy was being provided to small and marginal farmers but the state was facing financial constraints due to COVID-19 pandemic.

Light rain predicted for Tuesday

Date:-25-Aug-2020, Source: hindustantimes.com

The city might witness another spell of light to moderate rainfall starting Tuesday evening, weather analysts said on Monday. According to India Meteorological Department officials, rainfall activity is expected to increase over the next few days across Delhi-NCR and is predicted to last at least till Friday. Last week, Gurugram had to face a severe water-logging crisis following incessant rains for two days.

While the IMD has predicted light to very light rain, accompanied by thundershowers, on Tuesday, moderate rainfall, with some isolated pockets experiencing heavy rainfall, is expected in the following days. Kuldeep Srivastava, head of the IMD's regional forecasting centre in Delhi, said one or two spells of moderate rain accompanied by thundershowers with isolated heavy rain can occur on Wednesday night and last till Friday morning.

"The monsoon trough is very likely to shift northwards and will remain very close to Delhi-NCR starting from August 25. Under the influence of this, the convergence of lower-level easterlies from Bay of Bengal and south-westerlies from the Arabian Sea will take place over northwest India," said Srivastava.

Gurugram's maximum temperature on Tuesday is expected to rise slightly and touch 34 degrees Celsius, as per IMD's weekly forecast. The maximum temperature on Monday was recorded at 32.7degrees— a marginal drop from Sunday's 33.5 degrees—and a degree below the normal temperature. The minimum temperature stood at 26.2 degrees Celsius on Monday.

Air quality in the city remained in the 'good' category on Monday, with the air quality index at 36, as per the Central Pollution Control Board's bulletin. This was an improvement from Sunday's AQI at 51 which fell in the 'satisfactory' category. The improvement in air quality was attributed largely to an increase in wind speed and rainfall activity. According to the early air quality warning system for Delhi-NCR, the air quality is likely to remain in the 'good' category on Tuesday as well.

Delhi to Get Four New City Forests to Tackle Air Pollution Issues, Improve Green Cover

Date:-26-Aug-2020, Source: weather.com

Delhi is all set to develop new forest areas within the city in a bid to boost its green cover. The forest department is expected to introduce four more forests to the existing ones in and around Delhi, some of which may even be ready by the end of this year. The new plantation will add to



the existing green cover of 12 forests, which play a key role in mitigating the air pollution over the landlocked capital.

According to a Times of India [report](#), the four new forest areas are being developed at Aya Nagar, Jaunapur, Dera Mandi, and Mamurpur

in Narela. All these forests will host butterfly zones, cacti gardens, water bodies, and herbal patches. The new city forest covers will mainly host native trees along with shrubs and smaller plants. The forest development plan has also added zones for recreational activities like yoga, in addition to walking tracks, gazebos, and bridges to cross water bodies.

“Monsoon is the best time to plant shrubs and native saplings. Work at the four forests is already underway and a couple of them might get ready by the year-end,” an official told TOI.

These new forests will be replicas of previous successful models of the likes found in Taj Enclave near Geeta Colony or Garhi Mandu near Shahdara. Other forests that were developed recently include Nasirpur (28 hectares), Alipur (19.5 hectares), Mitraon (35.15 hectares), Taj Enclave (56 hectares) and Hauz Rani (28 hectares).

As compared to the past few years, the capital’s green cover is slowly increasing. In 2015, it accounted for 20.2% (299.8 sq km), and increased slightly to 20.6% in 2017, which covered nearly 308.4 sq km of land. Last year, in 2019, it was measured to be around 21.9% (324 sq km).

The forest department has stated that they have set an internal target of achieving 25% green cover by 2025, which will be driven by developing city-based forests. As per reports, the Delhi government has also set a plan to plant about 2 crore saplings in the next five years.

August 2020 the ‘purest’ month since 2015

Throughout the year, Delhi’s poor air quality remains a major issue for residents. However, the lockdowns imposed by the government to contain the spread of COVID-19, along with the monsoon rains that have visited Delhi frequently of late, have collectively resulted in August 2020 being recorded as the cleanest month in terms of air quality in the last five years.

As per reports, Delhi has recorded three 'good' air quality days so far this month—the air quality is classified as 'good' when the Air Quality Index (AQI) lies at or below 50. In comparison, the capital city had recorded just two 'good' air days last year, and none whatsoever in 2018.

However, the aforementioned meteorological and circumstantial factors aside, the upcoming city forest plantation initiative will further contribute to the reduction of air pollution in the capital, thus providing the city with cleaner, fresher air on a more consistent basis.

As of Wednesday, August 26, Delhi has recorded 'good' air quality with an overall AQI of 42, as per the System of Air Quality and Weather Forecasting And Research (SAFAR) model. The air will continue to be cleaner for the upcoming days as heavy rains are in the forecast for Delhi-NCR between August 26-29. Moreover, tomorrow's forecast also adds the probability of 'good' air over Delhi as it is predicted to be around 34.

Delhi EV policy's twin boost: Faster EV adoption and improved air quality

Date:-27-Aug-2020, Source: cnbctv18.com

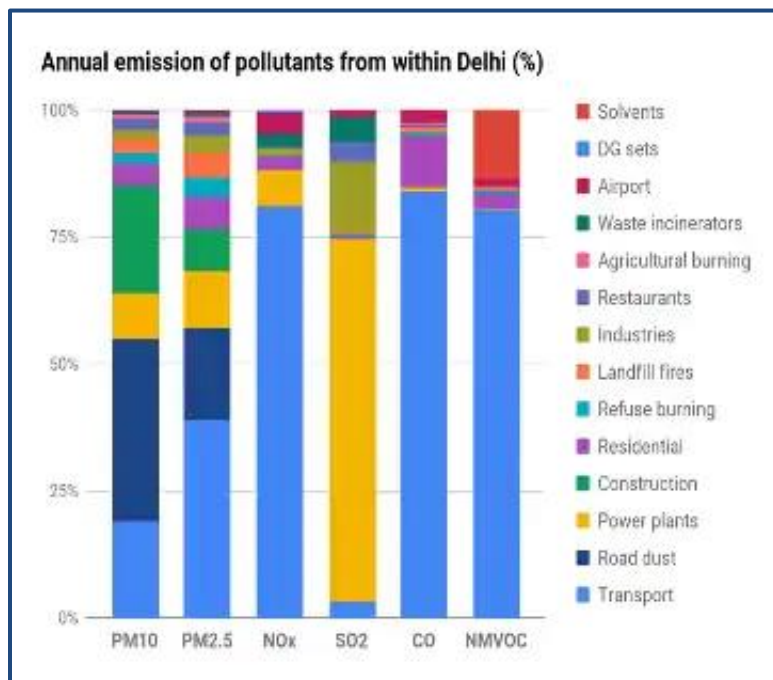


Delhi took an exciting step toward cleaning its air with the notification of the much-awaited Delhi EV Policy on August 7, 2020. The notification of the policy marks the official commencement effective immediately. The policy aims to address the problem of deteriorating air quality in Delhi, which threatens the

quality of life and health of the national capital's residents.

Vehicular pollution is one the major sources of pollutants in Delhi. The emissions source apportionment study conducted for Delhi highlights tailpipe emissions contributing to about 40 percent of PM_{2.5}, 20 percent of PM₁₀, and more than 80 percent of NO_x and CO in ambient air pollution.

During the announcement of the policy, Delhi's Chief Minister Arvind Kejriwal highlighted the need to adopt measures that can put the city's mobility system on an energy-efficient and low-emissions trajectory. If the policy achieves its target of 25 percent registration of electric vehicles (EVs) in new vehicle sales by 2024, approximately 500,000 EVs of various kinds will be



operating in the city. This would translate into a reduction of 159 tons of PM 2.5 in Delhi and a reduction of 4.8 million tons of CO₂ emissions, equivalent to avoiding CO₂ emissions from nearly one lakh petrol cars over their lifetime.

Pillars of the Delhi EV Policy

Driving EV Adoption through fiscal and non-fiscal incentives: In order to address the high-upfront cost of EVs (compared with internal combustion engine [ICE] vehicles), the Delhi EV Policy provides

demand incentives for purchasing electric two-wheelers, cars, auto-rickshaws, e-rickshaws, e-carts and goods carriers (L5N and N1 vehicles). The incentives, in the form of upfront purchase incentives, scrapping bonus, and loan interest waivers help bring EVs to cost parity with their ICE counterparts. These incentives by the Delhi EV Policy are in addition to the incentives provided under the FAME II scheme of the government of India (which has a budget of Rs 8,500 crore for demand incentives for EVs from 2019–20 to 2021–22).

In addition to the financial incentives, the Delhi EV policy also provides non-fiscal incentives in the form of road tax and registration fee waivers and green-registration plates. Non-fiscal incentives are provided to accelerate demand creation without burdening the government exchequer. The policy also uses regulatory instruments like open permits for e-autos, traffic and parking related exemptions for e-carriers, and regulatory go-ahead on plying of e-bike taxis and shared two-wheelers to create demand for EVs in these different segments.

Addressing barrier to fast-track charging infrastructure deployment: The policy commits to creating an enabling environment for the provision of private and public charging/swapping infrastructure. The policy has provisions for financial incentives to support slow charging (or home charging). Additionally, the EV charging tariff is kept at Rs 4.60 (\$0.061), which is one of the lowest in India, to encourage the adoption of standardised charging equipment since the commercial electricity tariff would be as much as twice as expensive as the EV tariff.

Creating a Recycling Ecosystem for batteries: The policy aims to encourage the re-use and recycling of EV batteries that have reached the end of their life. Adoption of the targeted

number of EVs may result in an enormous amount of batteries that need to be recycled or to be utilised for secondary usage such as energy storage for large solar rooftop projects. In partnership with energy service providers, the Delhi government aims to develop a framework for the efficient recycling of batteries and the promotion of the second-life of batteries as “power banks” to store renewable energy.

Setting up of State EV Fund: The Delhi EV policy seeks to fund a high proportion of the incentives using the “feebate” concept (i.e., by adopting measures by which inefficient or polluting vehicles incur a surcharge). The policy directs funding through sources like pollution cess, road tax, congestion tax, and other sources such as the environment compensation charge (ECC) to an umbrella, non-lapsable State EV Fund. The policy specifies diverting 50 percent of the total pollution cess (Rs 0.25paise/liter of diesel) collected in Delhi to the State EV Fund instead of the entire amount going to the Air Ambience Fund. The policy also puts a road tax and congestion tax on ICE vehicles.

Creating Jobs in the EV supply chain: The EV Policy envisions job creation as a key outcome. It aims to promote skill development in the electric vehicle supply chain to establish an efficient after-sale ecosystem for EVs in Delhi. Considering that the policy aims to promote about 5 Lakh EVs in Delhi, it has immense potential to create a large number of jobs such as EV drivers, auto-mechanics, charging station operating staff, etc.

Policy Implementation: It will be led by the Department of Transport and the State EV Board, under the leadership of Hon'ble Minister of Transport. The leadership will be responsible for reviewing the performance of various measures under the policy and taking additional measures as necessary for effective implementation. The Policy also commits to working towards creating consumer awareness by creating an outreach plan describing the benefits of EVs.

Delhi's EV policy by far presents itself as the most comprehensive subnational policy that adopts a systemwide approach to promote the adoption of EVs. It puts equal emphasis on instilling confidence in consumers and industry while ensuring that a public scheme like this invests in modes and assets that will have equitable benefits for all.

This positions it on a path of success if the right institutional and procedural mechanisms are put in place rapidly and efficiently.

The policy has set an example for developing comprehensive policy frameworks that deal with new subjects and new technologies. The hope is for the policy to deliver and exceed its stated objectives and make the capital EV-ready.

Bihar's air quality enters safe zone: BSPCB study

Date:-28-Aug-2020, Source: timesofindia.indiatimes.com



In the study carried out by Bihar State Pollution Control Board (BSPCB) the impact of the lockdown on the ambient air quality of major cities in the state including Patna, Muzaffarpur, Gaya, Hajipur has been assessed.

PATNA: The Covid-19 lockdown may have inconvenienced many, but it has had a positive impact on the overall pollution levels in the state, especially in capital Patna, with air quality entering the 'satisfactory' zone from 'severely polluted' before the lockdown.

In a study carried out by the Bihar State Pollution Control Board (BSPCB), the impact of the lockdown on the ambient air quality of major cities in the state, including Patna, Muzaffarpur, Gaya, and Hajipur, has been assessed. The study, which is still under

progress, collected real-time pollution data in three phases — pre-lockdown Phase 1 (March 12- 21), Phase 2 (March 23-April 19) and Phase 3 (April 20-April 27). It examined the trends of major air pollutants, including particulate matter (PM_{2.5} and PM_{2.10}) and traced atmospheric gases (NO₂, SO₂, NH₃, Ozone, and CO) before and during the Covid-19 lockdown. BSPCB chairman Ashok Kumar Ghosh said the findings of the study conclude an overall improvement in the air quality of the state since the implementation of the lockdown on March 22.

"The overall air quality of the state has been improving gradually since the lockdown. On March 21, the AQI of Patna was 300, while the concentration of prominent pollutant PM_{2.5} stood at 300. A month into lockdown, the AQI of Patna dropped down to 76 on April 27 and PM_{2.5} concentration was 20. It's a very positive development," Ghosh said. According to the national ambient air quality standards, all 11 air monitoring stations across the state have shown air quality index (AQI) of major cities including Patna, Gaya and Muzaffarpur to be either good (0 – 50) or satisfactory (51 – 100) since early April. Attributing the improvement in the air quality to the combined impact of several factors, including low vehicular and industrial emissions, during the lockdown Ghosh said, "The NO₂ and SO₂ concentration in the Patna is usually high, but with the implementation of restrictions on travel and factories, the levels of these gases were well below the permissible limit. "Simultaneous lockdown in the adjoining states and early arrival of monsoons in the state this

year also contributed to the improvement in overall air quality and decrease in air pollutants, he added.

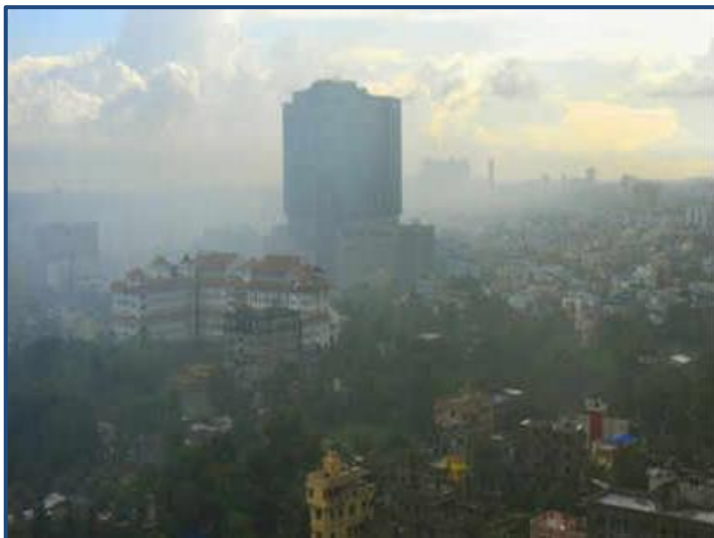
“We don’t have much industrial activity in Bihar. A major portion of air pollution in our state was neighborhood pollutants from adjoining states of UP and West Bengal, which were carried by the winds to Bihar. Post lockdown, we noticed a decrease in neighborhood pollution along with the bordering districts of Bihar,” he said.

“Additionally, with the early arrival of southwest monsoon in the state, there was a decrease in air pollutants as most of it settled on the ground due to the rains,” he added.

According to the AQI bulletin released by the Central Pollution Control Board on Thursday, the AQI of Patna was 41 while that of Gaya and Muzaffarpur was 23 and 62 respectively.

Goods vehicles worst polluters of Kolkata's air: Study

Date:-29-Aug-2020, Source: timesofindia.indiatimes.com



Aerial view of Kolkata

KOLKATA: The goods vehicles emerged as the biggest polluters of Kolkata’s ambient air, revealed the affidavit submitted before the National Green Tribunal (NGT) by Bengal’s chief secretary Rajiva Sinha. Sinha quoted the just submitted emission inventory and source apportionment of air pollution in the city, a study by National Environmental Engineering &

Research Institute (NEERI).

Almost half of the city’s particulate matter pollution of the air is caused by goods vehicles, the NEERI report suggested. Significantly, air quality experts have identified particulate as one of the biggest causes of premature human deaths. According to the study, 49 per cent of PM10 and 49.5 per cent of PM2.5 emissions are from goods vehicles. PM2.5, particularly, is an ultrafine particle of diameter less than 2.5 micrometers, which is about 3% the diameter of a human hair, and can travel straight into the bloodstream. The noxious chemicals riding piggyback on these particles play havoc with human lives. According to the transport department sources, much of the pollution is caused by goods vehicles coming from outside during the night time. Significantly, the movement of goods vehicles is allowed in the city after 9pm till 6am next day. “The night time pollution goes up sharply, leaving the early morning ambient air very poor. But

most of the students go to school around this time and are forced to inhale the foul air,” said environment crusader Subhas Datta. The affidavit was filed in reply to the case he has been fighting at NGT.

Datta said that the vehicles just go unchecked as hardly any emission checking activity is carried out at night. It is particularly suffocating during the winter when the pollutants hang low in the atmosphere. This is why morning walkers, who walk to gain health, end up losing it. Since, cent per cent of these goods vehicles are diesel driven, the danger to human health is imminent. “A diesel fume has as many as 24 types of carcinogens. No wonder, why Kolkata emerged as the nation's lung cancer capital,” said Dr Suman Malik, Clinical Director Radiation Oncology of Narayana Hospital.

“We need a far more stringent check on the incoming goods vehicles. If the vehicles carry more than its axle permitted weight, it is bound to pollute. Majority of the goods vehicles carry twice their carrying capacity. But these vehicles just move into the city by greasing the palms of police,” said Somendra Mohan Ghosh, an environment activist. Datta said that the state must bring in CNG, the cleanest alternative of diesel, without any delay. Majority of diesel run vehicles can switch over to CNG, just by retrofitting the conversion kit. GAIL chairman has already written to the chief secretary for clearing the land hurdle for laying the pipeline.

Exposure to air pollution contributes to higher BP

Date:-30-Aug-2020, Source: tribuneindia.com

New Delhi, August 30



The study was conducted by Indian scientists at the Centre for Chronic Disease Control and PHFI in collaboration with the Harvard T.H. Chan School of Public Health.

For a major part of north India, air pollution is a menacing issue and last year during the winter season, pollution led to a health emergency in Delhi-NCR. Ambient air pollution, specifically PM 2.5, is reportedly associated with cardiovascular disease risk.

However, evidence linking PM 2.5 and blood pressure is largely from cross-sectional studies and from settings with a lower

concentration of PM 2.5, with exposures not accounting for myriad time-varying and other factors such as the built environment. But, a first-of-a-kind study in Delhi, has shown epidemiological evidence, for short and long-term effects of ambient PM2.5 exposure on elevated blood pressure (BP) and hypertension.

The research was published in the American Heart Association's flagship journal *Circulation*. According to this research, data strongly supports a temporal association between high levels of ambient air pollution, higher systolic BP, and incident hypertension.

One of the authors and lead investigators of the project, Dr. Dorairaj Prabhakaran, vice president, research and policy at the Public Health Foundation India said: "In India, there is very little or no evidence linking the exposure of ambient particulate matter (PM2.5), as a marker of air pollution with hypertension. This is a first-of-a-kind study in the Indian context which shows epidemiological evidence, for short and long-term effects of ambient PM2.5 exposure on elevated BP and hypertension."

The study was conducted by Indian scientists at the Centre for Chronic Disease Control and PHFI in collaboration with the Harvard T.H. Chan School of Public Health on a locally recruited representative population. It presents strong evidence of the harmful effects of PM2.5 exposures on cardiovascular diseases (CVDs) in India.

"The findings have shown that both short and long-term exposure to air pollution contributed to higher BP and increased risk of hypertension, especially in certain sections of the population (obese individuals)," added Prabhakaran. The research suggests there are significant benefits of controlling air pollution in reducing a major risk factor for cardiovascular deaths, the leading contributor to deaths in the country.

"Till we reach the safe levels of air quality, people with high risk of arrhythmias, worsening heart failure or stroke such as those with severe heart failure should be specially protected by avoiding exposure to high levels of outdoor PM2.5 by not going out on these days or through the use of protective N95 masks if feasible," said one of the researchers.

The participants in the project were studied for seven years. "The longitudinal range of seven years, over which the participants have been followed, also ensures that we are observing consistent long-term patterns and lends significant weight to the findings compared with cross-sectional studies of intermittent episodes of high pollution and BP that may skew the findings," said the research.

The authors investigated the association between PM2.5, a marker of air pollution with blood pressure and incident hypertension in Delhi, carried out in a cohort of 5,300 individuals, and included annual questionnaire surveys and alternate year biological sample collection.

Blood pressure was assessed longitudinally at three time points within the cohort over the seven-year period. “There are various mechanistic pathways through which acute and chronic exposure to air pollutants can increase BP, including an imbalance in the autonomic nervous system, activation of the sympathetic nervous system, generation and release of proinflammatory mediators, and direct influence on the vascular endothelium,” said the study. — IANS

Delhi: Very light rainfall likely in next 2 days, says IMD

Date:-31-Aug-2020, Source: hindustantimes.com



IMD officials said gusty winds and light rainfall in parts of the city are likely to keep the mercury down.

The national capital's weather would remain pleasant on Monday because of very light rain, or drizzle, with gusty winds blowing at a speed of up to 25 kilometres per hour (kmph), said India Meteorological Department (IMD) officials.

The winds and overnight light rain also helped clear Delhi's air. The air quality index (AQI)

recorded at 6am on Monday was 42, which fell in the “good” category, according to the Central Pollution Control Board's (CPCB) data. The average AQI on Sunday was 70 that belonged to the “satisfactory” category. If the average AQI for Monday remains under 50, then it will be the fourth “good” air day in August. August may emerge as the cleanest month in a year since 2015 because of monsoon rains. August 13, 20 and 24 had also recorded “good” air days. HT had reported that since May 2015, when air quality monitoring records are being kept, no month in a year had reported as many “good” air days as this year's August. IMD officials said gusty winds and light rainfall in parts of the city are likely to keep the mercury down. “The winds were mainly because of a cyclonic circulation in north-west Madhya Pradesh and north-east Rajasthan. The winds are expected to blow on Monday as well. However, the wind speed is likely to slow down between 20 and 25 kmph,” said Kuldeep Srivastava, head of IMD's regional weather forecasting centre. Delhi is expected to receive very light rainfall, or drizzle over the next two days, he added.

However, a good spell of rainfall is expected to hit the national capital around September 3 (Thursday), when the trough will be close to the northern region.

September 2020

Delhi air quality remains in 'good' category as overall AQI drops to 28

Date:-1-Sept-2020, Source: <https://timesnownews.com>

Delhi NCR pollution level today: The ongoing easterly surface winds are likely to help to keep air quality in good category through high ventilation.

- AQI is forecast to stay at the satisfactory to the good category on Tuesday and likely to marginally deteriorate and in the satisfactory category for next two days.
- On Tuesday, Noida and Gurugram registered air quality in the 'good' category with an AQI of 40 and 34 respectively.



New Delhi: With drastic decline in air pollution, the national capital continues to breathe a spell of clean air. The air quality in Delhi was recorded in the 'good' category on Tuesday morning as overall AQI dropped to 28, according to the latest estimates updated by System of Air Quality and Weather Forecasting And Research (SAFAR).

Clean air in Delhi

Most of the areas in Delhi recorded air quality in 'good' category on Tuesday morning. According to Central Pollution Control Board (CPCB) estimates updated at 6 am, Anand Vihar, Pusa Road, Lodhi Road, CRRJ Mathura Road, ITO, IGI Airport (Terminal 3), Ashok Vihar and Bawana recorded air quality in the 'good' category with an AQI of 84, 43, 40, 46, 84, 39, 32 and 64 respectively.

According to CPCB, AQI between the range of 51 and 100 is considered as 'satisfactory' or 'very good', 101-200 is 'moderate', 201-300 falls under the category of 'poor'. While 300-400 is considered as 'very poor', levels between 401-500 fall under the 'hazardous' category.

SAFAR forecast

"The overall AQI in Delhi was in the good category. Enhanced rainfall activity is likely in next two days in Delhi. As forecast, strong easterly surface winds are persisting and likely to continue for next 24 hrs and helping to keep air quality good through high ventilation. AQI is forecast to stay at the satisfactory to the good category on Tuesday and likely to marginally deteriorate and in the satisfactory category for next two days. Widespread rainfall is likely over Maharashtra and Gujarat for the next two days. Air quality continues in the good category for Pune, Mumbai, and Ahmedabad. AQI is likely to stay good for the next three days. Pune AQI is the best among all four SAFAR cities," SAFAR forecast said.

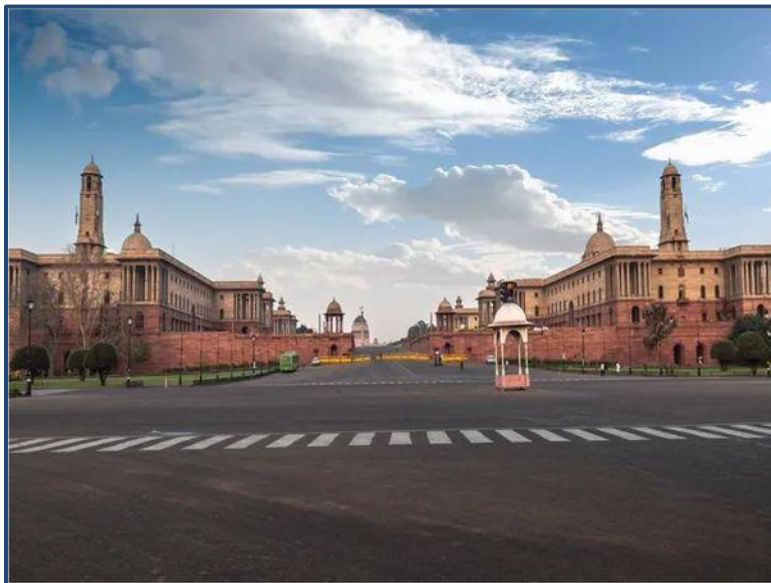
Air quality in NCR

The Delhi-NCR also witnessed clean air after heavy rains recently. On Tuesday, Noida and Gurugram registered air quality in the 'good' category with an AQI of 40 and 34 respectively.

Delhiites breathe clean air as overall AQI drops to 41

Date:-2-Sept-2020, Source: timesnownews.com

Delhi NCR pollution level today: The month of August has proved to be the best period for the air quality in Delhi with the city witnessing a spell of clean air for several days in a row thanks to heavy rains.



- SAFAR: The high surface wind speed mainly from South-easterly to easterly direction acted like a continuous "reset" button, significantly helping to flush out pollutants.

- SAFAR: When the unlock period started, the fairly widespread to scattered monsoon rain under the influence of active monsoon trough and consecutive monsoon low-pressure systems originated in the Bay of Bengal

and moved northwestward continued to wash away particulate pollutants in Delhi.

New Delhi: The high surface winds mainly from South-easterly to easterly direction have acted like a continuous "reset" button for Delhi's atmosphere. The city has witnessed a spell of clean

air for several consecutive days making it easier for Delhiites to breathe. With this, the air quality in Delhi was recorded in the 'good' category on Wednesday morning as overall AQI dropped to 41, according to the latest estimates updated by System of Air Quality and Weather Forecasting And Research (SAFAR).

Clean air in Delhi

Most of the areas in Delhi recorded air quality in 'good' category on Wednesday morning. According to SAFAR estimates updated at 6.30 am, Delhi University, Chandni Chowk, Pusa Road, Lodhi Road, Mathura Road, IIT-Delhi, IGI Airport (Terminal 3), and Ayanagar recorded air quality in the 'good' category with an AQI of 28, 78, 48, 35, 30, 37, 27 and 28 respectively.

According to SAFAR, AQI between the range of 51 and 100 is considered as 'satisfactory' or 'very good', 101-200 is 'moderate', 201-300 falls under the category of 'poor'. While 300-400 is considered as 'very poor', levels between 401-500 fall under the 'hazardous' category.

SAFAR's scientific perspective of Delhi's Air

"The long term nationwide lockdown has significantly reduced the emissions of various pollutants and the distribution of their concentration not only near the surface but all the way up vertically in the atmosphere. So there has been a huge reduction in accumulated emission mass. When the unlock period started, the fairly widespread to scattered monsoon rain under the influence of active monsoon trough and consecutive monsoon low-pressure systems originated in the Bay of Bengal and moved northwestward continued to wash away particulate pollutants in Delhi and surrounding north Indian regions, not allowing any accumulation of pollution. There are indications that unlocking has not led to 100% of pre-COVID-19 levels due to many reduced activities. Under such background, the high surface wind speed mainly from South-easterly to easterly direction acted like a continuous "reset" button, significantly helping to flush out whatever is getting accumulated even in the present time. The easterly winds are also helping in blocking relatively dusty air from the dry arid western region. The unusual high wind speed during this time of the year for the past few days further cleaned the Delhi pollution and wind directions are such that it is just the opposite of what Delhi's geographical and meteorological misfortune do during winter," said SAFAR in its review of the Delhi air quality.

Air quality in NCR

After the imposition of lockdown on March 25, the Delhi-NCR also witnessed clean air. On Wednesday, Noida and Gurugram registered air quality in the 'good' category with an AQI of 35 and 28 respectively.

Clean air, sanitation can save newborn lives

Date:-3-Sept-2020, Source: india.mongabay.com

- Exposure to tiny particles found in dust and smoke (particulate matter 10 or PM10), regardless of hygienic practices, increases the risk of adverse child health outcomes, said a survey of 184 Indian cities and towns.
- Impacts of PM10 on child health outcomes did not vary between cities that come under the National Clean Air Programme and those that are not under its ambit, the survey said.
- Experts call for addressing the data gap for air pollution levels in rural India by applying a mix of technologies such as satellite data and low-cost sensors, integrated with the reference-grade monitors.

Exposure to fine particles (PM10) found in the air increases the risk of harm to child health irrespective of hygiene practices, said a survey of 184 Indian towns and cities. The survey also calls for addressing the air pollution data gap in rural areas.

Published in the BMJ Global Health journal, the study notes that the effect of PM10 on child health outcomes did not vary between cities that come under the National Clean Air Programme and those that are not under its ambit (NCAP and non-NCAP cities).

“Air pollution has its impacts on child health irrespective of hygiene practices. Regardless of hygienic practices, breathing in filthy air (with high PM10 levels) increases the risk of adverse child health outcomes. These are premature birth, acute respiratory infection (ARI), low birth weight, and more,” said study author Bidhubhusan Mahapatra of the Population Council at New Delhi.

“So, improved sanitation combined with clean air can prevent loss of several newborn lives. Both aspects are important for better health of children,” Mahapatra told Mongabay-India.

Overall, with every ten µg/m³ (microgram per cubic meter) increase in the PM10 level, the risk of neonatal mortality shot up by six percent, the odds of experiencing ARI symptoms by seven percent, and premature births by eight percent. “We find that exposure to PM10 not only impacts children but also pregnant women, resulting in premature births,” said statistician and study co-author Monika Walia, formerly with the Population Council.

PM10 are particles ranging between 2.5 and 10 micrometers and common sources include vehicular exhausts, smoke from fires, dusty industrial areas among others. Particulate matter 2.5 (PM2.5) are particles of a smaller size. “PM2.5 particles are lighter than PM10 and go

deeper into our body, causing more harm than coarse particles. So if PM10 can cause such adverse effects on child health as shown in our study, then PM2.5 will lead to more severe impacts,” cautioned Walia, currently Data Manager, Poverty, Health, and Nutrition (PHN) Division at International Food Policy Research Institute (IFPRI), New Delhi.

The study builds on a growing body of research that hammers in the linkages between air pollution and health in India, particularly for vulnerable communities. For example, in a 2019 study, IIT-Delhi’s Sagnik Dey and colleagues warned that improved sanitation access for children in rural areas might arrest stunting. Still, early-life exposure to high levels of air pollution could play spoilsport in realising these benefits. Their study found that foetus and newborns’ exposure to outdoor air pollutants (especially PM2.5) is significantly associated with child height deficits.

India is today the world’s second most polluted country. Stubborn air pollution robs the average Indian of more than five years of their life expectancy, according to the Air Quality Life Index 2020 Annual Report published by the Energy Policy Institute of University of Chicago (EPIC).

The researchers measured the effect of PM10 exposure on various child health outcomes by linking two sources of data: National Family Health Survey-4 (NFHS-4) and air quality data provided by the Central Pollution Control Board. NFHS-4 observations for rural areas were removed from the study as PM10 data is only available for urban areas. “We considered carrying out the analysis using PM10 because it has greater coverage i.e. PM10 data were available for longer durations and for lot more cities than PM2.5,” said Walia.

The 184 districts/towns covered 24 states and three union territories of India. The survey covered districts in states such as Andhra Pradesh, Chhattisgarh, Assam, Himachal Pradesh, Kerala, Karnataka and others. Of these 184 towns, as many as 95 are priority districts under the NCAP.

The NCAP launched in 2019 is a long-term, time-bound, national-level strategy to tackle the air pollution problem across India in a comprehensive manner. It targets 20-30 percent reduction in PM10 and PM2.5 concentrations by 2024, keeping 2017 as the base year for the comparison of concentration. It includes 122 non-attainment cities- cities that violate the National Ambient Air Quality Standards (NAAQS). The plan proposes the implementation of city-specific air quality management plans for non-attainment cities.

The authors emphasise stepping up efforts to measure air pollution in rural areas, at least in the rural areas located on the peripheries of urban areas, because the lack of data on air pollution levels in rural areas remains a critical gap in India’s efforts to address air pollution. Studies have shown that while sources may be somewhat different, polluted air “kills as easily in the rural



The National Clean Air Programme targets 20-30 percent reduction in PM10 and PM2.5 concentrations by 2024, keeping 2017 as the base year for the comparison of concentration.

areas as in the cities” in northern India. “The effects of air pollution were not limited to metro cities in our study; rather, it was pan-India. So the focus should be expanded to reduce air pollution in fast-developing second and third-tier towns,” said Walia.

Disease burden and air pollution levels

Three factors shape the air pollution burden or the cumulative impact of air quality on life. “The level of exposure, the

population exposed to a particular level, and the background disease rates, which is a reflection of the overall healthcare systems. It means that even if the air pollution level remains unchanged, the burden will increase because the population will keep growing. Also, if the population age structure shifts to an older age, the risks increase,” said Dey.

Unless the air pollution level goes down substantially, the impact will not reduce. And this is not possible if only the urban centres are targetted. This is the first challenge.

The second challenge is poor healthcare in rural areas. “In the India Global Burden of Disease Study (GBD) exercise, it is realised that the air pollution burden is much higher in the states of Uttar Pradesh and Bihar than in Delhi, although the pollution level is higher in Delhi. This is because the background disease rate is much lower in Delhi, and Delhi has a smaller population,” explained Dey.

In rural areas, household air pollution exposure is also higher than in urban areas. Therefore, the overall exposure (a combination of outdoor and indoor) remains high. But, this presents an opportunity to deploy clean fuels and electrification to do away with kerosene and firewood use which will clean up the household air in the rural area. The outdoor air will also be cleaned as household sources contribute 50-70 percent to outdoor air pollution.

Dey, who was not associated with the PM10 study, agrees with the researchers that urban boundaries do not limit air pollution impacts. “NCAP, though focused on the urban centres, is a good start because it acknowledged air pollution as a national problem. However, as the NCAP is evolving, it should connect to the other programs such as Pradhan Mantri Ujjwala Yojana and rural electrification scheme for an integrated regional plan,” Dey said.

Addressing the data gap in rural India

An analysis of action plans of 102 NCAP cities points out the absence of cost estimates for the execution of the action points listed in the plans as the “most glaring shortcoming.” State budgets need to account for the expenses that implementing clean air plans will incur, especially since some actions call for core infrastructural development and the purchase of expensive assets like mechanical street sweepers and real-time monitoring stations, the analysis said.

Officials of pollution control boards of Uttar Pradesh and Bihar, for example, also discussed the funding challenges of the action plans, including cost-effective monitoring technologies, at the India Clean Air Summit 2020 held online by the Center for Study of Science, Technology and Policy (CSTEP).

One way to circumvent the investment challenge is to evolve a hybrid monitoring system with satellite and low-cost sensors integrated with the reference-grade monitors to expand air pollution monitoring to rural areas.

“In the NCAP, the Central Pollution Control Board network will be expanded to cover some rural areas. However, realistically, the investment would be huge and unsustainable for India to maintain an adequately dense network of reference-grade monitors across the country,” he said. However, each component in hybrid systems has its strength and weakness.



Experts bat for a hybrid system of satellite and low-cost sensors integrated with the reference-grade monitors to cost-effectively monitor air pollution.

“What we need is a system that harnesses the strengths of all these three. We should have reference-grade monitors at strategic locations within each air shed covering both urban and rural areas. Satellite data should be calibrated to provide the regional coverage and help to track the changes in pollution levels,” said Dey. Efforts are on to

identify major airsheds in India. Airshed refers to a geographical region that tends to share the same flow of air. The airshed approach was also brought up by researchers for managing future air quality in the Kolkata Metropolitan Area.

“For any mitigation efforts, both local and regional sources need to be tackled. However, with few reference-grade monitors, we cannot interpret which strategy (local vs regional) is more successful. Low-cost sensor (calibrated against the reference-grade) network should be built around the reference-grade monitors to capture the local factors.”

“We (joint efforts with CEEW, colleagues in the USA from NASA, RTI, and UC Berkeley) are planning to deploy an array of low-cost sensors across the Indo-Gangetic plain (Punjab to West Bengal) in the coming months to explore the feasibility of an integrated system. Most of these low-cost sensors will be hosted by citizens, thereby enhancing their engagement and creating awareness. All the data will be available online,” he added.

Delhi air quality deteriorates to satisfactory category, overall AQI docks at 73

Date:-4-Sept-2020, Source: <https://timesnownews.com>

Delhi NCR pollution level today: Air monitoring agency SAFAR says the widespread to scattered monsoon rains under the influence of active monsoon trough has led to the washing of pollutants from Delhi's air.

- Speed and direction of the wind in the past few days loaded heavy rains improved Delhi's air quality.
- Gurugram and Noida also registered air quality in the satisfactory category with an AQI of 61 and 68 respectively.

New Delhi: The speed and direction of the wind in the past few days loaded with recent widespread rain have considerably improved the air quality in Delhi. Due to this, the city has recorded a spell of clean air for weeks. The air quality in Delhi was recorded in the 'satisfactory' category on Friday morning as overall AQI docked at 73, according to the latest estimates updated by System of Air Quality and Weather Forecasting And Research (SAFAR).

Clean air in Delhi

Most of the areas in Delhi recorded air quality in the satisfactory category on Friday morning. According to SAFAR estimates updated at 6.30 am, Delhi University, Pusa Road, Lodhi Road, Mathura Road, IIT-Delhi, IGI Airport (Terminal 3), and Ayanagar recorded air quality in the 'good' category with an AQI of 59, 54, 28, 47, 53, 61 and 53 respectively.

According to SAFAR, AQI between the range of 51 and 100 is considered as 'satisfactory' or 'very good', 101-200 is 'moderate', 201-300 falls under the category of 'poor'. While 300-400 is considered as 'very poor', levels between 401-500 fall under the 'hazardous' category.

SAFAR's perspective of Delhi's Air

"The most fundamental parameter that is making Delhi air quality one of the best in recent years is the speed and direction of the wind in the past few days loaded with recent widespread rain and the lockdown related widespread cleansing. An ideal example of integrated natural experiment managing Delhi air in check from internal and external sources," SAFAR said in its review of the Delhi air quality.

Air quality in NCR

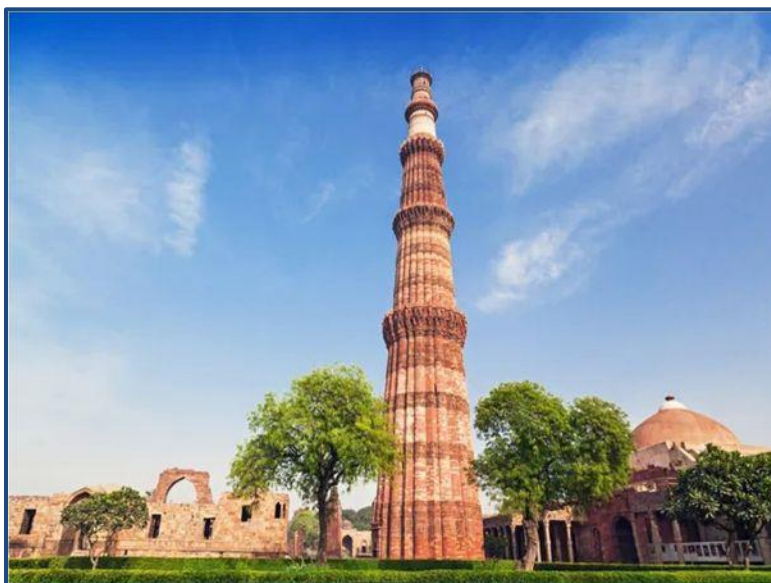
After the imposition of lockdown on March 25, the Delhi-NCR also witnessed clean air. On Friday morning, Gurugram and Noida registered air quality in the satisfactory category with an AQI of 61 and 68 respectively.

Delhi air quality remains in satisfactory category as overall AQI docks at 72

Date:-5-Sept-2020, Source: timesnownews.com

Delhi NCR pollution level today: Air monitoring agency SAFAR said the improvement in Delhi's air quality was made possible due to widespread rains under the influence of active monsoon trough.

- Air quality in Delhi was recorded in the 'satisfactory' category on Saturday morning as overall AQI docked at 72.
- Gurugram and Noida registered air quality in the satisfactory category with an AQI of 70 and 73 respectively.



Air quality in Delhi was recorded in the 'satisfactory' category on Saturday morning as overall AQI docked at 72

New Delhi: With recent widespread rainfall and lockdown effect, the air quality in Delhi has considerably improved. Due to this, the city has recorded a spell of clean air for several consecutive weeks. The air quality in Delhi was recorded in the 'satisfactory' category on Saturday morning as overall AQI docked at 72, according to the latest estimates updated by System of Air Quality

and Weather Forecasting And Research (SAFAR).

Clean air in Delhi

Most of the areas in Delhi recorded air quality in the satisfactory category on Saturday morning. According to SAFAR estimates updated at 6.30 am, Delhi University, Pusa Road, Lodhi Road, Mathura Road, IIT-Delhi, IGI Airport (Terminal 3), and Ayanagar recorded air quality in the 'good' category with an AQI of 69, 51, 37, 73, 63, 65 and 61 respectively.

According to SAFAR, AQI between the range of 51 and 100 is considered as 'satisfactory' or 'very good', 101-200 is 'moderate', 201-300 falls under the category of 'poor'. While 300-400 is considered as 'very poor', levels between 401-500 fall under the 'hazardous' category.

SAFAR's perspective of Air quality in Delhi

"The long term nationwide lockdown has significantly reduced the emissions of various pollutants and the distribution of their concentration not only near the surface but all the way up vertically in the atmosphere.

So, there has been a huge reduction in accumulated emission mass. When the unlock period started, the fairly widespread to scattered monsoon rain under the influence of active monsoon trough and consecutive monsoon low-pressure systems originated in the Bay of Bengal and moved northwestward continued to wash away particulate pollutants in Delhi and surrounding north Indian regions, not allowing any accumulation of pollution.

There are indications that unlocking has not led to 100% of pre-COVID-19 levels due to many reduced activities. Under such background, the high surface wind speed mainly from South-easterly to easterly direction acted like a continuous "reset" button significantly helping to flush out whatever is getting accumulated even in the present time. The easterly winds are also helping in blocking relatively dusty air from the dry arid western region.

The unusual high wind speed during this time of the year for the past few days further cleaned the Delhi pollution and wind directions are such that it is just the opposite of what Delhi's geographical and meteorological misfortune do during winter," SAFAR said in its review of the Delhi air quality.

Air quality in NCR

With the imposition of lockdown on March 25, the Delhi-NCR also witnessed clean air. On Saturday morning, Gurugram and Noida registered air quality in the satisfactory category with an AQI of 70 and 73 respectively.

Air quality of Delhi deteriorates slightly as overall AQI reaches 79

Date:-6-Sept-2020, Source: timesnownews.com



During the week, PM10 pollutants are expected to reach the figure of 103, which falls under the 'moderate' category

Delhi NCR pollution level today: The air quality index (AQI) of Delhi was recorded at 79 on Sunday, which falls under the 'satisfactory' category. On Sunday morning, the overall AQI of Delhi was recorded at 79. According to SAFAR's forecast, the air quality of the national capital will deteriorate further during the week

New Delhi: Delhi's air quality remained in the 'satisfactory' category on Sunday morning as the overall air quality index (AQI) was recorded at 79. On Saturday

morning, the overall AQI of Delhi was recorded at 72. The increase in AQI was observed as there was a rise in the concentration of both, PM10 and PM2.5 pollutants.

According to the System of Air Quality and Weather Forecasting And Research (SAFAR), PM10 pollutants in Delhi were recorded at 79 on Sunday morning, which comes under the 'satisfactory' category and PM2.5 pollutants were recorded at 39, which comes under the 'satisfactory' category as well. As per the forecast, PM10 pollutants in Delhi will increase to the figure of 87 on Monday, which falls in the 'satisfactory' category while PM2.5 pollutants are expected to rise up to 41, which also falls under the 'satisfactory' category. During the week, PM10 pollutants are expected to reach the figure of 103, which falls under the 'moderate' category and PM2.5 pollutants are expected to reach the figure of 48, which falls under the 'satisfactory' category.

AQI of Pusa and other areas

In Pusa, PM10 pollutants were recorded at 63, which comes under the 'satisfactory' category while PM2.5 pollutants were recorded at 63 which falls under the same category. In Mathura Road, PM10 pollutants were recorded at 89, which falls under the 'satisfactory' category and PM2.5 pollutants were recorded at 65, which falls under the 'satisfactory' category as well.

In Lodhi Road, PM10 pollutants were recorded at 65, which comes under the 'satisfactory' category and PM2.5 pollutants were recorded at 37, which comes under the 'good' category. In Noida, PM10 pollutants were recorded at 100, which comes under the 'satisfactory' category and PM2.5 pollutants were recorded at 78, which comes under the same category.

Can Delhi sustain its clean air, blue sky days?

Date:-7-Sept-2020, Source: hindustantimes.com



A cloudy blue sky over Connaught Place in New Delhi, earlier in August.

The world — based on a resolution adopted by the United Nations General Assembly (UNGA) last December — will observe the International Day of Clean Air for Blue Skies for the first time on Monday.

The UNGA note, dated January 22, on the observance of September 7 as a day for clean air, states that air pollution is the single-greatest environmental risk to human

health.

Delhi for the first time in years has recorded several blue-sky “good” air days since March 25, when nation-wide lockdown restrictions were enforced in a bid to prevent the spread of the coronavirus disease (Covid-19) outbreak.

Later, this been followed by a favourable monsoon with some intense spells of rain and strong wind.

But Delhi’s acid test begins in September when meteorological conditions change, emissions rise with the re-opening up of various sectors after lockdown restrictions, while the crop stubble burning begins in neighbouring states such as Uttar Pradesh (UP), Haryana and Punjab in October.

There were only two “good” air days in 2017 followed by two days last year.

This year, there have been five good air days (March 28) (during the first week of the Covid-19 induced lockdown) with an air quality index (AQI) reading of 45; on August 13 after heavy rain, the AQI was recorded 50; August 20, again when Delhi received very heavy rainfall, the AQI was

50; August 24, the AQI was 45 and the lowest air quality index (AQI) in five years was recorded this August on August 31 with AQI of only 41.

“By end-September the meteorological conditions change. Wind direction changes from south-westerly and north-easterly to predominantly north-westerly. Wind speed also reduces. There may have been reduction in emission load this year because normal vehicular traffic has not yet resumed,” said Vijay Soni, a scientist at air pollution division of India Meteorological Department (IMD).

This year ensuring farmers don’t set crop stubble on fire in Punjab, Haryana, UP, an annual activity to dispose crop stubble from kharif season, may be very difficult. This is because small farmers are already affected by Covid-19-led economic slowdown and may not have the means to hire machines and tractors for straw management. The Centre had launched a Rs- 1,150 crore scheme in 2018 to subsidise farm straw-management machinery in the north-western states, where rampant paddy-straw burning contributes to air pollution in Delhi every year.

“We have filled forms to claim a 50% subsidy on straw management machinery being offered by the government. The subsidy hasn’t come through yet. But small farmers will burn crop stubble. They cannot afford machinery and tractors in the midst of a pandemic. The machine has to be mounted on a tractor and there are diesel costs also,” said Harinder Singh Lakhwal, general secretary, Bharatiya Kisan Union, Punjab.

The Indian Council of Agricultural Research (ICAR) had claimed last year that there was a 50% reduction in the agricultural area, where crop residue burning takes place. But an analysis by Hiren Jethva, a research scientist with Universities Space Research Association at (National Aeronautics and Space Administration) NASA Goddard Space Flight Centre, suggested that there was hardly any reduction.

“We have disbursed the money this year also to states to ensure farmers get subsidised straw management machinery. By October 15, those machines should be in place. We are expecting a reduction in stubble burning cases. Over 50% reduction in area with crop stubble burning has been recorded,” said Trilochan Mohapatra, director-general, ICAR.

The Union ministry of environment, forest and climate change (MoEFCC) is also considering a request by the Union power ministry to defer the deadline for thermal power plants to meet air pollution norms by 2022, another two years. Thermal power plants are one of the largest sources of sulphur dioxide (SO₂) and particulate matter (PM) pollution in India. The MoEFCC had notified superior emission standards for thermal power plants in December 2015 for implementation by the end of 2017. The deadline was delayed to 2022 because of resistance from the thermal power industry.

“Delhi has taken several steps such as closing of all thermal power plants; stopping truck entry; phasing out more than 10-year-old diesel vehicles among others. But this is the right time to take stock of the gaps. Delhi needs to scale up its public transportation and vehicle electrification programme massively. It needs to streamline its waste sector through better segregation and recycling in a bid to ensure that waste is not burnt. It has to move all industries to clean fuel,” said Anumita Roychowdhury, executive director, Centre for Science and Environment (CSE), a not-for-profit public interest research and advocacy organisation based in the national capital.

Delhi air quality again deteriorates to satisfactory category, overall AQI docks at 88

Date:-8-Sept-2020, Source: timesnownews.com

Delhi NCR pollution level today: The air monitoring agency SAFAR said the recent widespread rain has led to considerable improvement in the Delhi air quality.

- SAFAR: Most fundamental parameter making Delhi air quality one of the best in recent years is the speed and direction of the wind in the past few days.
- SAFAR: The long term nationwide lockdown has significantly reduced the emissions of various pollutants and the distribution of their concentration.

New Delhi: The air pollution in Delhi went down drastically after recent rains and lockdown effect. With this, the city has recorded a spell of clean air for several consecutive weeks. The air quality in Delhi was recorded in the 'satisfactory' category on Tuesday morning as overall AQI docked at 88, according to the latest estimates updated by System of Air Quality and Weather Forecasting And Research (SAFAR).

Clean air in Delhi

Most of the areas in Delhi recorded air quality in the satisfactory category on Tuesday morning. According to SAFAR estimates updated at 6 am, Pusa Road, Lodhi Road, Mathura Road, IIT-Delhi, IGI Airport (Terminal 3), and Ayanagar recorded air quality in the satisfactory category with an AQI of 92, 43, 78, 75, 78, 66 and 71 respectively.

Moderate air in parts of Delhi

However, some areas in the national capital including Delhi University recorded air quality in the moderate category with an AQI of 612.

According to SAFAR, AQI between the range of 51 and 100 is considered as 'satisfactory' or 'very good', 101-200 is 'moderate', 201-300 falls under the category of 'poor'. While 300-400 is considered as 'very poor', levels between 401-500 fall under the 'hazardous' category.

SAFAR's perspective of Delhi's Air

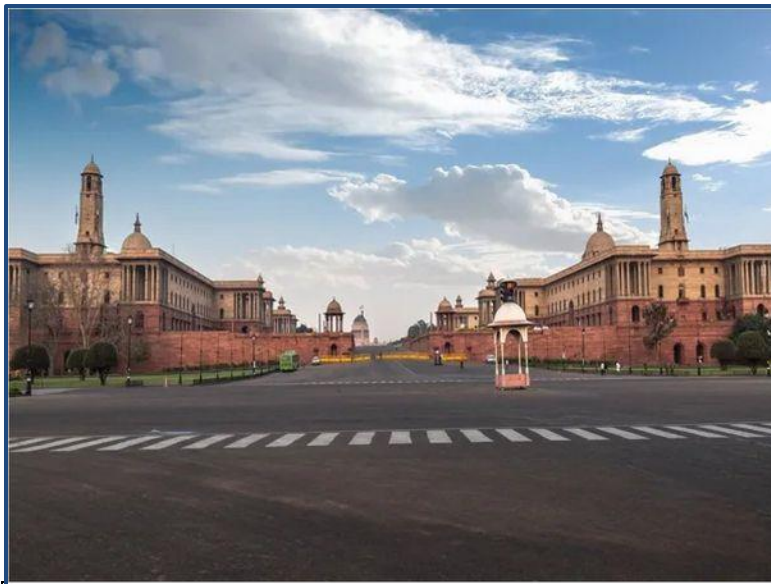
"The most fundamental parameter that is making Delhi air quality one of the best in recent years is the speed and direction of the wind in the past few days loaded with recent widespread rain and the lockdown related widespread cleansing. An ideal example of integrated natural experiment managing Delhi air in check from an internal and external source," SAFAR said in its review of the Delhi air quality.

Air quality in NCR

After the imposition of nationwide lockdown on March 25, the Delhi-NCR also witnessed clean air. On Tuesday morning, Gurugram registered air quality in the satisfactory category with an AQI of 71. While Noida recorded an AQI of 115 in the moderate category.

Delhi air quality remains in satisfactory category, overall AQI drops to 66

Date:-9-Sept-2020, Source: timesnownews.com



The unusual high wind speed during this time of the year for the past few days further cleaned the Delhi pollution.

Delhi NCR pollution level today: With most areas in Delhi witnessing clean air, some areas in the national capital witnessed air quality in the moderate category.

- SAFAR: The unusual high wind speed during this time of the year for the past few days further cleaned the Delhi pollution.
- SAFAR: High surface wind speed mainly from south-easterly to easterly direction acted like a continuous "reset" button for Delhi's air.

New Delhi: The impact of lockdown and later widely scattered rains have considerably improved air quality in the national capital. The air quality in Delhi was recorded in the 'satisfactory' category on Wednesday morning as overall AQI docked at 88, according to the

latest estimates updated by System of Air Quality and Weather Forecasting And Research (SAFAR).

Clean air in Delhi

Most of the areas in Delhi recorded air quality in the satisfactory category on Wednesday morning. According to Central Pollution Control Board (CPCB) estimates updated at 6.30 am, Anand Vihar, Ayanagar, Indira Gandhi International Airport (Terminal 3), ITO, Lodhi Road, Mandir Marg recorded air quality in the satisfactory category with an AQI of 95, 72, 86, 56, 72 and 85 respectively.

Moderate air in parts of Delhi

However, some areas in the national capital including Mathura Road, Dwarka and Pusa Road recorded air quality in the moderate category with an AQI of 114, 128 and 106.

According to CPCB, AQI between the range of 51 and 100 is considered as 'satisfactory' or 'very good', 101-200 is 'moderate', 201-300 falls under the category of 'poor'. While 300-400 is considered as 'very poor', levels between 401-500 fall under the 'hazardous' category.

SAFAR's perspective of Delhi's Air

"The long term nationwide lockdown has significantly reduced the emissions of various pollutants and the distribution of their concentration not only near the surface but all the way up vertically in the atmosphere. So, there has been a huge reduction in accumulated emission mass. When the unlock period started, the fairly widespread to scattered monsoon rain under the influence of active monsoon trough and consecutive monsoon low-pressure systems originated in the Bay of Bengal and moved north westward continued to wash away particulate pollutants in Delhi and surrounding north Indian regions, not allowing any accumulation of pollution.

There are indications that unlocking has not led to 100% of pre-COVID-19 levels due to many reduced activities. Under such background, the high surface wind speed mainly from South-easterly to easterly direction acted like a continuous "reset" button significantly helping to flush out whatever is getting accumulated even in present time.

The easterly winds are also helping in blocking relatively dusty air from the dry arid western region. The unusual high wind speed during this time of the year for the past few days further cleaned the Delhi pollution and wind directions are such that it is just the opposite of what Delhi's geographical and meteorological misfortune do during winter," SAFAR said in its review of the Delhi air quality.

Air quality in NCR

After the imposition of nationwide lockdown on March 25, the Delhi-NCR also witnessed clean air. On Wednesday morning, Noida and Gurugram registered air quality in the satisfactory category with an AQI of 89 and 90.

‘Warrior Moms’: Mothers across India join hands to fight air pollution

Date:-10-Sept-2020, Source: indianexpress.com



Owing to the Covid-19 pandemic, the movement is being managed via social media for now.

The group, called ‘Warrior Moms’, was launched on Monday (September 7), which was observed as the very first International Day of Clean Air.

Mothers across India have launched a movement to fight the rising air pollution in the country, which has severe health implications on children.

Monday (September 7), which was observed as the very first International Day of Clean Air. The group includes women from cities like Mumbai, Pune and Nagpur, among others, and is seeing a steady rise in membership. Owing to the Covid-19 pandemic, the movement is being managed via social media for now.

In December last year, the Global Alliance on Health and Air Pollution said India leads the world in pollution-related deaths. The World Health Organisation (WHO) has pointed out that children, especially those below the age of five years, are more vulnerable to the harmful effects of air pollution.

“...Air pollution is affecting the health of my kids and I cannot afford to stand back and let that happen,” said Anuja Bali Karthikeyan, spokesperson for Warrior Moms, who lives in Pune. “I cannot...see our children’s futures be affected...”

Karthikeyan said the group’s main demand is clean and safe air for children, which, she added, is their basic right. “Nature has shown us that if we try to change our lifestyle and behaviour, we can have a cleaner and greener environment,” she said. “The end goal of having clean air will require citizens to work along with the government, and mothers...can bring about the change.”

Hema Chari Madabhushi, another resident of Pune and member of the group, said, “Policymakers don’t realise how this menacing threat affects children on a large scale, but I know my child suffers daily due to air pollution. It is time the government takes action...”

Lauding the efforts of the mothers, Dr Arvind Kumar, renowned chest surgeon and founder-managing trustee of Lung Care Foundation, said, “The launch of ‘Warrior Moms’ will fill the vacuum in our efforts to secure clean air for children. The simple act of breathing alone, in most Indian cities, is like going to war with your mental and physical health. I hope this movement spreads across the country and brings every stakeholder together to ensure clean air for all.”

Housing Ministry launches Climate Smart Cities Assessment Framework 2.0

Date:-11-Sept-2020, Source: thehindubusinessline.com



Union Minister for Housing and Urban Affairs Hardeep Singh Puri

The Ministry of Housing and Urban Affairs (MoHUA) on Friday launched the Climate Smart Cities Assessment Framework (CSCAF) 2.0, along with the ‘Streets for People Challenge’ in a virtual event organised by the Smart Cities Mission.

The objective of CSCAF is to provide a roadmap for cities for combating Climate Change while planning and implementing their actions, including investments, said Hardeep Singh Puri, Minister of State (Independent Charge) for Housing and Urban Affairs.

The framework has 28 indicators across five categories: (i) Energy and Green Buildings, (ii) Urban Planning, Green Cover and Biodiversity, (iii) Mobility and Air Quality, (iv) Water Management and (v) Waste Management.

The Climate Centre for Cities under National Institute of Urban Affairs (NIUA) is supporting MoHUA in implementation of CSCAF.

Meanwhile, the Streets for People Challenge is the response to the need for making our cities more pedestrian friendly.

“The Challenge builds on the advisory issued by MoHUA for the holistic planning for pedestrian-friendly market spaces, earlier this year. The Challenge will support cities across the country to develop a unified vision of streets for people in consultation with stakeholders and citizens,” said the official statement.

It aims to inspire cities to create walking-friendly and vibrant streets through quick, innovative, and low-cost measures.

All cities participating in the challenge shall be encouraged to use the 'test-learn-scale' approach to initiate both, flagship and neighbourhood walking interventions, the statement added.

Gurugram's air quality remains 'moderate', may dip further

Date:-12-Sept-2020, Source: hindustantimes.com

With the air quality index (AQI) at 158 on Saturday, the air quality in Gurugram remained 'moderate' for the fourth consecutive day. After oscillating between 'good' and 'satisfactory' categories for weeks, the city's air quality had dropped to the 'moderate' category on Wednesday.

According to experts, air quality is expected to deteriorate further in the coming week.

Saturday's reading, as recorded by the Central Pollution Control Board's AQI bulletin, had deteriorated from Friday's AQI at 143 (also in the 'moderate' category). The dip in air quality has been attributed to moisture in the air due to which pollutants are not getting dispersed. "There is a lot of moisture in the air, especially in the morning hours, due to which the pollutants are getting trapped. This time, we were lucky to have extended rains in August due to which a lower PM_{2.5} count had been prevailing until now. Lockdown restrictions in the earlier months, especially on construction activity and industries, also played a part in preventing an overall accumulation of pollutants initially. Later, the rains helped in washing them away," said Sachin Panwar, a city-based air quality scientist.

Panwar added that pollution levels were expected to rise gradually, and the air quality might fall into the 'poor' category. "By next week or so, air quality might enter into the poor category," he said.

The average daily concentration of particulate matter (PM) 2.5, the city's most prominent pollutant, on Saturday, was at 119.3 µg/m³, according to the Haryana State Pollution Control Board's air quality monitor at Vikas Sadan. As per the early air quality warning system for Delhi-NCR, the air quality is likely to remain in the 'moderate' category on Sunday.

Meanwhile, the maximum temperature on Saturday was recorded at 37.1 degree Celsius, a marginal drop from Friday. The minimum temperature stood at 24.1 degree Celsius on Saturday. Gurugram's maximum temperature is expected to hover around 36 degrees Celsius on Sunday, as per the India Meteorological Department's weekly forecast. The minimum

temperature is expected to hover around 25 degrees on Sunday, as per the forecast. As per the weekly forecast, cloudy skies prevail until the weekend.

Delhi's air quality remains in 'moderate' category as overall AQI reaches 127

Date:-13-Sept-2020, Source: timesnownews.com

Delhi NCR pollution level today: The air quality index (AQI) of Delhi was recorded at 127 on Sunday, which falls under the 'moderate' category.



During the week, PM10 pollutants are expected to reach the figure of 112, which falls under the 'moderate' category

- On Sunday morning, the overall AQI of Delhi was recorded at 127.

- According to SAFAR's forecast, the air quality of the national capital will deteriorate further during the week.

New Delhi: Delhi's air quality remained in the 'moderate' category on Sunday morning as the overall air quality index (AQI) was recorded at 127. On Saturday morning, the overall AQI of Delhi was recorded at 120. The increase

in AQI was observed as there was a rise in the concentration of both, PM10 and PM2.5 pollutants.

According to the System of Air Quality and Weather Forecasting And Research (SAFAR), PM10 pollutants in Delhi were recorded at 140 on Sunday morning, which comes under the 'moderate' category and PM2.5 pollutants were recorded at 55, which comes under the 'satisfactory' category.

As per the forecast, PM10 pollutants in Delhi will increase to the figure of 154 on Sunday, which falls in the 'moderate' category while PM2.5 pollutants are expected to rise up to 60, which falls under the 'satisfactory' category.

During the week, PM10 pollutants are expected to reach the figure of 112, which falls under the 'moderate' category and PM2.5 pollutants are expected to reach the figure of 44, which falls under the 'satisfactory' category.

AQI of Pusa and other areas

In Pusa, PM10 pollutants were recorded at 99, which comes under the 'satisfactory' category while PM2.5 pollutants were recorded at 75 which falls under the same category. In Mathura Road, PM10 pollutants were recorded at 140, which falls under the 'moderate' category and PM2.5 pollutants were recorded at 135, which falls under the 'moderate' category as well.

In Lodhi Road, PM10 pollutants were recorded at 107, which comes under the 'moderate' category and PM2.5 pollutants were recorded at 59, which comes under the 'satisfactory' category. In Noida, PM10 pollutants were recorded at 136, which comes under the 'moderate' category and PM2.5 pollutants were recorded at 95, which comes under the 'satisfactory' category.

70% rise in Mumbai's pollution levels during first week of September

Date:-14-Sept-2020, Source: hindustantimes.com

The drop in rainfall during the first week of September led to a sharp spike in the city's air pollution levels, much before the end of the monsoon. Mumbai witnessed a 70% rise in particulate matter PM2.5 levels in Mumbai during the first week of September as compared to PM2.5 levels throughout monsoon and during the four phases of the Covid-19 lockdown, an analysis from January to September by the Council on Energy, Environment and Water (CEEW), a Delhi-based air quality research group, revealed.

The study showed Vile Parle, Andheri, Kurla, Sion and Worli were the five most polluted areas in Mumbai during the first week of September.

The air has suspended particulate matter (PM) of different sizes. Many of these are a complex mixture of dust, pollen, soot and smoke and they are hazardous. Of this, PM 2.5 is smaller, with a diameter not more than 2.5 micrometres. These are fine particles that can stay in the air for days or weeks and are small enough to invade the narrowest of lung airways.

According to CEEW's analysis, the study period over nine months was divided into three phases — pre lockdown (January 1 to March 24), lockdown (March 25 - May 31) and monsoon or post lockdown (June 1 to September 10). The assessment, using data averages from 10 continuous air quality monitoring stations in Mumbai under the state pollution control board, showed: highest PM2.5 concentration for pre-lockdown was recorded on January 2 at 107.1 micrograms per cubic metre ($\mu\text{g}/\text{m}^3$), 33 $\mu\text{g}/\text{m}^3$ was the highest for the four phases of the lockdown on May 16 while 53.3 $\mu\text{g}/\text{m}^3$ was recorded on September 6, the highest during the post lockdown phase so far. The study also identified the cleanest air days with 16 $\mu\text{g}/\text{m}^3$ on March 11 (for pre-

lockdown), 7.1 µg/m³ on May 29 (lockdown), and 4.8 µg/m³ on June 30 (during monsoon). The 24-hour safe limit for PM_{2.5} is 60 µg/m³.

“Mumbai has been experiencing good air quality for the past few months owing to monsoon and lockdown restrictions. With decreased rain during September first, air quality started worsening in the city. On September 6, readings showed a sharp spike in PM 2.5 levels, which was 70% higher than the PM_{2.5} levels during the entire lockdown and monsoon period,” said LS Kurinji, research analyst, CEEW, adding, “With the resumption of industries, constructions and other economic activities due to lockdown relaxations, anthropogenic (human-induced) emissions will soon worsen air quality. The city should start actively addressing its pollution sources to counter rising PM 2.5 levels.”

Independent experts said the lockdown and weather impacts are temporary factors for air quality improvement. “Cities like Mumbai have been working on their respective National Clean Air Program (NCAP) action plans, but there hasn’t been major emission reduction on ground yet. Current interventions are disaggregated with multiple state departments involved in different activities compromising accountability,” said Polash Mukherjee, lead (air pollution) Natural Resources Defence Council (NRDC) India.

The Maharashtra Pollution Control Board (MPCB) said as identified under the NCAP for Mumbai’s action plan, if two sources — vehicular pollution and re-suspended dust — are addressed, Mumbai would see much cleaner air as far as particulate pollution is concerned.

“While the Covid-19 associated lockdown did throw our usual lives out of gear, one silver lining was the reduction in air pollution. However, as restrictions have been eased, the rise in emissions will be visible,” said Sudhir Srivastava, chairman, MPCB adding, “For vehicles, the move towards Bharat Stage VI will help us remove not only nitrogen oxide, but PM. The issue of legacy vehicles remain, and we need to tackle that. Secondly, the use of water sprinklers, vacuum sweeping, having more green spaces, paving of roads as mandates issued to the civic body to arrest re-suspended dust. Work on this is going on and it should show results soon.”

Delhi's 'moderate' air quality worsens as overall AQI reaches 130

Date:-15-Sept-2020, Source: timesnownews.com

Delhi NCR pollution level today: The air quality index (AQI) of Delhi was recorded at 130 on Tuesday, which falls under the 'moderate' category.

- On Tuesday morning, the overall AQI of Delhi was recorded at 130.
- According to SAFAR's forecast, the air quality of the national capital is expected to increase during the week.

New Delhi: Delhi's air quality remained in the 'moderate' category on Tuesday morning as the overall air quality index (AQI) was recorded at 130. On Monday morning, the overall AQI of Delhi was recorded at 128. The slight increase in AQI was observed as there was a rise in the concentration of both, PM10 and PM2.5 pollutants.

According to the System of Air Quality and Weather Forecasting And Research (SAFAR), PM10 pollutants in Delhi were recorded at 145 on Tuesday morning, which comes under the 'moderate' category and PM2.5 pollutants were recorded at 69, which comes under the 'moderate' category as well.

As per the forecast, PM10 pollutants in Delhi will increase to the figure of 160 on Wednesday, which falls in the 'moderate' category while PM2.5 pollutants are expected to rise up to 76, which also falls under the same category.

During the week, PM10 pollutants are expected to reach the figure of 116, which falls under the 'moderate' category and PM2.5 pollutants are expected to reach the figure of 55, which falls under the 'satisfactory' category.

AQI of Pusa and other areas

In Pusa, PM10 pollutants were recorded at 116, which comes under the 'moderate' category while PM2.5 pollutants were recorded at 118 which falls under the 'moderate' category. In Mathura Road, PM10 pollutants were recorded at 143, which falls under the 'moderate' category and PM2.5 pollutants were recorded at 149, which falls under the 'moderate' category as well.

In Lodhi Road, PM10 pollutants were recorded at 124, which comes under the 'moderate' category and PM2.5 pollutants were recorded at 86, which comes under the 'satisfactory' category. In Noida, PM10 pollutants were recorded at 157, which comes under the 'moderate' category and PM2.5 pollutants were recorded at 197, which also comes under the 'moderate' category.

Decomposing stubble and using it in field will solve Delhi's air woes: Gopal Rai

Date:-16-Sept-2020, Source: timesnownews.com

Delhi government says its working overtime to tackle the menace of air pollution as Delhi inches closer to winters.

- Delhi's air deteriorated considerably during the winter season.

- The AQI touches hazardous levels, leading to declaration of health emergency in the national capital.
- Gopal Rai said he will speak with neighbouring governments to ensure they also implement this latest technique to curb the air pollution



Gopal Rai

New Delhi: In what can be music to ears of Delhiites, the Arvind Kejriwal government on Wednesday said it is committed to developing a sustainable and effective solution to the issue of stubble burning which causes major pollution, especially during the winter season.

Delhi Environment Minister Gopal Rai said, "The process of decomposing stubble and using it in the farming fields will be a great initiative and will also save the

people of Delhi from the health hazards caused by stubble burning in the neighbouring states of Uttar Pradesh, Punjab, and Haryana".

"The Delhi government will speak to the Centre and states to implement this initiative and the cost of spraying of this compost in Delhi will be borne by the Delhi government, which will ease the burden on the farmers," Rai informed.

"The pollution in Delhi takes a very dangerous form during the winter season. Last year, the stubble burning comprised 44 per cent of Delhi's pollution apart from Delhi's own share of pollutants," he said.

"Last year around 9 million tonnes of stubble was burned in Punjab. 1.23 million tonnes of stubble was burned in Haryana due to which people of Delhi had to suffer from major pollution in 2019," Rai informed.

According to minister, the Central government has devised a scheme in which aid is provided to the farmers for stubble. The farmers have to pay half of the money and the rest of the half will be paid by the government for a machine that is required for the process.

"I met the director of Pusa Agricultural Institute who said that they have developed a recomposing technology which can turn stubble into manure, which can be used in the fields itself. Today, I am here to see the demonstration of the process. We have also invited some farmers to witness the process," Rai said.

The cost of the spraying of the manure in the fields will be borne by the Delhi government so that there is no financial burden on the farmers and an effective solution to the problem of stubble burning can be developed.

The Delhi government will also get in touch with the governments of Uttar Pradesh, Haryana, and Punjab based on the results of the process so that this model can be implemented in those states as well to ease the financial burden on the farmers, and the issue of polluted air in Delhi and those states can be resolved.

"We will speak to the governments of other states and will help the farmers of Delhi with the issue of stubble burning," Gopal Rai said.

"The Environment Ministry of the Central government has a very important role to play in this initiative," Rai concluded.

State pollution watchdog recommends preventive measures ahead of smog season

Date:-18-Sept-2020, Source: hindustantimes.com

Ahead of October when the pollution levels see a steep rise in the city, the Uttar Pradesh Pollution control board (UPPCB) has recommended several pre-emptive pollution control measures to the Noida Authority.

Officials of the pollution control board held an inspection at multiple areas of Greater Noida earlier this week, during which they found several dust -generating sources. City-based environmentalist Vikrant Tongad was also present during the inspection.

The Greater Noida wing of UPPCB also pointed out eleven such areas where civil work was being carried on without dust controlling measures and thus recommended the Greater Noida Industrial Development Authority (GNIDA) to take pre-emptive measures to curb pollution.

"Every year, we observe a spike in air pollution levels from October. That's why it is important to take pre-emptive measures to control some of the major sources of pollution before weather conditions worsen and air pollution spikes. We had inspected a number of areas in Greater Noida and found that there were several points where dust was being generated due to civil construction. From October onwards, temperatures drop and the air quality also

deteriorates, while dust from roads and construction works worsens it. We have made a recommendation of eleven such areas for the Greater Noida authority to take dust control measures at,” said Archana Dwivedi, regional officer, UPPCB, Greater Noida.

According to Tongad, “There are roads under repair, new constructions being done and pipes being laid, with negligible dust control measures. For now, since the temperatures are higher, the air quality is better. However, once the winter sets in, the entire region of Greater Noida West will become unlivable if proper measures are not taken.”

Areas recommended by UPPCB include heavy dust on the road connecting Char Murti in Greater Noida West towards Vijay Nagar road to Ek Murti and Yamaha Road; various sectors in Greater Noida West including sectors 16, 16B, 16C, 4, 2, 1, Tech Zone 4, Gaur City one and two; Sapphire Plaza to Gaur Mall in Gaur City; Ek Murti to Supertech Eco Village 2 (Sector 1), among others.

“All inner roads in Gaur City were either broken or unpaved, leading to excessive dust. Please take dust control measures and initiate mechanised sweeping soon,” read the UPPCB letter addressed to the Greater Noida Authority. Going by records, the air quality index (AQI) starts dropping from ‘moderate’ category in September to ‘poor’ and ‘very poor’ by October.

“The air quality starts to deteriorate from October, mostly due to weather conditions and stubble burning in neighbouring states that starts from September-end. The dust leads to larger suspended particles in the air while smoke leads to smaller particles or pollutants, both of which are harmful,” said Shambhavi Shukla, program officer, air quality, centre for science and environment (CSE).

Delhi to experience very light rain today; mercury to remain high

Date:-19-Sept-2020, Source: hindustantimes.com



While light rains are forecast for the national capital, the temperatures are likely to remain high.

The India Meteorological Department (IMD) has forecast partly cloudy sky and possibility of ‘very light’ rain/drizzle. However, good winds are likely to prevail across Delhi over the next two to three days.

Delhi is likely to have very light rain or drizzle on Saturday, which may bring slight relief from the

hot and humid weather being experienced by the city. The India Meteorological Department (IMD) has forecast partly cloudy sky and possibility of 'very light' rain/drizzle.

Good winds are likely to prevail across Delhi over the next two to three days. However, the maximum (day) and minimum (night) temperatures are likely to remain high because of high moisture levels.

On Friday, the day temperature was 38 degrees Celsius, three notches above normal while night temperature settled at 27.8 degrees C, also three notches above the season's average.

"A drizzle may only increase the humidity levels. Delhi may get some reprieve because of strong surface winds over the next few days and a possibility of rain or thundershowers on September 23-24," said a senior IMD scientist.

With the good winds, the air quality is also likely to improve slightly over the next few days, however, the improvement may be short-lived, the scientist added.

After a month of relatively clean air with August seeing four 'good' (when air quality index or AQI reads 0-50) air days and remaining 27 days in the 'satisfactory' (when AQI is between 50 and 100) zone, the air quality slipped to 'moderate' category (when AQI reads 101-200) on September 5 with an AQI reading of 101.

It improved to 'satisfactory' for a few days and again fell to 'moderate' on September 9. Since then, Delhi's AQI has remained in the 'moderate' category.

On Saturday at 6 am, as per Central Pollution Control Board (CPCB) the AQI was 106 in the 'moderate' category.

Over the past two days, with average wind speed remaining around 10-12 kmph, the AQI readings improved slightly though remaining on the lower end of 'moderate' category.

As per CPCB data, on Friday the average AQI was 108 while on Thursday it was 120. During September 9-16, the AQI was recorded on the higher end of the 'moderate' category.

"Such changes in meteorological conditions, like monsoon almost drawing to a close after which mostly calm winds are observed, are not favourable for dispersion of pollutants.

Unlike last month, when the city saw clear blue and rain-washed skies on most days, monsoon withdrawal and slowing down of winds may lead to deterioration in air quality," the scientist said.

Stubble burning can exacerbate COVID situation in north India: Expert

Date:-20-Sept-2020, Source: tribuneindia.com



A farmer burns paddy stubble

'Last year, nearly 50,000 cases of stubble burning were reported in Punjab'

Chandigarh, September 20

The stubble burning which is likely to start later this month ahead of the Rabi crop sowing season can exacerbate the Coronavirus crisis, an agricultural-cum-environment expert has cautioned.

"If alternate arrangements to stubble burning are not made, pollutants like particulate matters and toxic gases like Carbon Monoxide and Methane could give rise to severe respiratory problems, which will further worsen the COVID 19 situation, as the Coronavirus also impacts the respiratory tract," Sanjeev Nagpal, also an adviser to the Union and the Punjab governments on the crop residue management, told PTI on Sunday.

"Last year, nearly 50,000 cases of stubble burning were reported in Punjab. Stubble burning contributes about 18 to 40 per cent of particulate matter to atmosphere in northern plains. It also emits large amounts of toxic pollutants like Methane, Carbon Monoxide and carcinogenic polycyclic aromatic hydrocarbons," said Nagpal, also the MD of Sampurn Agri Ventures Pvt Ltd (SAVPL).

Last year's stubble burning in Punjab and Haryana had contributed to 44 per cent of the pollution in NCR Delhi, according to System of Air Quality and Weather Forecasting and Research (SAFAR), the Ministry of Earth Science.

Nagpal said stubble burning causes not only massive air pollution but also affects the soil health, which is already in a bad shape in Punjab.

The practice of stubble burning combined with excessive use of pesticides and chemical fertilizers over the years has resulted in the decrease of soluble silica, carbon and other essential nutrients in the soil, he said.

"Silicon (Si) is one of the most prevalent soil macro-elements, performing an essential function in healing plants in response to environmental stress. The loss of soluble silica in the soil has given rise to silica deficiency in humans exposing people to a greater threat of COVID 19 and other diseases," Nagpal said.

“Insufficient amounts of silica in humans reduce their immune response towards viruses and pathogens,” he added. Punjab alone produces over 55 metric tons of crop residues each year out of which over 40 per cent have been found surplus, he said.

Nagpal said the resolution lies in large scale collection of crop residue from farmers at a price by various plants and state governments, its storage, and then using technology for its conversion into organic manure and also biogas.

Nagpal’s SAVPL project in Punjab’s Fazilka has devised this technology in association with IIT and PAU, Ludhiana. The project had purchased about 10,000 MTs of paddy straw last year which benefitted around 500 farmers, he claimed. The plant is making 8 MTs of silica manure per day now against a total capacity of 25 MTs per day, he said, adding the capacity of the project is to process 15,000 MTs of crop residue every year.

“Our concept is to process stubble to make silica-rich manure that will improve soil health and food quality thereby improving people’s health. We want the Punjab government to give a fillip to the model of ‘crop residue management through its conversion into manure so that it is replicated across the state,” said Nagpal.

“This will not only solve the stubble burning problem but will also help produce healthy food thereby helping farmers get better prices for quality food and consumers a chance to buy directly from farmers at a reasonable price,” he said. — PTI

Delhi to Witness Rain, Thunderstorms Till Thursday; Yellow Watch Over Haryana-Delhi Region

Date:-21-Sept-2020, Source: weather.com



Rains in Delhi

Northwestern India has been the odd one out this monsoon season, with a 16% deficient rainfall, while all the other regions have witnessed above-normal monsoon rains. The national capital Delhi has also witnessed only 467 mm rainfall since June 1—18% less than usual. Over the last 21 days of

September, the capital city has recorded less than 40 mm rainfall.

This week, as the low-pressure prevails over central India, a wet spell is forecast over most parts of northwest India. The subdivision of Haryana, Chandigarh and Delhi is under a yellow watch to 'be aware' of the weather conditions on Tuesday and Wednesday.

Currently, the low-pressure area lies over north coastal Odisha and is likely to move west-northwestwards over the next three days. As the system approaches the capital on Tuesday, The Weather Channel met team has forecast rains and thunderstorms over the Delhi-NCR region. Scattered thunderstorms are likely to prevail till Thursday in parts of the National Capital Region. The India Meteorological Department (IMD) has also forecast scattered rains, thunderstorms and lightning over Delhi and Haryana region on Tuesday followed by isolated light rain till Thursday. The regional met centre in Delhi has forecast heavy to very heavy rains as well as moderate to severe thunderstorms in Uttar Pradesh on Wednesday and Thursday.

The fresh spell of rains is likely to bring respite from the slightly hotter conditions in Delhi. Maximum temperatures have hovered around 37°C over the past few days—two notches above normal. From Tuesday to Thursday, however, the maximum temperature is likely to stay below 35°C, owing to the wet weather conditions.

Many parts of northwest India have remained moderately polluted this week with Bhiwadi recording the worst air quality index of 240 on Monday. Delhi's AQI stayed at a moderate level of 142 on Monday. As per the System of Air Quality Weather Forecasting and Research (SAFAR), the air quality is likely to improve marginally over the next two days and could reach 'satisfactory' levels by Thursday.

Punjab, Haryana Asked To Urgently Take Steps To Reduce Stubble Burning

Date:-22-Sept-2020, Source: ndtv.com



Stubble burning contributed significantly to air pollution in Delhi last year

According to the Central Pollution Control Board, stubble burning contributed significantly to air pollution in Delhi last year.

New Delhi: A Supreme Court-mandated pollution control authority wrote to Punjab and Haryana on Tuesday, asking them to "urgently" implement measures to reduce stubble burning -- one of the major reasons behind high

levels of air pollution in Delhi during winter.

According to the Central Pollution Control Board, stubble burning contributed significantly to air pollution in Delhi last year with the share of farm fire smoke in particulate matter peaking to 44 per cent in November.

"It has been brought to our notice that early burning of crop residue is taking place in Punjab. According to a SAFAR estimate, fire counts were 42 on September 21, around 20 on September 20 and nil on September 15," Bhure Lal, the chairman of the Environment Pollution (Prevention and Control) Authority (EPCA), said in a letter to the two states.

Satellite imagery from space agency National Aeronautics and Space Administration (NASA) have also shown that farmers have started burning crop residue in parts of Punjab and Haryana.

Though farm fires have started in Punjab and neighbouring border regions, its impact on Delhi's air quality will be minimal for the next three days since predominant winds are not supportive for transport and accumulation of pollutants, according to SAFAR, the Ministry of Earth Sciences' air quality monitor.

On Tuesday, the national capital recorded an air quality index of 115, which falls in the moderate category.

"While the impact (of stubble burning) on air pollution is currently minimal as wind speed is high and there is dispersion, the fact is that crop burning season has started and it needs to be urgently addressed as per the directions of the Supreme Court," Bhure Lal said.

He asked the states to make all efforts to comply with the directions of the top court which has specified that measures need to be taken for both "in-situ and ex-situ stubble management so that incidence of fire is minimized, if not eliminated".

The EPCA chairman said the pollution control authority had been monitoring progress with the states and had worked out clear benchmarks and targets to be achieved before the coming season.

"We recognise that we have lost time because of COVID-19, but given that the winter season is now approaching, we need to tackle this with urgency and ensure compliance," he said.

Bhure Lal asked Punjab and Haryana to ensure there is an implementation of measures to reduce stubble burning and that machines are procured and made available to farmers at affordable rates and with convenience.

The EPCA also asked them to set up a control room to issue directions and ensure that machines are within the reach of farmers, and also take action against non-compliance reported from the field.

The Punjab government had earlier told the EPCA that it has been utilising crop residue in biomass-based power plants and various bio-CNG projects are under process.

The state has now proposed to set up a 25-megawatt solar-biomass project.

Punjab has already set up 7,378 custom hiring centres (CHCs) to provide equipment for crop residue management. The state will establish 5,000 more CHCs this year to accomplish the target of having one CHC in each village. The administration will provide 220 balers this year, according to the EPCA.

Farmers sell bales to nearby factories, mainly biomass plants, at around ₹ 120 per quintal.

Till now, the state has provided 50,185 farm machines to CHCs and individuals.

Last year, Punjab produced around 20 million tonnes of paddy residue. Farmers burnt 9.8 million tonnes of it. These figures will be used as a benchmark for the state's performance this year.

The Haryana government had told EPCA that a committee has been set up to look into the progress of bio-CNG and bio-ethanol projects and biomass plants to manage crop residue.

The state has set up 2,879 CHCs and 820 more will be established by October. As many as 791 balers will be supplied by the time harvesting starts. Haryana has deployed 24,705 machines, of which 8,777 are owned by individuals and the rest are with CHCs.

Last year, Haryana produced seven million tonnes of paddy residue, of which farmers burnt 1.24 million tonnes.

Punjab, Haryana and Uttar Pradesh attract attention during the paddy harvesting season between October 15 and November 15.

Farmers set their fields on fire to quickly clear off the crop residue left behind after harvesting and before cultivating wheat and potato. It is one of the main reasons for the alarming spike in pollution in Delhi-NCR.

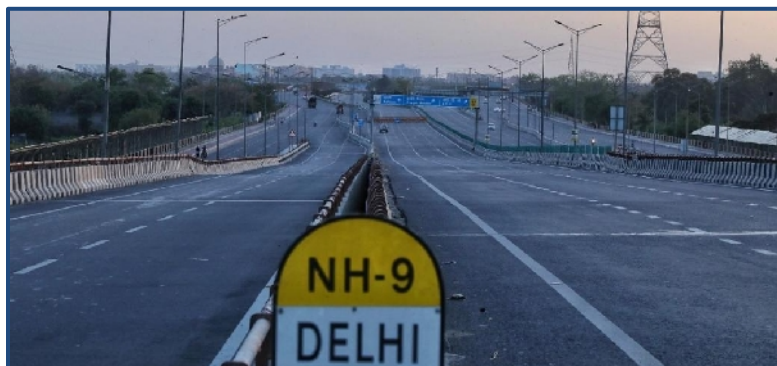
Despite a ban on stubble burning in Punjab and Haryana, farmers continue to defy it as there is a short window between harvesting of paddy and sowing of wheat. The high cost of manual or mechanical management of straw is a major reason why farmers choose to burn it.

State governments are providing 50 to 80 per cent subsidy to farmers and cooperative societies to buy modern farm equipment for in-situ management of paddy straw, installing paddy straw-based power plants and running a massive awareness campaign against stubble burning.

But these measures are yet to make any significant impact on the ground.

CPCB confirms COVID-19 lockdowns helped clean up Delhi air

Date:-23-Sept-2020, Source: downtoearth.org.in



Deserted Delhi roads during the COVID-19 lockdown.

PM2.5 levels dropped by 50% during the lockdown in the national capital, a new CPCB study said.

Social media was agog with photographs of clear blue skies in Delhi only days into the lockdown to curb the novel coronavirus disease (COVID-19) pandemic; the difference was underscored

especially because of the Capital's horrific experience post-Diwali 2019.

The cerrulean skies were attributed to a lack of industrial and vehicular activity during the lockdown when most economic activities were prohibited from March 25. Now, the Central Pollution Control Board (CPCB) has confirmed this in a recent report.

Particulate Matter (PM) 2.5 levels in Delhi halved during the COVID-19 lockdown from 2019 levels, according to Impact of Lockdown on Ambient Air Quality released by the CPCB September 23, 2020.

PM10 levels fell a massive 60 per cent while nitrogen dioxide (NO₂) plummeted 64 per cent, benzene by 62 per cent and sulphur dioxide (SO₂) 35 per cent, during the second phase of lockdown.

The CPCB had included satellite-based air quality assessment and the technique of real-time source apportionment studies carried out by the Indian Institute of Technology in Delhi and Kanpur for more effective ground-truthing, Anumita Roychowdhury, executive director of the Clean Air Programme at New Delhi-based non-profit Centre for Science and Environment, said.

“This combination of techniques must be taken forward to inform decision-making. These can be more effective in demonstrating real world change as a result of specific policy initiatives,” she added.

The study divided the assessment period into the pre-lockdown phase (March 1 – 21, 2020), the lockdown’s Phase-I (March 25 – April 19, 2020) and the lockdown Phase-II (April 20 – May 3, 2020).

PM 2.5 reduced by 38 per cent and 33 per cent reduction in comparison to pre-lockdown levels. PM10 reduced by 37 per cent and 30 per cent during the lockdown Phase-I and lockdown Phase-II periods respectively.

“PM2.5 and PM10 levels were seen to rise in the second week of the Phase-I of lockdown, that may primarily be attributed to change in meteorological conditions,” the report added.

This change in conditions included higher temperatures leading to dry and dusty conditions as well as a mild dust storm from the western part of the country hitting Delhi on April 14 and 15.

The impact of meteorological factors was slightly favourable in 2020, with average mixing height and wind speed showing improvement for pre-lockdown and lockdown phases, against the same time periods in 2019, the report said.

Wind speed and mixing height was also higher in the first phase of lockdown as compared to pre-lockdown levels, the report noted.

The Delhi University North Campus area recorded a decrease of 71 per cent and 61 per cent in PM2.5 levels during the first and second phases of lockdown.

Shadipur in west Delhi saw a reduction of 83 per cent in PM2.5 levels during the second phase of the lockdown. Mundka saw a 38 per cent reduction in the first phase of lockdown, while the ITO area saw a 32 per cent reduction during the first phase of lockdown.

The highest reduction in the first phase of lockdown, as compared with the levels of 2019, was recorded at IHBAS in the Dilshad Garden area of east Delhi at 89 per cent.

PM10 levels reduced by 60 per cent in hotspots like Dwarka, Mundka, Wazirpur and RK Puram during both the phases of lockdown as compared to 2019 levels.

The report attributed this to reduced road dust resuspension due to minimal vehicular movement and restriction of construction and demolition activities.

The contribution of vehicular emissions reduced to five per cent from 19 per cent during the pre-lockdown phase.

Black carbon, which is primarily contributed from biomass burning and traffic emissions, was observed to drop in total PM_{2.5} composition to 6-8 per cent during the lockdown phases, from 12 per cent during the pre-lockdown period. “Biomass burning factor was found to steadily rise from lockdown,” the report said.

Contribution from power plants increased during the lockdown Phase-I (25 per cent) and Phase-III (20 per cent), as compared to the pre-lockdown phase (10 per cent).

Gurugram saw a 61 per cent reduction in PM₁₀ levels during the first phase of the lockdown, in comparison with 2019 levels. Ghaziabad saw a 54 per cent reduction in PM_{2.5} levels and Faridabad recorded a reduction of 70 per cent in its PM_{2.5} levels.

PM₁₀ levels further reduced by over 60 per cent in Gurugram, Noida and Ghaziabad in the second phase of lockdown, as compared to 2019 levels, in all likelihood due to restriction on dust generating activities, the report said.

Pollutant levels

The restrictions on vehicular activity led to a 48 per cent and 52 per cent reduction of NO₂ as compared to pre-lockdown levels.

Eighty-one per cent of Delhi’s NO_x comes from the transport sector. Benzene, the main source of which is transport and other industrial sectors, also saw a decline of 50 per cent and 39 per cent during the first and the second phases of lockdown.

SO₂ decline in Delhi was not as stark as that of NO₂ since most of its SO₂ originates from power plants around the city, according to the TERI Emission Inventory, 2018.

These were operational during the lockdown. SO₂ levels decreased by six per cent in the phase-I of lockdown but remained similar to pre-lockdown levels during lockdown Phase-II.

Since summers had kicked in, it might be likely that electricity demand might also have increased, the report said. However, this needed further data to conclusively derive a reason, it added. Significant reduction in NO₂ levels was observed in Noida (57 per cent) and Ghaziabad (67 per cent) during the first phase of lockdown, when compared with 2019 levels.

“SO₂ levels were seen to decrease in Noida (50 per cent) and Ghaziabad (46 per cent) in the first phase of lockdown, while on the other hand, Gurugram showed an increase in SO₂ levels, which may be due to its proximity to thermal power plants,” the report said.

Noida and Ghaziabad recorded an enormous reduction of 67 per cent and 80 per cent respectively during the first phase of lockdown and 62 per cent and 47 per cent in the second phase of lockdown, as compared to levels during 2019 in the same periods. Benzene levels

were seen to increase in Faridabad and Gurugram during both phases of lockdown, as compared to pre-lockdown levels, the report said.

“The operation of certain units or processes (chemical / pharmaceutical / paints) utilising benzene and other solvents, etc in Faridabad and Gurugram cannot be ruled out and may be responsible for the increase in benzene levels,” it added. Roychowdhury said the dramatic reduction in pollution levels reported across the country also indicated the scale and speed of change that was needed in all sectors and in all regions simultaneously to minimise the regional influence on air quality.

“We have to prepare for a similar scale and speed of change locally as well as regionally, as the economy reopens,” Roychowdhury said.

The impact of air pollution on Covid-19 | HT Editorial

Date:-24-Sept-2020, Source: hindustantimes.com



every winter, the air pollution level increases to dangerous levels due to stubble burning, vehicular pollution, lack of proper systems of garbage burning and disposing of construction and demolition waste

Recent studies found that even a minor increase in PM2.5 particles can lead to an increase in Covid-19 death rates.

The Supreme Court-appointed Environment Pollution (Prevention and Control) Authority (EPCA) on Tuesday wrote to Punjab and Haryana governments, asking them to control cases of crop stubble burning, after early instances were spotted on

satellite data of the System of Air Quality and Weather Forecasting and Research and the National Aeronautics and Space Administration. The early warning to the two states is important because every winter, the air pollution level increases to dangerous levels due to stubble burning, vehicular pollution, lack of proper systems of garbage burning and disposing of construction and demolition waste.

This year, however, controlling air pollution is not just critical for civic, political and health reasons. A study published by Havard University on air pollution and Covid-19 deaths in the United States found that even a minor increase in PM2.5 particles can lead to an increase in Covid-19 death rates. Another study reported in Physics of Fluids said wind speed is another critical factor when it comes to the spread of the disease. While none of these studies were

done in India, experts here also feel that there is a good chance that increased suspended particulate matters and rising wind speed could transport the virus faster and wider. The Centre and states, which are grappling with a rising number of cases, must take these warnings seriously, implement anti-pollution protocols strictly, increase testing and strengthen the health care system for a potential surge in the number of cases during the winter months, especially in the northern plains.

Farm fires growing in Punjab, plumes of smoke seen over Delhi in satellite images

Date:-25-Sept-2020, Source: hindustantimes.com



Delhi government data shows that last year stubble burning accounted for 44% of the city's air pollution

Delhi government data shows that last year stubble burning accounted for 44% of the city's air pollution. Delhi environment minister Gopal Rai said that Punjab produces 20 million tonnes of crop stubble out of which 9 million tonnes were burnt last year.

The number of crop stubble burning cases in Punjab has been increasing over the past five days,

especially in Amritsar district, satellite images released by the National Aeronautics and Space Administration (Nasa) have shown. Nasa also warned that with plumes of smoke being seen over Delhi, the city's air quality may also deteriorate in the coming weeks.

Delhi government data shows that last year stubble burning accounted for 44% of the city's air pollution. Delhi environment minister Gopal Rai said that Punjab produces 20 million tonnes of crop stubble out of which 9 million tonnes were burnt last year. In Haryana, 1.23 million tonnes of the 7 million tonnes stubble were burnt by farmers.

The Supreme Court-mandated Environment Pollution (Prevention and Control) Authority (EPCA) had on Tuesday written to the chief secretaries of Punjab and Haryana, asking the states to control cases of stubble burning. In his letter to the two states, EPCA chief Bhure Lal said it was imperative that early action be taken to control these fires ahead of the winters to control the annual pollution spike in Delhi.

Data provided by Pawan Gupta, a research scientist at the Goddard Earth Sciences Technology and Research (GESTAR), Universities Space Research Association, shows that early instances of stubble burning started appearing on satellite images from September 12 this year, and the number of incidents is consistently increasing.

The worst affected district was Amritsar in Punjab. Other districts where 'red dots', which indicate fires, are being observed are Tarn Taran, Kapurthala, Jalandhar, Gurdaspur, Pathankot and parts of Firozpur.

Data shows that between September 20 and September 24, 60-100 farm fires were reported daily from Amritsar. From September 22, the satellite images spotted caught plumes of smoke over the national capital.

"Satellite images show smoke over north India since September 22. This hazy cover over northern India is most likely because stubble burning activity has started," said Gupta, who is also leading a community forum of environment experts and government representatives to understand the impact of these fires on the local environment and look for solutions to control crop residue burning.

Scientists at the India Meteorological Department (IMD) said that currently north-westerly winds are blowing across Delhi, which means that the smoke from Punjab and Haryana will directly be carried to the city, deteriorating the air quality here.

"The only respite is that for the next two days the wind speeds will improve to 20-25kmph. But after that, the wind speed will reduce again and if the stubble burning activity continues to grow, the pollution levels will also see a spike in the coming weeks," said Kuldeep Srivastava, head of IMD's regional weather forecasting centre.

A senior official of the Punjab Pollution Control Board (PPCB) said stubble burning cases are "under control" and the monitoring teams are keeping a close watch on violators.

"We are monitoring the stubble burning activity through our remote sensing system. There is awareness among farmers but our teams have started visiting villages to stop stubble burning," said the PPCB official, on the condition of anonymity.

On Thursday, Delhi's average air quality index (AQI), according to the Central Pollution Control Board (CPCB), was 104, in the 'moderate' zone. On Wednesday, the city's air was 'satisfactory' with an AQI value of 76.

Benzene levels in Mumbai saw spike during Covid-19 lockdown even as other pollutants dipped: CPCB report

Date:-26-Sept-2020, Source: hindustantimes.com



Mumbai

Contrary to most air quality reports during the Covid-19-associated lockdown, a study showed that benzene concentration in Mumbai was higher during all phases of the lockdown as compared to levels in 2019.

Contrary to most air quality reports during the Covid-19-associated lockdown, a study

showed that benzene concentration in Mumbai was higher during all phases of the lockdown as compared to levels in 2019. The findings were released by the Central Pollution Control Board (CPCB) in its report titled “Impact of Lockdown on Ambient Air Quality” released on Wednesday. Benzene is a volatile organic compound (VOC) released in the air from anthropogenic sources such as emissions from crude oil, gasoline and industrial processes. In urban areas, the presence of benzene is most detected (through scent) at petrol pumps. Long-term exposure to benzene can cause serious health effects, said doctors.

The CPCB report showed 30-35% average rise in benzene levels during lockdown. “Benzene increased in all phases of lockdown, compared to the levels during the same period in 2019. It is possible that certain industries, especially those consuming or releasing benzene, might have started operating, resulting in the increase. Local influence of emissions on monitoring stations is also a possibility,” the report said.

VK Shukla, principal investigator of CPCB’s report, said, “We must realise that Mumbai experiences very different meteorological variations as compared to other urban cities. The higher benzene emission could be a localised issue near our monitoring stations. We are not sure of the exact source, but based on Mumbai’s source apportionment, there are 39 types of industries (excluding power plants), and benzene rise could be due to some functional industries during lockdown. The report is based on data collated by various stations, but exact reasons for this rise still needs to be investigated.”

A similar analysis by Mumbai-based air quality research group UrbanSciences using CPCB data showed similar results. “Areas such as Worli consistently reported unsafe benzene levels with

24-hour averages over 15 micrograms per cubic metre ($\mu\text{g}/\text{m}^3$). The two month benzene average (two lockdown phases) at Worli was $13.1 \mu\text{g}/\text{m}^3$. Sion reported the next highest daily averages with most days above safe limits. Kurla reported an abnormal spike of up to $58 \mu\text{g}/\text{m}^3$ between April 24 and 30,” said Ronak Sutaria, founder and chief executive officer, UrbanSciences. The annual safe limit for benzene in India is $5 \mu\text{g}/\text{m}^3$ but countries like Israel have more stringent norms ($3.9 \mu\text{g}/\text{m}^3$ for 24 hours). “Elevated benzene levels in few areas of Mumbai are a cause for concern and need immediate investigation, especially in locations where the 24-hour averages are above the safe limits,” added Sutaria.

Doctors said benzene was a proven carcinogen with severe health effects from long-term exposure. “The pollutant affects the urinary system, mainly the kidneys. It has been shown to cause bladder cancers. Levels are very high at petrol stations where VOCs are emitted. It is surprising that levels would be higher during lockdown when such activities were on hold,” said Dr Sundeep Salvi, director, Chest Research Foundation, Pune.

Experts, however, said the benzene data may not be reliable. “The spike is highly unusual and data has been collated from very few stations. Also, long-term data has not been maintained for this pollutant in Mumbai,” said Professor SN Tripathi, head of civil engineering, Indian Institute of Technology-Kanpur and apex committee member of National Clean Air Programme (NCAP).

Meanwhile, the reduction in industrial and vehicular activity during lockdown was divided into two phases (March 25 to April 19 and April 20 to May 3) showing a decline in major pollutant concentration such as particulate matter (PM₁₀, PM_{2.5}), sulphur dioxide (SO₂), and nitrogen dioxide (NO₂) as compared to levels during pre-lockdown (March 1 to 21) and the same period in 2019.

PM₁₀ fell by 40% as compared to 2019 levels and 20% than pre-lockdown levels, NO₂ fell 56% and 69% compared to the phases, while SO₂ fell 56% and 48%. “PM_{2.5} levels increased during the first lockdown phase by 5% but decreased by 9% in the second phase, as compared to levels during 2019,” the CPCB report said, explaining that from April 22 onwards the Maharashtra government revoked permissions for activities (e-commerce companies, electrical supplies, sweet shops, confectionaries, courier services, activity related to agriculture products, restaurants). “The larger reduction in the second phase of lockdown may be due to this fact,” said Shukla adding, “Overall, like other cities Mumbai witnessed a transitional change in air pollution levels during lockdown, bringing down air pollution and achieving background air quality.”

NCAP member professor Tripathi said Mumbai was among major urban cities in India that witnessed a 30% rise in ozone (O₃). He explained that O₃ rise was a complex phenomenon

associated with a decline in NO₂ and other pollutants, as well as meteorological factors among other reasons.

Surface ozone (O₃) is a photochemical oxidant, which is formed when pollutants like volatile organic compounds and oxides of nitrogen (NO_x) chemically react in the presence of heat and sunlight. Ground-level ozone is harmful for humans as it can lead to asthma, cardiovascular diseases and other health ailments.

“There is an immediate need for a massive urban zone like Mumbai to commence real-time source apportionment (RTSA) monitoring for pollutants like PM_{2.5} rather than depending on older information for pollution sources. This needs to be done on priority,” said Tripathi. IIT-Kanpur’s RTSA study for Delhi was included in CPCB’s report which highlighted source-specific decline in pollution levels during lockdown.

High wind speed improves Delhi's air quality marginally

Date:-27-Sept-2020, Source: deccanherald.com



A cyclist rides near India Gate during heavy smog conditions in New Delhi.

Delhi's air quality improved marginally on Sunday due to high wind speed, while favourable ventilation conditions are likely to keep it in the "moderate" category for the next three days, a government forecasting agency said. Sporadic farm fires were observed on Saturday around Punjab and border regions but its impact has been negligible so far

due to unfavourable wind direction and speed, the System of Air Quality and Weather Forecasting and Research (SAFAR) said.

The city recorded a 24-hour average air quality index (AQI) of 117 on Sunday. It was 165 on Saturday. An AQI between 0 and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

"AQI has improved marginally due to high wind speed and rainfall in Rajasthan which washed out dust en route to the city, reducing dust intrusion," the Ministry of Earth Science's air quality monitor said.

"High surface wind speed is predicted... Favourable ventilation condition is likely to keep Delhi's AQI in the moderate category for the next three days," SAFAR said. However, it said, the late withdrawal of monsoon and associated stagnant winds are likely to influence Delhi's air quality negatively by the weekend. The monsoon will start receding from Delhi on Monday, according to the India Meteorological Department.

Delhi air pollution set to spike again as stubble burning begins and economy reopens

Date:-29-Sept-2020, Source: theprint.in

Experts say Covid-19 lockdown has reduced pollutants before stubble burning, so AQI is likely to be lower than last year. But a sharp spike is still expected.

New Delhi: The approaching winter signals the annual return of the dreaded pollution and smog in Delhi — largely attributed to Punjab and Haryana farmers burning paddy stubble in their fields. But this time around, the resumption of economic activity after the Covid-induced lockdown could end up being as big a culprit.



A Delhi Metro train running through the smog in November 2019

The lockdown gave Delhiites a breath of fresh air for several months. At the beginning of September, the air quality index (AQI) in Delhi was recorded at 41 — the lowest since the National Air Quality Index was launched in 2014.

However, just as satellite images began spotting farm fires in Punjab last week, Delhi's air quality too began to deteriorate — the

capital's AQI Monday morning was at 140, which falls in the moderate category.

According to the System of Air Quality and Weather Forecasting And Research (SAFAR), the pollution predictor run by researchers at the Indian Institute of Tropical Meteorology, favourable weather and wind conditions have so far kept the AQI in Delhi from getting any worse than 'moderate'. The air quality is predicted to remain in the moderate category for the next three days.

Experts expect a spike

Experts say the gains from the lockdown are expected to be reversed now.

A.P. Dimri, professor at the Jawaharlal Nehru University's School of Environmental Sciences, told ThePrint that the baseline pollution load — the level of pollutants already present in the air before the crop burning started — is less than last year, which might result in overall reduction in pollution. However, if the scale of stubble burning is similar to last year, Delhi is still likely to see a sharp rise in air pollutants.

“The gaseous constituents of the pollution may change. For example, due to the lockdown, pollutants like sulphur and nitrogen oxides, as well as surface ozone are likely to be down. But as far as PM2.5 and PM10 are concerned, they are likely to be at the same levels as before,” Dimri said.

Chandra Bhushan, environmentalist and CEO of the International Forum for Environment, Sustainability and Technology (iFOREST), also predicted that the low pollution levels will quickly be reversed due to the reopening of the economy.

“Energy consumption, transport sector and construction is going to get a lot of impetus. On the other hand, crop residue burning has already started,” Bhushan said. “I am expecting the pollution levels to spike in the coming weeks. The only saving grace can be if the meteorological conditions are in our favour.”

He also pointed out that people will need to be more careful because air pollution causes respiratory issues, as does Covid-19, and thus, “masks will become even more important than they have been so far”.

What happens every year

A Central Pollution Control Board report published last week estimated the impact of the Covid-19 lockdown on the air quality in different cities, and showed significant reduction in PM2.5, PM10 and NO2 levels this year, due to a combination of a reduced number of vehicles on the roads, the functioning of only essential commercial units, and prevailing weather conditions.

According to a 2018 study conducted by The Energy and Resources Institute (TERI) and the Automotive Research Association of India (ARAI), the major sources of pollution in Delhi in the summer include dust and construction activities (38-42 per cent), transport (15-17 per cent) and industry (22 per cent).

However, as the winter approaches, farmers in Punjab and Haryana begin to clear out the paddy residue on their farmlands by setting it on fire. The particulate matter from these fires travels down the entire Gangetic plain, enveloping vast swaths of northern India in smoke.

Cities like Delhi, Noida and Gurgaon, which are already choked with pollution from vehicles and industries that operate year-round, bear the brunt, as their meteorological conditions prevent

the smoke from dissipating. As winter sets in, the cold makes it harder for the particulate matter to rise up — leaving people exposed to the toxic smog. The festival of Diwali — which will be celebrated on 14 November this year — introduces more pollutants as people light firecrackers.

Between 2016 and 2018, Delhi pollution levels did dip by about 25 per cent, but the AQI numbers remained far higher than what is considered to be safe. According to a study by the Centre for Science and Environment, Delhi needs to cut its pollution levels further by 65 per cent to meet air quality standards.

And yet, on 22 September, satellite data began to spot the first instances of stubble burning in Amritsar, despite the fact that crop burning is now a punishable offence.

City-centric policies

Bhushan said the work to reduce air pollution has so far been city-focussed, with measures revolving primarily around the automobile sector. For example, the Aam Aadmi Party government in Delhi imposes an ‘odd-even’ scheme for limited periods in Delhi every year — odd-numbered vehicles on odd-numbered dates and even on even dates.

However, the scheme has been contentious, with studies showing it does little to reduce the pollution levels in Delhi. The BJP-led central government, meanwhile, opened up the Eastern and Western peripheral expressways, which help 30,000-40,000 vehicles that are not bound for Delhi bypass the city every day.

Environment Minister Prakash Javadekar had also claimed that the new Motor Vehicles Act of 2019, measures to reduce stubble burning, introduction of Bharat Stage VI compliant fuel and vehicle norms, incentivisation of e-vehicles and augmentation of the Delhi Metro network had helped in reducing air pollution in the city.

However, Bhushan said the government has “lost the plot” when it comes to handling biomass burning — which contributes to the spike in pollution every year. Dimri concurred, adding that policies against stubble burning have not been successfully implemented at the ground level.

Delhi loses cleaner lockdown air as farmers burn crop waste

Date:-30-Sept-2020, Source: reuters.com

NEW DELHI(Reuters) - India’s longest spell of clean air on record came to an end in September when New Delhi, the world’s most polluted capital city, recorded a significant deterioration in air quality, partly due to crop waste burning by farmers.



Smoke billows from crop stubble as it burns in a field near Jewar, Uttar Pradesh, India

Up until this month, New Delhi and its satellite cities, which last year accounted for half of the dozen most-polluted cities worldwide, had enjoyed respite due to the strict nationwide lockdown to stem the spread of the coronavirus.

But, a pick-up in economic activity and a slightly early start to crop waste burning, a significant source of pollution during the winter months, has made the air more

toxic again.

“The gains which we had seen because of the lockdown are lost in September,” said Sachchida Nand Tripathi, a professor at the IIT Kanpur and a member of the National Clear Air Mission, a federal body. In September, the concentration of poisonous PM2.5 particles in a cubic metre of air averaged at 47.64 micrograms, more than 17% higher from the same month last year, according to a Reuters analysis of government data, indicating a “poor” rating.

That is almost twice the level deemed safe by the World Health Organisation (WHO), though it is still below the safety level of 60 micrograms set by SAFAR, India’s environment monitoring agency.

In Punjab state, to the north of New Delhi, there were about 70 crop fires in September, more than double the number in the same month last year, according to a study by the Indian Institute of Technology (IIT), Kanpur in northern India. Air pollution typically worsens during the winter months from October to December.

Last year, New Delhi suffered nine consecutive days in late October, early November when the air quality was hazardous, with a PM2.5 reading of 509.2 micrograms recorded on Nov. 3 by IQ AirVisual, a Swiss-based group that gathers air-quality data globally.

Authorities intensified a campaign to reduce crop waste burning after the outrage caused by last year’s sickening air quality levels, and officials say farmers are likely to reduce burning by 75-80% this year.

October 2020

Delhi starts efforts to fight pollution with plan to give free stubble decomposer to farmers

Date:-1-Oct-2020, Source: theprint.in

The low-cost chemical, called the Pusa decomposer, will also be used on a trial basis in some paddy fields of Punjab and Haryana this year.

New Delhi: Delhi Environment Minister Gopal Rai Thursday said farmers in the national capital will be provided a low-cost chemical that can decompose paddy crop, in a bid to prevent them from setting farm residue on fire, which is seen as a major source of winter pollution in the region.



Vehicles ply on Rajpath shrouded in smog, in New Delhi

Rai said the production of the low-cost chemical, called the Pusa decomposer, will start within a week, after which it will be provided free of cost to farmers.

The Pusa decomposer, being developed by Indian Agricultural Research Institute in Delhi, will also be used on a trial basis in some paddy fields of Punjab and Haryana this year, Union Minister

Prakash Javadekar said.

The two ministers were speaking at separate press briefings Thursday in Delhi, after the Centre conducted a review meeting with representatives from Delhi, Haryana, UP, Punjab and Uttar Pradesh on the work done so far on tackling pollution.

Farmers in Punjab have already begun stubble burning, which appears to have affected air quality in New Delhi.

As of Thursday afternoon, the AQI for Delhi was about 155, putting it in the moderate category. The Delhi government's pollution forecaster SAFAR, however, predicts that the AQI in the city is likely to worsen to the 'poor' category by 4 October.

‘Modi govt spent Rs 700 crore on happy seeders’

During his briefing, Javadekar said that over Rs 700 crore has been spent in providing subsidised ‘happy seeders’ to farmers.

These machines attached to the tractors help remove the crop residue from the fields, turn them into mulch and mix it in the soil when farmers sow their next harvest.

“Farmer cooperatives are given 80 per cent subsidy, while individual farmers can avail 50 per cent subsidy for buying these machines,” Javadekar said.

However, in another press briefing that followed, Rai explained that farmers still have to spend money out of their pockets for these expensive machines.

The Delhi government has thus appealed to the states to start using the new chemical.

“The Centre gives Delhi Rs 30 crore for subsidies on happy seeders. We have calculated that the total cost of producing and spraying the decomposer chemical instead is just Rs 20 lakh for Delhi,” Rai said.

He announced that a plant, which will produce this decomposer in bulk will be set up at Kharkhari Nahar village in Delhi by 5 October, and that it will start producing the first batch of the decomposer the very next day.

“It will take five or six days to produce the first batch of the decomposer,” Rai said. Farmers in Delhi can fill up a form to avail the spraying service of the decomposer for free.

Javadekar also said that the chemical looks promising and that the trials will be conducted in fields of Punjab and Haryana this year to evaluate its success.

Focus should be region-centric

Both ministers also said that the focus of pollution control measures should be more regional than city-centric.

Delhi and its surrounding regions all comprise a single ‘airshed’ — a part of the atmosphere that behaves similarly in how emissions get dispersed. Pollutants within this region need to be tackled simultaneously.

To that end, Javadekar said that all the officials concerned across states need to work in tandem, keeping politics aside.

Rai meanwhile pointed out that 11 power stations in areas surrounding Delhi, which still work on old technologies, contribute significantly to the pollution.

“The Supreme Court had given these power stations time until December 2019 to shift to new technologies, but that still has not happened,” Rai said.

Moreover, Rai pointed out that 1,640 brick kilns in Uttar Pradesh, 161 in Haryana, and 164 in Rajasthan had not switched to the new zig-zag technology, which improves the energy efficiency of brick making units.

Both ministers, meanwhile, appealed to citizens of Delhi to also take measures to reduce pollution. While Javadekar said that people should consider walking or cycling shorter distances, Rai appealed to citizens to not burst firecrackers this Diwali.

Delhi air quality improves further to moderate category, overall AQI docks at 138

Date:-2-Oct-2020, Source: timesnownews.com

Delhi NCR pollution level today: The air monitoring agency SAFAR said further deterioration in air quality from the higher end of moderate to lower end of the poor category is likely by October 3rd and 4th.

- SAFAR: AQI may marginally deteriorate and reach the higher end of the moderate category in coming days.
- SAFAR: Southwest monsoon has withdrawn from Punjab, Haryana, and Delhi and dry weather is likely for the next few days.



SAFAR: AQI may marginally deteriorate and reach the higher end of the moderate category in coming days

New Delhi: In a further relief to Delhiites, the air pollution level again dropped slightly. The overall air quality in the Delhi improved to the moderate category on Friday morning, according to the latest estimates updated by System of Air Quality and Weather Forecasting And Research (SAFAR).

Clean air Delhi

According to SAFAR estimates updated at 6.30 am, several areas in Delhi recorded air quality in the

satisfactory category on Friday morning. Delhi University, Pusa Road, Lodhi Road, Indira Gandhi International Airport (Terminal 3), and Ayanagar recorded air quality in the satisfactory category with an AQI of 92, 90, 66, 93 and 92 respectively.

Moderate air in parts of Delhi

However, some areas in the national capital including Mathura Road, and IIT-Delhi recorded air quality in the moderate category with an AQI of 111 and 101 respectively.

According to SAFAR, AQI between the range of 51 and 100 is considered as 'satisfactory' or 'very good', 101-200 is 'moderate', 201-300 falls under the category of 'poor'. While 300-400 is considered as 'very poor', levels between 401-500 fall under the 'hazardous' category.

SAFAR forecast

"The overall Delhi AQI was in the moderate category on Thursday as forecast. PM10 (coarse dust particles) is the lead pollutant. Southwest monsoon has withdrawn from Punjab, Haryana, and Delhi. Dry weather is likely for the next few days, the predominant surface wind direction is west south-westerly. AQI may marginally deteriorate and reach the higher end of the moderate category. Further deterioration and the higher end of moderate to lower end of the poor category is likely by 3rd and 4th October. An increase in stubble burning fires observed Wednesday around Punjab, Haryana, and neighbouring border regions. Air quality is in the good category for Pune. Mumbai and Ahmedabad AQI in the lower end of the satisfactory category. Pune AQI is likely to stay at the higher end of the good category for the next three days. Mumbai and Ahmedabad AQI is likely to stay at the satisfactory category for the next two days," said SAFAR prediction.

Air quality in NCR

After the imposition of a nationwide lockdown on March 25 in view of coronavirus pandemic, the Delhi-NCR also witnessed clean air. However, the air quality started to deteriorate after the unlock. On Friday morning, both Noida and Gurugram registered air quality in the satisfactory category with an AQI of 100 and 83 respectively.

Delhi's air quality moderate, may turn poor on Monday

Date:-3-Oct-2020, Source: indiatvnews.com

The national capital's air quality was recorded in the "moderate" category on Saturday, and is likely to turn "poor" in two days due to lowering temperatures and slow wind speed.



Delhi's air quality moderate, may turn poor on Monday

The national capital's air quality was recorded in the "moderate" category on Saturday, and is likely to turn "poor" in two days due to lowering temperatures and slow wind speed. Delhi's 24-hour average air quality index was recorded at 189 on Saturday. It was 180 on Friday.

An AQI between 0 and 50 is considered 'good', 51 and 100

'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

"As predicted, the PM2.5 contribution (in pollution) is increasing, which is a characteristic of winters. The air quality is likely to deteriorate to the lower end of poor quality on Monday," the System of Air Quality and Weather Forecasting and Research (SAFAR) said.

PM2.5 is tiny particulate matter less than 2.5 microns in diameter. It can enter deep into the lungs and even into the bloodstream.

It said an increase in farm fires was observed on Friday around Punjab, Haryana and neighbouring border regions and it is likely to impact Delhi in the coming days.

Also, there is a marked dip in minimum temperatures recorded in Delhi. On Saturday, it settled at 20.3 degrees Celsius, which was a notch below normal.

The minimum temperature is likely to drop to 19 degrees Celsius by Wednesday.

Low temperatures and stagnant winds help in the accumulation of pollutants near the ground, affecting air quality.

Delhi to launch massive anti-air pollution campaign from Oct 5: Gopal Rai

Date:-4-Oct-2020, Source: hindustantimes.com

Delhi Environment Minister Gopal Rai on Thursday said the city government will launch a mega anti-air pollution campaign on October 5 and a centre is being set up in Najafgarh to produce a chemical to deal with stubble burning.

Delhi Environment Minister Gopal Rai on Thursday said the city government will launch a mega anti-air pollution campaign on October 5 and a centre is being set up in Najafgarh to produce a chemical to deal with stubble burning.

Rai said he has appealed to the Centre and the neighbouring states to use the chemical developed by scientists at Indian Agricultural Research Institute here to manage stubble.

“Chief Minister Arvind Kejriwal will launch a mega anti-air pollution campaign after a meeting with officials from departments of environment, transport, development, PWD, Delhi Development Authority, Delhi Jal Board, traffic police and municipal corporations,” he said.

At a meeting of NCR states with Union Environment Prakash Javadekar, Rai asked the Centre to take time-bound action to ensure the 11 thermal power plants and more than 1,900 brick kilns using outdated technology in the national capital region control their emissions.

There are 11 plants around Delhi -- in Haryana, Uttar Pradesh and Punjab -- which were supposed to retrofit their units with technology called flue-gas desulphurisation to reduce emissions by December 2019.

Rai said there are more than 1,640 such brick kilns in Uttar Pradesh, 161 in Haryana and 164 Rajasthan. “All these contribute to Delhi’s air pollution massively,” he said.

Javadekar said Uttar Pradesh will be using the “Pusa microbial decomposer capsule” technology over 10,000 hectares and Delhi over 800 hectares this year.

The Delhi government has been directed to focus on the 13 pollution hotspots in the city. 50 teams of the Central Pollution Control Board will be deployed in Delhi-NCR region to take appropriate action this year, the Union minister said.

Rai said an action plan has been prepared to stop stubble burning in the city.

Under it, farmers will fill a form providing details such as name, address, village, the area where they produce non-basmati rice and the date when they want the government to spray the chemical to tackle stubble burning.

Based on this form the Delhi government will send officials to spray the chemical at the designated farmland. Agricultural development officers of all the districts will lead this work, he said.

Indian capital launches campaign to curb toxic air pollution

Date:-5-Oct-2020, Source: gulfnews.com



A man wearing a mask as a precaution against the coronavirus walks past an anti-smog gun kept at the Central Park in New Delhi, India, Monday, Oct.5, 2020.

Authorities in Delhi warn filthy air could make coronavirus pandemic more dangerous

New Delhi: Authorities in New Delhi launched an anti-pollution campaign on Monday in an attempt to curb air pollution levels ahead of winter, when the capital is regularly covered in toxic haze, and warned that filthy air could make the coronavirus pandemic more dangerous.

The capital's top elected leader, Arvind Kejriwal, said the government will start an anti-dust

campaign, reduce smoke caused by agricultural burning and introduce a mobile application that will allow citizens to lodge photo-linked complaints against polluters.

"Polluted air can be life-threatening in view of the COVID-19 pandemic. Both affect the lungs," Kejriwal said. Health experts say high air pollution levels over a prolonged period have compromised the disease resistance of people living in New Delhi, one of the world's most polluted cities, making them more susceptible to the coronavirus. Earlier studies have also suggested that high levels of air pollution can make viral infections more dangerous. New Delhi has had 285,103 confirmed cases of the coronavirus, including 5,510 deaths.

It is estimated that more than a million Indians die every year because of air pollution-related diseases. Among the many Indian cities gasping for breath, New Delhi tops the list every year. Winters have become a time of health woes, when the city is covered with a toxic haze that obscures the sky and blocks sunlight. Pollution levels soar as farmers in neighbouring agricultural regions set fire to clear their land after harvests and prepare for the next crop season. Vehicle and industrial emissions, pollutants from firecrackers linked to festivals, and construction dust also sharply increase in winter, exacerbating the public health crisis.

Anumita Roychowdhury, executive director at the New Delhi-based group Centre for Science and Environment and an air pollution expert, said the causes of the capital's poor air quality are

well known, as are the actions needed to combat it. But she said the steps needed to improve air quality aren't being carried out at the right scale. "It isn't rocket science," Roychowdhury said.

The national capital has often experimented with limiting the number of cars on the road, using large anti-smog guns and halting construction activity. But the steps have had little effect because neighbouring state governments have failed to cooperate. In November 2019, New Delhi was blanketed in a dark yellow haze for several days and air pollution hit record high levels, forcing schools to close and flights to be diverted.

Delhi govt to spray bio-decomposer from 11 October to prevent stubble burning

Date:-6-Oct-2020, Source: theprint.in



A farmer burns stubble of the rice crop on his farm in a village around Patiala, Punjab, India

The solution, when sprayed in the fields, can decompose crop residue and turn it into manure, Delhi CM Kejriwal said after inspecting his govt's centralised bio-decomposer system.

New Delhi: Chief Minister Arvind Kejriwal on Tuesday said the Delhi government will start spraying "Pusa bio-decomposer" solution from October 11 to prevent stubble burning in non-basmati

rice fields in the national capital.

Scientists at the Indian Agricultural Research Institute, PUSA, have found a low-cost, simple and effective way to deal with the problem of stubble burning, he said.

"They have developed 'bio-decomposer' capsules, which are used to prepare a liquid formulation. The solution, when sprayed in the fields, can decompose crop residue and turn it into manure," Kejriwal said after inspecting his government's centralised bio-decomposer system set up in Kharkhari Nahar village in southwest Delhi.

The solution increases soil fertility and reduces the use of fertilisers, he said.

This year, the Delhi government is going to use the solution on the land where non-basmati rice is grown.

“We have estimated that only Rs 20 lakh is needed to manage stubble in 800 hectares of agricultural land in Delhi through this solution. It includes the cost of preparation, transportation and spraying,” he said.

Farmers have to just give their consent and the Delhi government will spray the solution in their fields free of cost, he said.

It takes seven days to prepare the solution, which has jaggery and chickpea flour as ingredients. The spraying will begin on October 11, the chief minister said.

If this proves to be successful in Delhi, it can be a good solution for the issue of stubble burning in the neighbouring states too, he said.

Delhi Environment Minister Gopal Rai said, “We want to create a model in Delhi so that no government can make an excuse (on the issue of stubble burning).”

“When there is an alternative available all those who seriously want to reduce pollution should use this,” he said. The solution being prepared at Kharkhari Nahar will be enough for around 1,300 farmers in Delhi, Rai said. The minister said farm fires in neighbouring states contribute up to 44 per cent of Delhi’s pollution during the harvesting season. Asked if the method will be implemented in other states as well, Rai said it depended on their will to do it.

“We have already appealed to them to implement it. If we can set up a centralised system for it in Delhi, they can do it too,” he said.

As Stubble Burning Begins In Punjab And Haryana, Delhi's Air Quality Deteriorates To 'Very Poor'

Date:-7-Oct-2020, Source: swarajyamag.com



about three months.

With the smoke from the burning of paddy stubble in Punjab and Haryana blowing to the national capital and its surrounding regions, the air quality of the region dipped to the 'very poor' category on Wednesday (7 October). This marks the beginning of the highly-polluted season that goes on to last for

With stubble burning, the air pollution reaches a crescendo in Delhi-NCR every winter, when pollutants combine with the suspended water droplets in the lower atmosphere to form a thick blanket of noxious smog, thus creating health hazards for the residents.

According to the data of the Central Pollution Control Board, out of 35 pollution monitoring stations, the air quality index in as many as 22 stations, including R K Puram, Rohini, was in the poor category. Twelve stations, including one at IGI airport, JNU etc., recorded the index in the moderate category, while one station logged the 'very poor' category.

The overall air quality near Mundka in West Delhi stood at 308 micrograms per cubic in the very poor category, followed by 290 at Delhi Technical University (DTU) area. Very poor air quality causes respiratory illness on prolonged exposure, warned CPCB.

The synergised fire counts aggregated over Punjab, Haryana, and neighbouring border regions were found to be 336, as per the System of Air Quality Weather Forecasting and Research (SAFAR).

"The boundary layer wind direction and speed are favourable for slow transport from the external emission sources and local conditions are conducive for accumulation of pollutants in Delhi," air quality forecasting system stated in their daily bulletin.

"Reduction in wind speed and lowering temperature between October 15 to 20 would further aggravate the situation, resulting in deterioration of the air quality," Head of the IMD's regional forecasting centre Kuldeep Srivastava told IANS.

Kamal Narayan, CEO of Integrated Health and Wellbeing Council said that there is a need to tackle air pollution during Covid-19 times as combination of both can have a far more damaging impact on people's health. "The need to develop an economical alternative to stubble burning and making it available to farmers is the need of the hour."

Burning of stubble in the agricultural states surrounding Delhi marks the beginning of a highly-polluted period. The farmers harvest paddy in October, which leaves them about three weeks before the next round of wheat sowing is to begin.

Delhi Air Quality Enters 'Poor' Category; To Deteriorate Further Over the Weekend

Date:-8-Oct-2020, Source: weather.com

Thursday, October 8: The air quality of the national capital remained in the poor category on Thursday, but forecasts indicate that Delhi's overall Air Quality Index (AQI) is likely to



Smog engulfs the national capital as air quality worsens, on Nov 15, 2019.

deteriorate in the next three days. This could prove acutely hazardous for COVID-19 patients in the capital.

Particulate matter of diameter of 2.5 micrometers that is too small to be filtered out of the body remains the main pollutant.

The System of Air Quality Weather Forecasting and Research (SAFAR), which comes under the aegis of

the Ministry of Earth Sciences, has attributed the increase in pollution to gradual increase in stubble burning in the adjoining states. Synergized fire count was 399 on October 7.

"The boundary layer wind direction and speed are favourable for the transport of pollutants towards Delhi at present but a shift in the wind direction is forecasted which is likely to extend the moderate air quality condition for a few more days," the air quality forecasting system stated.

According to the data of the Central Pollution Control Board, out of 35 pollution monitoring stations, the air quality index in as many as 17 stations is in the poor category—while 15 stations recorded the index in the moderate category, four were non-functional.

The area near the Delhi Technical University recorded the highest AQI at 290.

With stubble burning in northern states the air pollution reaches a crescendo in Delhi-NCR every winter, when pollutants combine with the suspended water droplets in the lower atmosphere to form a thick blanket of noxious smog, thus creating health hazards for the residents.

Burning of stubble in the agricultural states surrounding Delhi marks the beginning of a highly-polluted period. The farmers harvest paddy in October, which leaves them about three weeks before the next round of wheat sowing is to begin.

With cheap labour no longer available, and with machinery to extract the crop residue or stubble expensive or unavailable, the farmers resort to the easiest possible option, which is to burn the fields.

According to Piyush Goel, Pulmonology and Critical Care specialist at Columbia Asia Hospital, stubble burning is one of the major reasons of poor air quality in the city that causes serious health problems such as asthma and chronic obstructive pulmonary disease (COPD).

Goel said that increase in pollution poses a threat to a lot of COVID-19 patients with underlying asthma and Chronic obstructive pulmonary disease.

"Till last year, the number of patients reporting breathing problems after stubble burning began increased by 30-35 per cent than the rest of the year."

Delhi's Air Quality Improves to Moderate Category; AQI Drops to 199

Date:-9-Oct-2020, Source: weather.com



Delhi's NH-9 covered with smog at 11.30 am

The air quality index of the national capital improved a notch and stood at 199, the higher-end of the moderate category, on Friday morning, according to the Central Pollution Board's data at 12 p.m. The capital city and surrounding areas witnessed the poor quality of air for two days.

With stubble burning, the air pollution reaches a crescendo in

Delhi-NCR every winter, when pollution from stubble burning combines with the suspended water droplets in the lower atmosphere to form a thick blanket of noxious smog, thus creating health hazards for the residents.

According to the data of the Central Pollution Control Board, out of 35 pollution monitoring stations, the air quality index in as many as 15 stations is in the poor category, while 18 stations recorded the index in the moderate category, two were non-functional. The area near Jahangirpuri recorded the highest AQI at 267.

The System of Air Quality Weather Forecasting and Research (SAFAR) categorizes air quality in the 0-50 range as good, 51-100 as satisfactory, 101-200 as moderate, 201-300 as poor, 301-400 as very poor and above 400 as severe.

According to SAFAR, which comes under the aegis of the Ministry of Earth Sciences, particulate matter of the diameter of 2.5 micrometres which go deep into the smallest sacs within the human lungs and bloodstream is currently the main pollutant.

"AQI is forecasted to stay at the higher end of moderate to the poor category for tomorrow, further AQI is forecasted to improve by October 11, but in the moderate category," the air quality forecasting system stated.

SAFAR further apprised that the low pressure formed over the Bay of Bengal is likely to intensify and influence circulations in the north and central India. A shift in Delhi surface wind direction, northwesterly to southeasterly by October 12 is forecasted, which could influence the air quality positively in the ensuing week.

"Pollution is very harmful to everyone, but more so for people with chronic lung conditions like asthma, COPD who notice their symptoms of cough and breathlessness worsening. We have seen a spike in OPD attendance of these patients recently," said Dr Arunesh Kumar, Senior Consultant and Head of Respiratory Medicine and Pulmonology at Paras Hospital in Gurugram.

Dr Kumar further said that the masks, which provide protection from viruses, are also helpful for this. Such patients should be compliant with their treatment and avoid exposure to these pollutants.

Delhi's Air Quality Plummeted to 'Poor' Category; AQI Stands at 221 on Saturday

Date:-10-Oct-2020, Source: weather.com

The air quality index of the national capital plummeted to 221 and stood in the poor category on Saturday, a day after improving a notch, with West Delhi recording the most polluted air, according to Central pollution Control Board (CPCB) data.



Workers use anti-smog gun to control pollution in Delhi.

As per the CPCB, out of 35 pollution monitoring stations, the air quality index in as many as 24 stations is in the poor category, while 10 stations recorded the index in the moderate category, one was non-functional.

The air quality index of the national capital plummeted to 221 and stood in the poor category on Saturday, a day after improving a notch, with

West Delhi recording the most polluted air, according to Central pollution Control Board (CPCB) data.

As per the CPCB, out of 35 pollution monitoring stations, the air quality index in as many as 24 stations is in the poor category, while 10 stations recorded the index in the moderate category, one was non-functional.

The area near West Delhi's Mundka recorded the highest AQI at 286. The System of Air Quality Weather Forecasting and Research (SAFAR) categorizes air quality in the 0-50 range as good, 51-100 as satisfactory, 101-200 as moderate, 201-300 as poor, 301-400 as very poor and above 400 as severe.

Delhi's neighboring areas, including Ghaziabad, Faridabad, Noida, Greater Noida, Meerut and Gurugram have also recorded poor quality of air. Ghaziabad's air is currently the most polluted amongst all. With stubble burning, the air pollution reaches a crescendo in Delhi-NCR every winter, when pollution from stubble burning combines with the suspended water droplets in the lower atmosphere to form a thick blanket of noxious smog, thus creating health hazards for the residents.

According to SAFAR, which comes under the aegis of the Ministry of Earth Sciences, particulate matter of the diameter of 2.5 micrometers which go deep into the smallest sacs within the human lungs and bloodstream is currently the main pollutant.

It also observed 253 stubble burning fires around Punjab, Haryana, and neighboring border regions. A shift in Delhi surface wind direction, northwesterly to southeasterly by October 12 is forecasted, which could influence air quality positively in the coming week.

"AQI is forecasted to marginally improve to the moderate category for tomorrow, further AQI is forecasted to improve by 12th October, but in the moderate category," the air forecasting system added. Nationwide, as many as 20 cities have poor quality of air, including Agra, Kurukshetra, Lucknow, Yamunanagar, etc. Two cities—Karnataka's Kalaburagi and Rajasthan's Bhiwadi have 'very poor' quality of air. According to Delhi-based doctor Shuchin Bajaj, the pollution will cause a lot of issues to children and elderly especially and with the ongoing Covid-19 pandemic. The bad quality of air will increase the severity of the lung infections.

"This will lead to worse outcomes like pneumonia and breathlessness, tiredness and lack of energy in the Covid-19 patients, who have suffered. It will decrease the immunity of the community and will lead to more widespread COVID-19 infections," Dr. Bajaj, Founder and Director of Delhi's Ujala Cygnus Group of Hospitals added.

Delhi's air quality 'poor' for 5th day in a trot

Date:-11-Oct-2020, Source: livemint.com

- Delhi's air quality turned poor on Wednesday, the first time in since June 29.
- The Ministry of Earth Sciences' air quality monitor, SAFAR, said the AQI is likely to improve to the 'moderate' category by Monday.



New Delhi: The national capital's air quality was recorded in the "poor" category for the fifth consecutive day on Sunday, while a government agency said it is likely to improve slightly in the coming days due to a change in the wind direction.

The city recorded a 24-hour average air quality index (AQI) of

216. It was 221 on Saturday.

Delhi's air quality had turned poor on Wednesday, the first time in since June 29, with the Central Pollution Control Board recording a 24-hour average AQI of 215.

An AQI between 0 and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The Ministry of Earth Sciences' air quality monitor, SAFAR, said the AQI is likely to improve to the "moderate" category by Monday.

A total of 448 farm fires were observed in Punjab, adjoining Pakistan, Haryana and Uttar Pradesh which impacted Delhi's air quality on Sunday, SAFAR said.

However, the wind direction will change from northwesterly to southeasterly and the impact of farm fires will reduce, it said.

On Sunday morning, Delhi's minimum temperature settled at 19.8 degrees Celsius. The maximum wind speed was 15 kilometers per hour and the direction was west-north westerly.

Low temperatures and stagnant winds help in accumulation of pollutants near the ground, affecting air quality.

High levels of air pollution in Delhi is a year-round problem, which can be attributed to unfavourable meteorological conditions, farm fires in neighbouring regions and local sources of pollution.

According to an analysis by the Council on Energy, Environment and Water, a Delhi-based think tank, transportation contributes the most -- 18 to 39 per cent -- to Delhi's air pollution.

Road dust is the second largest source of air pollution in the city (18 to 38 percent), followed by industries (2 to 29 per cent), thermal power plants (3 to 11 per cent) and construction (8 per cent).

Delhi records 'poor' air quality; condition likely to improve due to depression over Bay of Bengal, says IMD

Date:-12-Oct-2020, Source: firstpost.com



Delhi recorded 'poor' air quality on Monday morning with the overall air quality index (AQI) at 221.

A SAFAR report said that stubble fire has a marginal impact on Delhi AQI, which is likely to reduce due to change in wind direction.

The increase in AQI was due to the rise in concentration of both PM10 and PM2.5 pollutants, a Times Now report said, adding that according to the System of Air Quality and Weather Forecasting And Research (SAFAR), PM10 pollutants in Delhi were at 197 on

Monday morning, which comes under the 'moderate' category. The PM2.5 pollutants were recorded at 97, which is under the 'poor' category.

The report added that PM10 pollutants in Delhi will rise to the figure of 218 on Tuesday. This falls in the 'moderate' category. Meanwhile, according to the report, PM2.5 pollutants are expected to increase to 107, which falls under the 'poor' category.

According to SAFAR, a shift in Delhi surface wind direction, north-westerly to south-easterly by 12 October is forecasted, which could influence air quality positively in the coming week.

"Stubble burning fires observed yesterday around Punjab, Haryana, and neighbouring border regions with SAFAR synergized fire count estimated as 448 on 10 October since transport-level wind speed is not so calm, therefore the high accumulation of pollutants in Delhi is not happening," the report stated.

It added that stubble fire has a marginal impact on Delhi AQI and impact is likely to reduce by 13 due to change in wind direction.

Poor AQI has also been recorded in Agra, Bulandshahr, Bahadurgarh, Ballabgarh, Bhiwadi, Faridabad, Ghaziabad, Lucknow, Karnal and other north-western towns, Hindustan Times reported.

The report quoted Vijay Soni, a scientist at the air pollution division of India Meteorological Department (IMD), as saying that winds were calm during the evening for the last four to five days and so even though contribution from crop fires is not that high, air quality has worsened due to lack of dispersion.

Soni said that the condition will change due to the depression that has developed over the Bay of Bengal.

A report in Business Today report cites analyses by the Council on Energy, Environment and Water, a Delhi-based think tank, to say that transportation is one of the highest contributors to Delhi's air pollution, followed by road dust, industries, thermal power plants and construction.

Delhi's air quality hits 'very poor' category as AQI crosses 300 mark

Date:-13-Oct-2020, Source: theprint.in

The capital recorded an air quality index of 304 Tuesday morning and the PM10 levels in Delhi-NCR region stood at 300 microgram per cubic meter.

New Delhi: The national capital's air quality was in the very poor category on Tuesday morning, the first time this season, with calm winds and low temperatures allowing accumulation of pollutants.

According to the Ministry of Earth Sciences' Air Quality Early Warning System for Delhi, an increase in farm fires in Punjab, Haryana and neighbouring regions of Pakistan is also going to impact the air quality in Delhi-NCR.



smog in Delhi

The city recorded an air quality index (AQI) of 304 at 9:30 am, which falls in the very poor category. The 24-hour average AQI was 261 on Monday, the worst since February. It was 216 on Sunday and 221 on Saturday.

Wazirpur (AQI 380), Vivek Vihar (AQI 355) and Jahangirpuri (AQI 349) recorded the highest

pollution levels.

An AQI between 0 and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

A senior scientist at the Delhi Pollution Control Committee said the dip in the air quality can be attributed to low wind speed and temperatures which allowed accumulation of pollutants.

Stubble burning has also increased in neighbouring states. Also, the ventilation index is low, he said.

Ventilation index is the speed at which pollutants can get dispersed. A ventilation index lower than 6000 sqm/second, with average wind speed less than 10 kmph, is unfavourable for dispersion of pollutants.

PM10 levels in Delhi-NCR stood at 300 microgram per cubic meter (g/m³) at 9 am — the highest this season so far, according to CPCB data. PM10 levels below 100 g/m³ are considered safe in India.

PM10 is particulate matter with a diameter of 10 micrometers and is inhalable into the lungs. These particles include dust, pollen and mold spores.

The levels of PM2.5 finer particles which can even enter the bloodstream were 129 g/m³. PM2.5 levels up to 60 g/m³ are considered safe.

NASA's satellite imagery showed a large cluster of fires near Amritsar and Firozpur in Punjab and Patiala, Ambala and Kaithal in Haryana.

According to the System of Air Quality and Weather Forecasting and Research, farm fires contributed 3 percent particulate matter to Delhi's PM2.5 concentration on Monday.

It is likely to be negligible for the next two days due to a change in the wind direction from northwesterly to southeasterly, the government agency said.

On Tuesday morning, the maximum wind speed was 4 kilometers per hour, according to the India Meteorological Department.

Low temperatures and stagnant winds help in accumulation of pollutants near the ground, affecting air quality.

With Delhi-NCR bracing for months of poor air quality, experts have warned that high levels of air pollution can aggravate the COVID-19 pandemic.

Severe air pollution in Delhi is a year-round problem, which can be attributed to unfavourable meteorological conditions, farm fires in neighbouring regions and local sources of pollution.

According to an analysis by the Council on Energy, Environment and Water, a Delhi-based think tank, transportation contributes the most — 18 to 39 percent — to Delhi's air pollution.

Road dust is the second largest source of air pollution in the city (18 to 38 percent), followed by industries (2 to 29 percent), thermal power plants (3 to 11 percent) and construction (8 percent).

This year, the Delhi government has launched a massive anti-air pollution campaign — Yuddh Pradushan Ke Viruddh' — which is being led by Chief Minister Arvind Kejriwal and Environment Minister Gopal Rai.

A green war room with a 10-member expert team has been set up at the Delhi Secretariat to monitor the steps being taken to deal with high levels of air pollution in winters.

The environment department has also taken stern action against project proponents at large construction and demolition sites flouting dust control norms.

The government will also start the spraying of Pusa bio-decomposer solution in non-basmati rice fields in the national capital, on Tuesday.

The solution, experts say, can turn the stubble into manure in 15 to 20 days and therefore, can prevent stubble burning.

Starting October 15, stricter measures to fight air pollution will also come into force in Delhi and its neighbourhood as part of the Graded Response Action Plan, which was first implemented in Delhi-NCR in 2017.

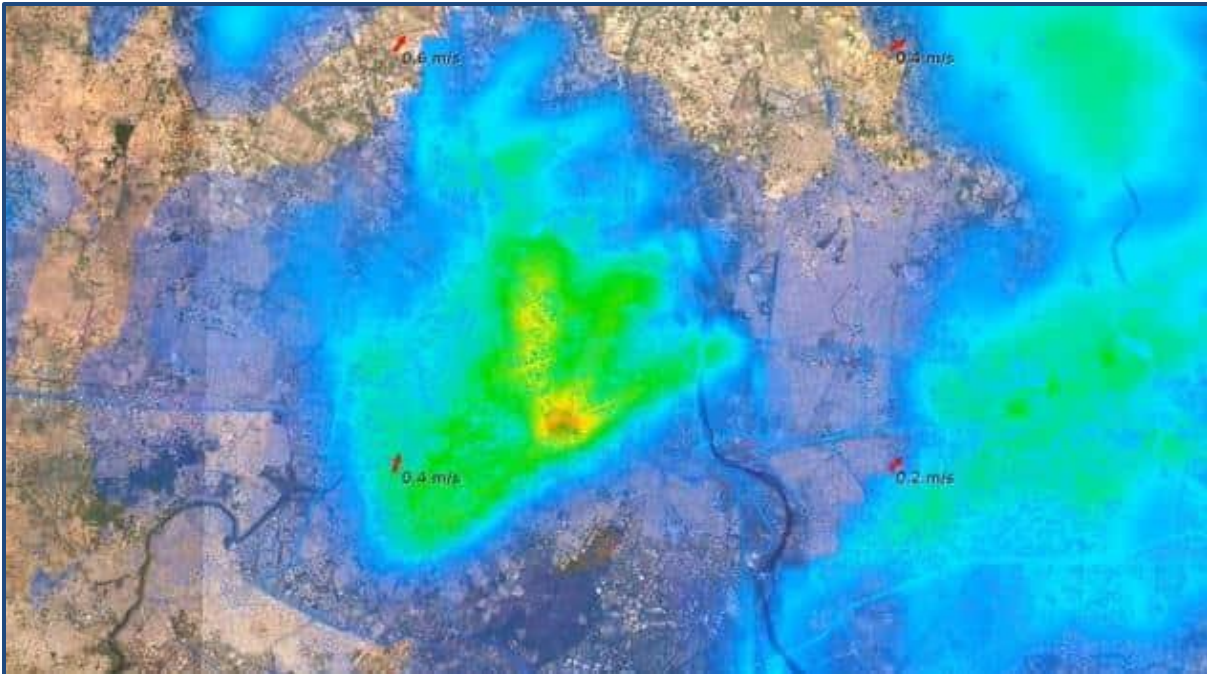
IMD's improved air quality models capture air pollution spike in Delhi

Date:-14-Oct-2020, Source: hindustantimes.com

A very high-resolution city scale model has been operationalised for Delhi to identify air pollution hot spots and street-level pollution.

The air quality forecast models for Delhi and the rest of India have improved according to India Meteorological Department, which will lead to better forecasts this year and identification of air pollution hot spots.

The October 15 forecast for India shows PM 2.5 concentrations ranging from 100 to 200 micrograms per cubic metre. The 24-hour safe standard for PM 2.5 is 60 micrograms per cubic metre.



An image showing SO2 concentration in Delhi

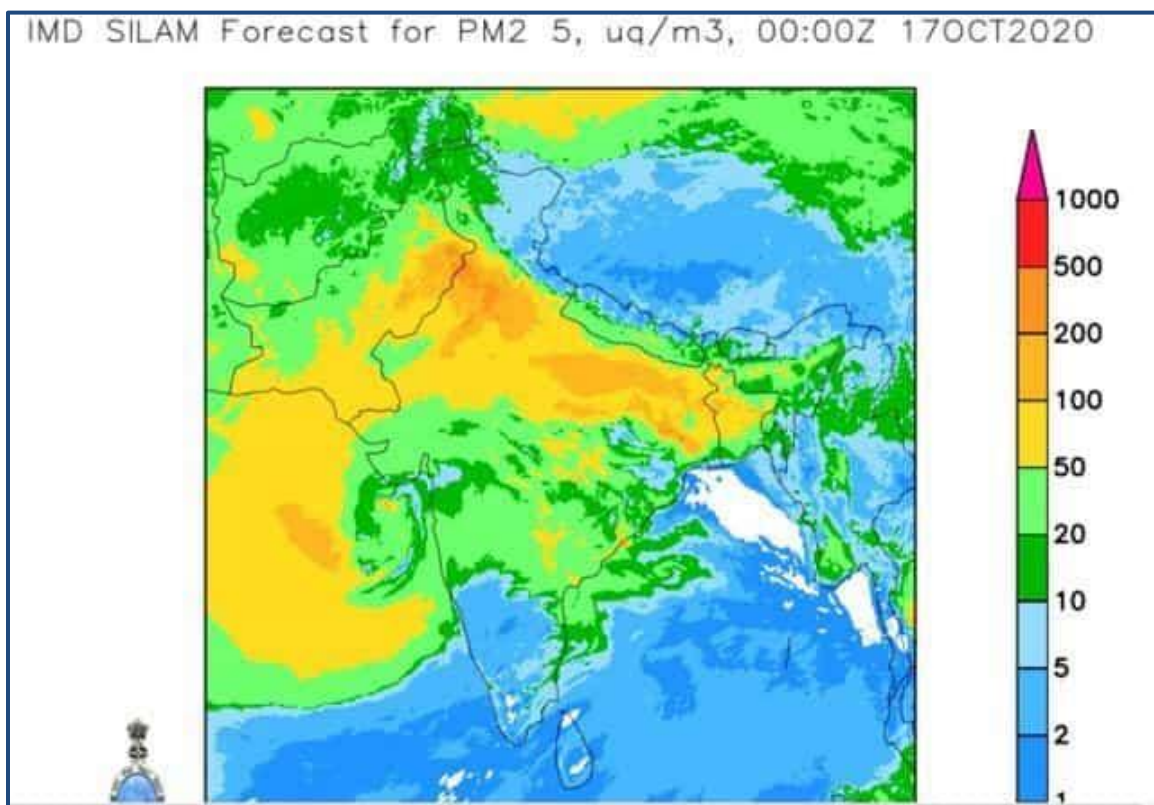
When it comes to PM 2.5 concentrations in Delhi, the entire city seems to be impacted by concentrations of over 200 micrograms per cubic metre as per IMD's ENFUSER model.

The air quality forecast model system for integrated modelling of atmospheric composition (SILAM) for India has been improved by implementing global emission inventories for coarse and fine particulate matter at 10 km resolution.

"Earlier we had 50 km resolution. Plus, we have also added land cover and land-use data to obtain a better forecast," explained Vijay Soni, a scientist at the air pollution division of India Meteorological Department (IMD).

A very high-resolution city scale model has been operationalised for Delhi to identify air pollution hot spots and street-level pollution.

The model utilises air quality observations, road network, building, land use information, high resolution satellite maps, population data etc to generate forecasts. The results are being evaluated to capture pollution hot spots in Delhi, Soni said.



PM2.5 concentration in the country.

Now the air quality warning system will also provide forecasts for Lucknow, Kanpur and Varanasi at 2 km resolution. "For the Delhi model, we are using real time air quality data from ground monitors, traffic congestion data, road network data, etc. to identify hot spots. We will be able to share this information on our bulletins also," he added.

Stubble burning contributes 4% to Delhi-NCR pollution, says Javadekar; ministry clarifies

Date:-15-Oct-2020, Source: hindustantimes.com

Union environment minister Prakash Javadekar also added that Punjab government should ensure that there is not much stubble burning this time.

Union environment minister Prakash Javadekar evoked a sharp response from the Delhi government on Thursday morning when he said that stubble burning contributes to only 4% of PM 2.5 pollution in the national capital region while 96% of the pollution was due to local factors, like biomass burning, unpaved roads, road dust, construction and demolition waste etc.

Javadekar said so while he was flagging off 50 Central Pollution Control Board (CPCB) inspection teams for field visits in Delhi-NCR to keep a watch on pollution hot spots



India Gate covered in haze in the backdrop of rising sun, in New Delhi on Thursday, Oct. 15, 2020. A smoky haze has shrouded the national capital for the past few days

“Only 4% pollution is due to stubble burning. Ninety-six per cent of it is due to local factors like biomass burning, garbage dumping, unpaved roads, dust, construction and demolition activities etc,” he said, adding that “Punjab government should ensure there is not much stubble burning this time,” the minister said.

Responding to this, Delhi government environment minister

Gopal Rai said the contribution from stubble burning is, in fact, 44% based on CPCB’s data.

Delhi chief minister Arvind Kejriwal also tweeted, “Staying in denial will not help. If stubble burning causes only 4% pollution, then why has pollution suddenly increased last fortnite? Air was clean before that. Same story every yr. There’s no massive jump in any local source of pollution in last few days to cause this spike?”

Later, an MoEFCC spokesperson clarified that Javadekar was referring to the contribution of stubble burning only for this year, which is 4% till now. Last year, it was much higher.

The ministry also tweeted, “Share of Stubble burning changes every day. Last year, between 08 Oct-09 Dec, the share of Stubble burning in AirPollution in Delhi (as per SAFAR data), was greater than 15% on six days, while on a single day it was greater than 40%.”

Delhi’s air quality index on Thursday morning was 325 in very poor category. There are widespread crop fires in both Punjab and Haryana as seen in satellite images.

65% Delhi-NCR households already experiencing pollution-related ailments, finds survey

Date:-16-Oct-2020, Source: theprint.in

New Delhi: In just a week since the Air Quality Index (AQI) for Delhi slipped into the ‘very poor’ category, a survey has found that as much as 65 per cent of the households in Delhi-NCR already have at least one member who has started experiencing pollution-related ailments.



Vehicles ply amid an atmosphere shrouded in smog in New Delhi

Conducted by LocalCircles — a Noida-based group that carries out polls on issues of governance and policies — the survey has based its finding on 15,500 responses from people residing in Delhi, Gurgaon, Noida, Ghaziabad and Faridabad.

The survey collected data on the symptoms being experienced by family members in the past week.

As much as 29 per cent of the respondents said that at least one member at home had a cough, cold or sore throat, while 12 per cent of the households had at least one or more members at home already having difficulty breathing.

Six per cent of the respondents said that a member in the family was experiencing burning eyes.

As much as 18 per cent of the respondents said one or more family members experienced all of the aforementioned symptoms.

The survey also asked what measures families plan to take to handle the pollution crisis. In response, 6 per cent of the participants said that they are planning to travel away from Delhi or NCR for some or most of this period when air quality deteriorates.

As much as 21 per cent said they will stay indoors, increase intake of immunity foods or drinks. Just 12 per cent of the respondents said that they will use air purifiers to reduce the impact of pollution.

Of the others, 24 per cent said they will carry on routine activities and wear mask outdoors, 25 per cent will carry on routine activities, wear masks outdoors and consume immunity boosting foods, while nine per cent said they will do nothing and “just live with it”.

The survey also reveals that only 22 percent of the respondents believe that the central government and governments of Delhi, Punjab, Haryana and Uttar Pradesh have done work on pollution-related issues in the last 12 months.

Pollution in Delhi

Delhi's AQI has already dropped to the 'very poor' level for the first time in this season. The AQI in the city was 304 Tuesday morning even as the PM10 levels in Delhi-NCR region stood at 300 microgram per cubic meter. It has dropped to 312 Friday (today).

An AQI between 0 and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The coming weeks are set to further degrade the quality of air in the capital region, as neighbouring states of Punjab, Haryana and Uttar Pradesh are seeing increasing instances of stubble burning.

Every year, just before the onset of winter, farmers in these states set fire to the crop residue in their fields in order to clear them for sowing the winter crop.

Pollutants from stubble burning travel with the wind across large parts of Northern India. Combined with the regular vehicular and industrial pollution in the city, a toxic smog engulf the city — causing the air pollution monitors to max out on some days.

Hundreds of farm fires have been spotted daily since the stubble burning incidents began in the end of September.

According to System of Air Quality and Weather Forecasting And Research (SAFAR) run by IITM Pune, the count of farm fires was nearly 548 on 15 October contributing to 6 per cent of the pollution in Delhi.

Gurugram's air quality worsens, but still in 'poor' category

Date:-17-Oct-2020, Source: hindustantimes.com

Gurugram: The city recorded 'poor' air quality on Saturday with the air quality index (AQI) standing at 280, according to the data from the Central Pollution Control Board (CPCB). However, the air quality has worsened as compared to Friday's AQI which was 216.

In the past six days (October 12-17), Gurugram's AQI remained in the 'poor' category, except on October 15 when it witnessed 'very poor' air quality with an AQI value of 311.

As per the data from official air quality monitors operating in the city, Sector 51 and TERI Gram (on Gurugram-Faridabad road) had an AQI of 345 ('very poor') and 288 ('poor'), respectively on Saturday, while a monitor at Vikas Sadan within the Mini Secretariat complex had an AQI of 284. The fourth monitor at National Institute of Solar Energy (NISE) set up by the India Meteorological Department (IMD) showed an AQI of 248.

Experts have warned that the city's air quality is likely to get worse in the coming days. Sachin Panwar, a city-based air quality expert, said that meteorologically north-westerly winds have started moving towards Delhi, while creating a passage in Gurugram. "For a day or two, the air quality in the city will remain moderate. There will be a temporary relief as again from Monday night or Tuesday, there will be an increase in the pollutants due to moderate dip in temperature and stubble burning in parts of Haryana. Owing to this, dust particles will accumulate in the lower periphery of the atmosphere. Air quality is likely to get worse with AQI reaching very poor or severe in the coming days."

Fall in temperature and winds bringing pollutants from farm fires in Haryana and Punjab leads to deteriorating air quality during winters every year. For the next few days, according to the IMD forecast, minimum temperature will dip to 14-15 degrees Celsius, while the maximum temperature will vary from 32-34 degrees Celsius. Though there will be clear sky till afternoon, experts said nights will see an increase in the pollutant accumulation in the air.

As per the CPCB's categorization of air pollution, an AQI between 0 and 50 is considered good; from 51-100 is satisfactory; 101-200 is moderate; 201-300 is poor; 301-400 is very poor and 401-500 is severe. Prolonged exposure to poor and very poor air quality may lead to breathing discomfort and respiratory illness.

Air quality remains poor

Date:-18-Oct-2020, Source: hindustantimes.com

Air quality in the city remained in the 'poor' category on Sunday, with Gurugram recording an air quality index (AQI) of 273, which was slightly better than the 280 reported on Saturday, as per the Central Pollution Control Board's (CPCB) daily bulletin.

The average concentration of ultrafine particulate matter (PM 2.5) in the air stood at 266 micrograms per cubic metre (ug/m³), while a maximum of 327ug/m³ was recorded by the air quality monitor at Vikas Sadan. The air quality is expected to deteriorate further due to an expected increase in farm stubble fires.

The Graded Response Action Plan, to check the rising air pollution, is already in place, as directed by the Environment Pollution (Prevention & Control) Authority (EPCA), since October 15.

Air quality in neighbouring Faridabad stood at 277, while the AQI in Dharuhera was 287, as per CPCB data.

An AQI between 401 and 500 is considered 'severe', between 301 and 400 as 'very poor', between 201 and 300 as 'poor', between 101 and 200 as 'moderate', between 51 and 100 as 'satisfactory' and between 0 and 50 as 'good'.

A forecast on Sunday by the System of Air Quality Weather Forecasting And Research (Safar) stated that synergized stubble burning fire counts from Haryana, Punjab and neighbouring regions has increased, with 1,230 incidents reported. "Though fire emission has increased and transport-level wind direction is also favourable, an increase in transport level, wind speed, as well as local Delhi surface winds, are likely to maintain the stubble contribution in Delhi PM2.5 around the same level," it said.

Pollution department officials said that weather conditions and a check on farm fires over the next week will play a key role in the quality of air. "If the weather is good and wind speed is high, the AQI will improve but the farm fires also play a role in wind quality and these need to be curbed. Locally, steps are being taken to check pollution by various agencies," Kuldeep Singh, regional officer, Haryana State Pollution Control Board.

Odd-even scheme in Delhi will be last weapon against pollution, says Minister Gopal Rai

Date:-19-Oct-2020, Source: theprint.in

The Delhi Environment Minister said 2,500 'environment marshals' will be deployed to spread awareness about AAP govt's anti-pollution campaign using the principle of 'Gandhigiri'.



AAP MLA Raghav Chadha and volunteers at an intersection in New Delhi during "Red Light On, Engine Off" campaign on 19 October

New Delhi: Delhi Environment Minister Gopal Rai on Monday said implementing the odd-even road rationing scheme would be the "last weapon" to fight air pollution in the city and presently the government is focusing on the "Red Light On, Gaadi off" campaign.

The odd-even scheme is a road rationing plan under which odd and even numbered vehicles ply

on alternate days.

Responding to a question at a press conference, Rai said if all other ways fail then the Delhi government will think about implementing the odd-even scheme.

“We have implemented the odd-even scheme several times in Delhi and it will be our last weapon. Odd-even is also a way to reduce vehicular pollution so right now we are completely focussing on this (‘Red Light On, Gaadi off’) campaign and if all other programmes don’t work then the government will think about implementing the odd-even scheme,” he said.

Delhi Chief Minister Arvind Kejriwal on October 15 launched the ‘Red Light On, Gaadi off’ (red light on, engine off) campaign to tackle air pollution in the national capital and urged people to turn off the engines of their vehicles while waiting at traffic signals.

Rai, responding to another question, claimed that Delhi is the only place where air pollution has been reducing in the last five years and in all other places it has been seen that pollution is increasing.

“There are reasons for this result. Our government has provided 24 hour electricity which has reduced pollution caused by genset, which is now used only in case of emergency.

“Secondly, we increased afforestation in Delhi – we did double then what we were assigned by the Centre. Thirdly, Delhi is the first place to shift towards electric vehicles. These are all long term solutions,” he said.

Delhi govt to deploy 2,500 environment marshals

Rai also said that Delhi government will deploy 2,500 environment marshals across the city to generate awareness about the anti-pollution campaign.

These marshals will be deployed at 100 traffic signals across Delhi’s 11 districts, he said.

The Delhi Environment said the shortlisted traffic signals are those where the red light is two-minute long.

“From October 21 to November 15, a ground-level awareness drive on ‘Red Light On, Gaadi Off’ campaign will be launched at 100 traffic signals. We are in the process of appointing 2,500 environment marshals who will spread awareness about the campaign at these signals. It is an awareness drive, not an enforcement drive,” he said.

“The marshals will adopt the principle of ‘Gandhigiri’. They will give red roses to those not switching off the ignition at red lights. They will be made aware as to why it is important for them to do it and how they can fight pollution through the move,” he added.

The minister also urged all MPs, MLAs and political party leaders to participate in the campaign and spread awareness about it.

Experts say on average a vehicle stops at a red light for 15-20 minutes in a day, consuming 200 ml of fuel. This creates so much pollution. If 10 lakh vehicles switch off ignition at red lights, 1.5 tons of PM10 and 0.4 tons of PM2.5 will be prevented every year, he had said.

Air quality picks up, experts say respite temporary

Date:-20-Oct-2020, Source: hindustantimes.com

The air quality in Gurugram improved to 'moderate' level, clocking an air quality index (AQI) of 192 on the Central Pollution Control Board's (CPCB) daily bulletin, after languishing in the 'poor' and 'very poor' levels over the last week. The city had last reported a 'moderate' AQI, of 187 on October 11.

Experts, however, said that the improvement is a temporary relief, with the air quality likely to deteriorate in the last week of October.

The air quality had improved on Monday as well, recording an AQI of 245 ('poor') in comparison to the AQI of 273 ('poor') recorded on Sunday.

The three air monitoring stations set by the Haryana Pollution Control Board (HSPCB) recorded 'poor' to 'moderate' air quality. The monitor at Sector 51 recorded an AQI of 246 ('poor'), while the monitor at Vikas Sadan (within the Mini Secretariat complex) recorded an AQI of 234 ('poor'). A third monitor at Teri Gram on Gurugram-Faridabad Road, however, recorded an AQI of 131 ('moderate').

An air quality monitor set up by the India Meteorological Department (IMD) at the National Institute of Solar Energy in Gwal Phari recorded an AQI of 169. As per the CPCB's categorization of air pollution, an AQI between 0-50 is considered 'good'. From 51-100, it is 'satisfactory', 101-200 is 'moderate', 201-300 is 'poor', 301-400 is 'very poor' and 401-500 is 'severe'. Prolonged exposure to 'poor' and 'very poor' air quality leads to breathing discomfort and respiratory illness.

Sachin Panwar, a city-based air pollution consultant, said that Tuesday marked the beginning of winter, as the minimum temperature dropped to 11 degrees Celsius. "North-westerly winds are blowing at the speed of 6-10 km/hour, which is not allowing particulate matter to stick to the fog, except the particles which are released through stubble burning or sugarcane thrashing. It is a temporary relief till October 25. PM2.5 (ultrafine particulate matter) concentration will, though, remain high from 4am till proper sunrise."

According to IMD's weekly forecast, the minimum temperature will fluctuate between 11-13 degrees Celsius, while the maximum temperature will remain in the 29-33 degrees Celsius range.

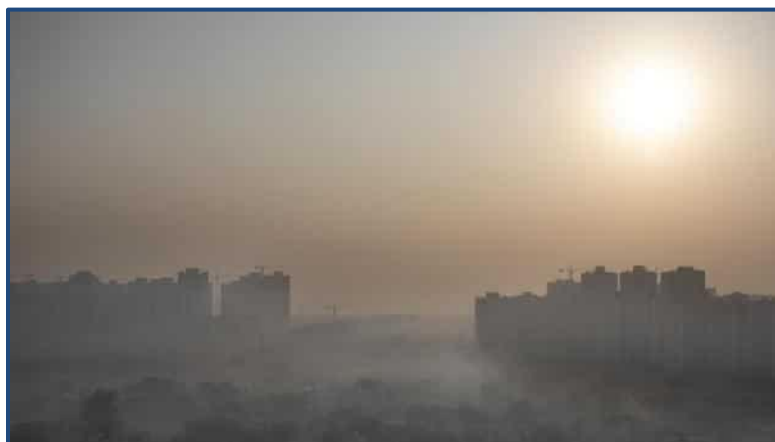
To tackle poor air quality in the city, various government agencies are focusing on the implementation of the Graded Response Action Plan (Grap). On Tuesday, nearly Rs 75,000 was imposed as fines for dust from construction and demolition waste from three defaulters, following inspections at 15 different inspection sites. Fines of Rs 1 lakh have been collected from polluting vehicles, while Rs 20,000 has been collected from those burning waste in the open. The prosecution in only one of these cases is related to unauthorised brick kilns.

India recorded highest air pollution exposure globally in 2019: Report

Date:-21-Oct-2020, Source: hindustantimes.com

The State of Global Air 2020, released Wednesday, said India has been recording an increase in PM 2.5 pollution since 2010 contrary to Centre's claims that annual air pollution levels are reducing in the country.

India recorded the highest annual average PM 2.5 concentration exposure in the world last year, according to the State of Global Air 2020 (SOGA 2020) report released on Wednesday.



Delhi, one of the world's most polluted cities, enjoyed a respite from air pollution until September this year.

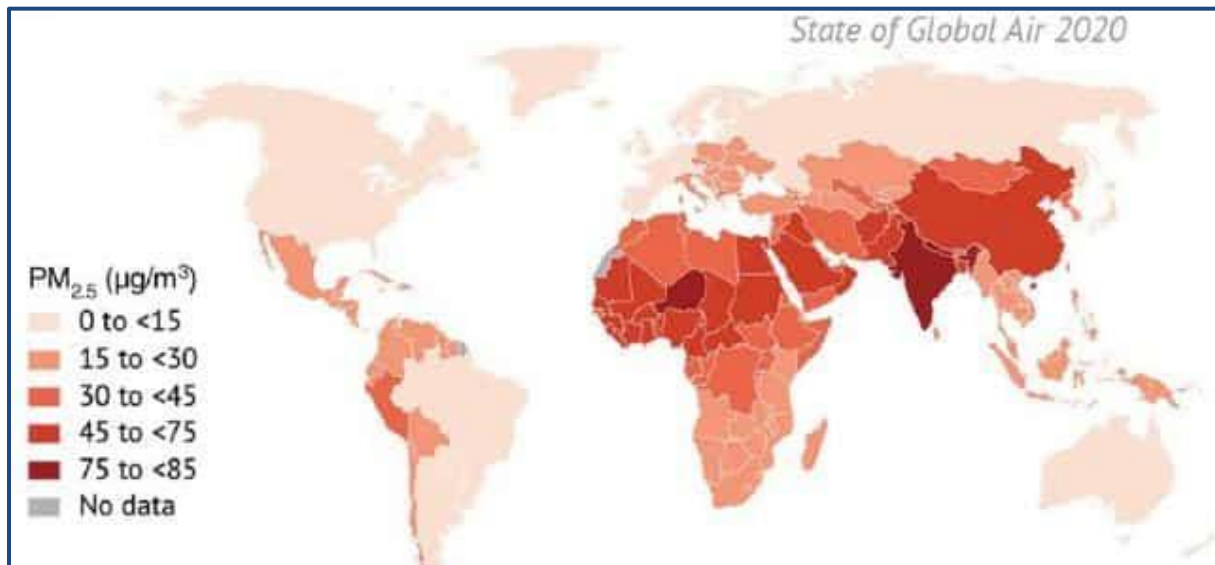
India was followed by Nepal, Niger, Qatar and Nigeria in high PM 2.5 exposures. This means people in India are exposed to the highest PM 2.5 concentrations globally.

The report also said that India has been recording an increase in PM 2.5 pollution since 2010 contrary to Centre's claims that annual air pollution levels in the country are coming down. Out of the 20 most

populous countries, 14 have recorded a gradual improvement in air quality but India, Bangladesh, Niger, Pakistan and Japan are among those that have recorded a modest increase in air pollution levels.

SOGA, released by US-based Health Effects Institute and Global Burden of Disease (GBD), uses both data from ground monitors and satellite to make their assessments. To estimate the

annual average PM_{2.5} exposure, or concentrations, GBD scientists link the concentrations in each block (they divide the globe in blocks or grids) with the number of people living within each block to produce a population weighted annual average concentration.



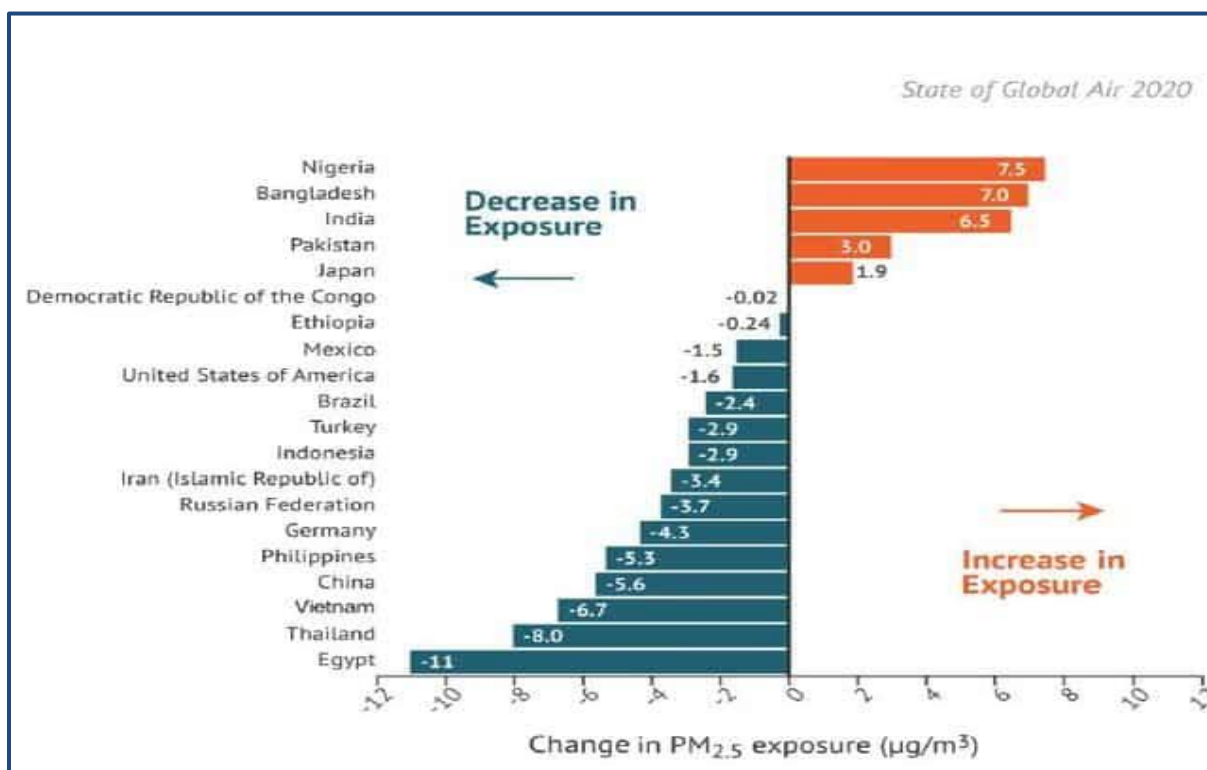
Global map of population-weighted annual average PM_{2.5} concentrations in 2019

Out of 87 health risk factors based on total number of deaths caused in 2019 assessed by the team, air pollution has the fourth highest risk globally preceded by high systolic blood pressure, tobacco and dietary risks. But in India, air pollution is the highest risk factor because of the huge burden of premature deaths it contributes to.

India is also among the top ten countries with highest ozone (O₃) exposure in 2019. Qatar recorded the highest O₃ exposure followed by Nepal and India. Among the 20 most populous countries, India recorded the highest increase (17%) in O₃ concentrations in the past ten years.

On average, global exposure to ozone increased from about 47.3 parts per billion (ppb) in 2010 to 49.5 ppb in 2019. O₃ is a major respiratory irritant which is not released directly into the air but is formed in a complex chemical interaction between nitrogen oxides (NO_x) and volatile organic compounds (VOCs) in the presence of sunlight.

NO_x is emitted from the burning of fossil fuels (oil, gas, and coal) in motor vehicles, power plants, industrial boilers, and home heating systems. Volatile organic compounds are also emitted by motor vehicles, as well as by oil and gas extraction and processing and other industrial activities.



Change in population-weighted annual average PM_{2.5} exposure in the 20 most populous countries, 2010-2019

The only silver lining for India though is that it has managed to reduce the number of people exposed to household air pollution. China reduced the percentage of its population exposed to household air pollution from 54% to 36%, while India reduced its percentage from 73% to 61% over the decade.

Since 2010, over 50 million fewer people have been exposed to household air pollution. The Pradhan Mantri Ujjwala Yojana Household LPG programme and other schemes have helped to dramatically expand access to clean energy, especially for rural households, Health Effects Institute said in a statement.

“At this time, the data indicates that there was a modest increase in outdoor PM_{2.5} levels in India over the last decade. We know from experience elsewhere that the air pollution problem is unlikely to be solved in the short-term. With the National Clean Air Programme and introduction of BS-VI emission standards, India has begun to take steps towards improving air quality and it is critical that the efforts are continued and expanded over the next few years in order to see improvements in air quality. This will require concerted action at both at the national and state and local levels,” said Pallavi Pant, scientist at Health Effects Institute.

Country	PM _{2.5} Concentration (µg/m ³)	95% Uncertainty Intervals*
India	83.2	76.1 to 90.7
Nepal	83.1	62.9 to 107
Niger	80.1	42.2 to 145
Qatar	76.0	59.2 to 96.6
Nigeria	70.4	45.4 to 105
Egypt	67.9	47.8 to 92.8
Mauritania	66.8	37.6 to 108
Cameroon	64.5	43.8 to 92.6
Bangladesh	63.4	55.1 to 73.8
Pakistan	62.6	49.9 to 77.5

* The 95% uncertainty intervals are a measure of scientific uncertainty. They reflect a range of values, from the 2.5th to the 97.5th percentile of a possible distribution of values, within which the true concentration is likely to fall.

Top 10 countries with the highest population-weighted annual average PM_{2.5} exposures in 2019.

“Given the high exposure and staggering health burden of air pollution, India must show urgency and recognise air pollution as a regional-scale problem. The National Clean Air Program should be expanded beyond the urban centres with an air-shed approach prioritising the local and regional mitigation measures to achieve clean air goals for India,” said Sagnik Dey, associate professor, IIT Delhi.

Union environment minister Prakash Javadekar has said in various platforms that Delhi’s air has improved significantly since 2016 while Central Pollution Control Board’s reports suggest

that air pollution in India is towards a decline. Javadekar had said in the Lok Sabha last year

that the government would resolve the toxic air pollution problem in Delhi in less than 15 years—the time Beijing took to curb a similar problem.

Delhi air pollution: AQI remains in poor category; no improvement expected till 24 October, says SAFAR

Date:-22-Oct-2020, Source: firstpost.com

The Delhi government has kick-started its ‘Red Light On, Gaadi Off’ campaign for which it has deployed 2,500 environment marshals at 100 traffic signals.

New Delhi: Delhi's pollution levels remained in the 'poor' category on Thursday morning with the Air Quality Index (AQI) recorded at 254, government agencies said.

Though pollution watchdog Central Pollution Control Board (CPCB) and other agencies forecast improvement in the air quality for Thursday, the AQI remained in the same category as on Wednesday.



According to the CPCB, Delhi's air quality index (AQI) was recorded at 256 on Wednesday. The figures are based on data collected from 34 monitoring stations in the city.

An AQI between 0 and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401

and 500 'severe'.

The Ministry of Earth Sciences' air quality monitor, SAFAR, said calm surface wind conditions prevail over the Delhi region. "It is forecasted that the air quality will be in the 'poor' to marginally 'very poor' on 23 and 24 October," it said.

According to the AQI monitoring mobile application SAMEER, Delhi's 10 monitoring stations recorded "very poor" air quality. These include Mundka with AQI of 365, Wazirpur with 352, Anand Vihar with 306, Narela with 358, Bawana with 320, Rohini 342, Dwarka sector 8 with 332, Vivek Vihar- 313 and Jahangirpuri with AQI of 310.

SAFAR said an increase in stubble fire count was observed around Haryana, Punjab, and neighbouring regions.

"The SAFAR synergised stubble fire counts stood at 1428 for Wednesday. The boundary layer wind direction is not fully favourable for pollutant transport towards the Delhi region. The SAFAR model estimate of stubble burning share in PM_{2.5} is nine per cent for today," it said.

The stubble burning fire counts around Haryana, Punjab and neighbouring regions stood at 849 for Tuesday and its share in Delhi's PM_{2.5} pollution stood at 15 per cent on Wednesday.

The 24-hour average AQI of Delhi was 223 on Tuesday and 244 the day before.

The Delhi government has kick-started its 'Red Light On, Gaadi Off' anti-pollution campaign for which it has deployed 2,500 environment marshals at 100 traffic signals across the city to generate awareness and curb vehicular pollution.

The drive will go on till 15 November from 8 am to 8 pm. It is an awareness drive by the Delhi government and no person will be issued challans, the government has said.

Global Air Pollution Report Says PM 2.5 and Ozone Concentration Continue to Rise in India

Date:-23-Oct-2020, Source: newsclick.in



The recent report – which deals primarily with 2019 data – also accounted for the effect of pollution on children. It estimated that about 4,76,000 infants across the world succumbed due to exposure to air pollution in 2019.

A global study on the state of air pollution paints a poor picture of India's current tryst with particulate matter all around us, with an increase in PM 2.5 levels and ozone concentration. The

saving grace is that household air pollution has registered a significant drop in the country over the past decade.

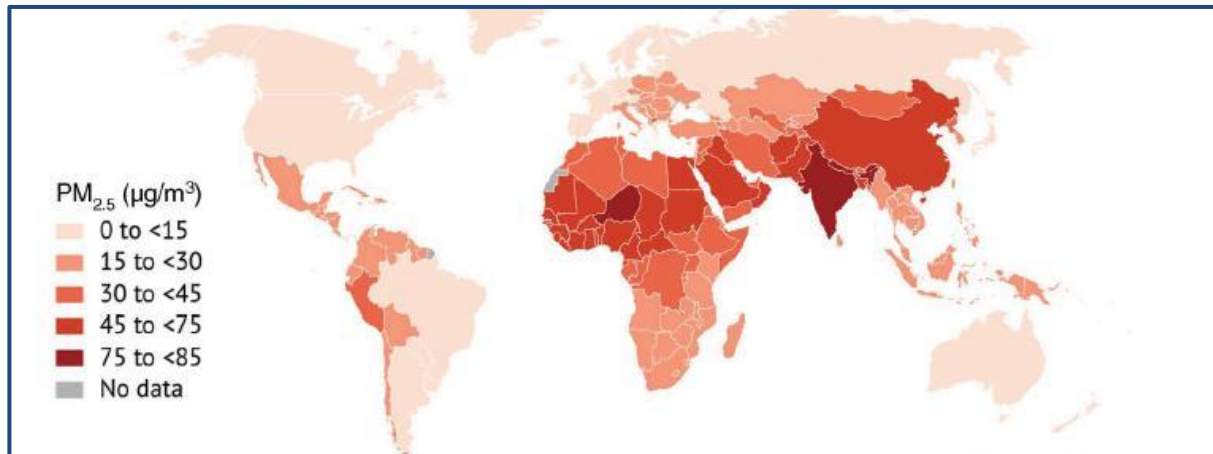
The 28-page report itself, titled State of Global Air 2020 is produced yearly by the Health Effects Institute and the Institute for Health Metrics and Evaluation's (IHME's) Global Burden of Disease (GBD) project.

The recent report – which deals primarily with 2019 data – also accounted for the effect of pollution on children. The GBD estimated that about 4,76,000 infants across the world succumbed due to exposure to air pollution in 2019.

"Infants born in sub-Saharan Africa and South Asia (the Indian subcontinent) have the highest rates of neonatal death attributable to air pollution, from 9,000 to 13,100 per 100,000 live births," the report mentioned.

In 2019, the SoGA report found, over 90% of people across the world were exposed to "annual average PM_{2.5} concentrations that exceeded the WHO Air Quality Guideline of 10 µg/m³. The highest annual average exposures were seen in Asia, Africa, and the Middle East."

The “good news” is that 14 out of the 20-most populous countries of the world did experience a drop in PM 2.5 levels last year, however, “countries with some of the highest exposures in the world — India, Pakistan, and Bangladesh — continue to see increases,” the report added.



Source: State of Global Air 2020

The state of Ozone concentration, which is debilitating to humans as well as food crops, also is a cause for concern. While countries like Ethiopia registered a “steep” 27% increase, “India, Pakistan, and Bangladesh — have also seen some of the greatest increases. India, for example, experienced an increase of about 17% — from 56.5 ppb (95% UI: 56.3 to 56.6) in 2010 to 66.2 ppb (95% UI: 66.0 to 66.3) in 2019.” (ppb- parts per billion)

However, the one metric where India did redeem itself was household air pollution. “China reduced the percentage of its population exposed to household air pollution from 54% to 36%, while India reduced its percentage from 73% to 61% over the decade,” the report noted.

In 2019, air pollution is estimated to have been a major factor behind approximately 6.67 million deaths across the globe, close to 12% of the total deaths worldwide. “Air pollution is the leading environmental risk factor for early death, with its total impact exceeded only by high blood pressure, tobacco use and dietary risks,” the report noted.

Long-term exposure to PM 2.5 particulate matter accounted for about 4.14 million deaths out of the aforementioned number, with 62% of all deaths under air pollution claimed by PM 2.5. India has one of the highest death rates due to PM 2.5, with 96 deaths per 1,00,000 people due to it, the report said. While China is at 81 deaths, countries like Germany (13), the US (8.5), Canada (5.4) and Norway (3.8) rank far lower.

“Globally, the PM 2.5-attributable mortality burden continues to be dominated by the most populous countries in the world — China, which saw 1.42 million PM 2.5-attributable deaths

and India, which saw 9,80,000 PM 2.5-attributable deaths. Together, these two countries account for 58% of worldwide deaths attributed to PM 2.5 in 2019,” the report mentioned.

In terms of deaths attributed to ozone concentrations, India registered an 84% increase as well, with over 76,000 such deaths.

The study also factored in the effect COVID-19 had on air pollution, saying that closed down factories and no cars on the streets only offered “temporary respite”.

Pollution tracks rising fire graph

Date:-24-Oct-2020, Source: hindustantimes.com

The 24-hour average air quality index (AQI) recorded till 4pm on Saturday was 345, down from Friday’s 366. The air quality continued to be in the ‘very poor’ category, a notch below what is considered ‘severe’ – a threshold beyond which exposure could be hazardous for those with vulnerabilities.



Union Ministry of Earth Sciences’s air quality monitoring centre, System of Air Quality and Weather Forecasting and Research (Safar), also credited Saturday’s improvement to weather conditions

Air pollution relented slightly in the national capital region, helped by stronger winds and marginally warmer day temperature on Saturday, although a sustained number of farm fires in neighbouring states meant the situation could take a turn for the worse at any point and the region’s 30 million people were largely at the mercy of weather conditions.

The 24-hour average air quality index (AQI) recorded till 4pm on Saturday was 345, down from Friday’s 366. The air quality continued to be in the ‘very poor’ category, a notch below what is considered ‘severe’ – a threshold beyond which exposure could be hazardous for those with vulnerabilities.

The situation comes at a time when farm fires in Punjab and Haryana recorded their highest numbers yet – it was 1,676 on Thursday and 1,257 on Friday – according to satellite thermal imaging data from United States’s National Aeronautics and Space Administration (Nasa).

Farmers and environmental experts expect more of such fires, which send plumes of micro fine PM2.5 into the atmosphere before it descends and settles over cities, making their way into people's lungs and leading to breathing difficulties and chronic illnesses.

"About 50% of harvesting is done but another half is left. Though fires have been fewer compared to previous years, I think still they haven't stopped completely because a large number of farmers do not have straw management machinery. We are expecting that harvest will be complete by November 15," said Harinder Singh Lakhwal, Bharatiya Kisan Union general secretary, Punjab.

The System of Air Quality and Weather Forecasting and Research (SAFAR) model used by Central Pollution Control Board estimated that farm fires contributed roughly 9% to Delhi's pollution on Saturday, although this estimated is difficult to make.

"It's very difficult to say if farm fires have peaked. If you compare last year's data, peak is yet to come," said Vijay Soni, scientist, IMD (air pollution).

This now leaves the Capital at the mercy of how the weather – the wind speed and the wind direction – changes. "Air quality has improved in Delhi for two reasons — good mixing height and better wind speed. Wind speed was around 8-12kmph on Saturday, even though wind direction was northwesterly. Our models are showing slight improvement in air quality in the next couple of days owing to better mixing height," Soni added.

Union Ministry of Earth Sciences's air quality monitoring centre, System of Air Quality and Weather Forecasting and Research (Safar), also credited Saturday's improvement to weather conditions. "The boundary layer wind direction (the layer where surface friction plays a role in slowing the wind and changing the wind direction) is westerly and wind speed is low. Hence, pollutant transport towards the Delhi region was low," Safar analysis showed.

Environmental experts said the recurring problem underscores the flaw in focussing on pollution control measures only when the situation has already worsened. Anumita Roychowdhury, executive director (research and advocacy), Centre for Science and Environment, said for results to show, agencies will have to work around the year, instead of focussing only on the winter phase of Grap.

"The result of your work will be seen now. Last moment measures will not work. Winter action is only fire fighting," Roychowdhury said, referring to Grap (graded response action plan – a set of curbs on activities such as construction and personal cars that become stricter as the air quality worsens).

Northwesterly winds are what sweep the PM2.5 particles in from Punjab and Haryana. And since air moves in different ways in different layers, there are also complicated local wind patterns that determine what happens to construction dust, tailpipe emissions and gases from any other kind of fires generated in the city.

This has two components: the wind speed and what is known as the mixing height of air and suspended particles above the ground. This height is primarily determined by temperature. When temperature increases, the air expands and pushes the mixing height further, giving pollutants closer to the ground more space to mix with the atmosphere. When the opposite happens, the pollutants get trapped closer to settlements, becoming more concentrated and, thus, raising pollution levels.

Together, these local factors are used to calculate the ventilation index. Saturday's ventilation index was 12,000 m²/s. A ventilation index below 2,350 sq metres/second is considered poor, and it effectively means local pollutants are being trapped.

In Delhi's worst bouts of air pollution recorded till now, it is these local pollutants that mix with pollutants from fires to create a deadly cocktail that is linked to drastically reduced life expectancy in the country.

That situation might still play out, since temperatures are expected to only get colder. IMD data shows that on Saturday, the city's maximum temperature at the Safdarjung observatory, which is considered the official recording of Delhi, was 33.2 degree Celsius — a notch above the season's normal. On Friday, the maximum temperature was 32 degree Celsius.

Air quality 'severe' in parts of Ghaziabad, Greater Noida, 'very poor' in Gurgaon, Faridabad

Date:-25-Oct-2020, Source: indiatvnews.com



Air quality 'severe' in parts of Ghaziabad, Greater Noida, 'very poor' in Gurgaon, Faridabad

The air quality reached “severe” levels in parts of Ghaziabad and Gautam Buddha Nagar on Sunday, while it largely remained in the “very poor” category in Gurgaon and Faridabad in the National Capital Region, according to a government agency.

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Gautam Buddh Nagar on Sunday, while it largely remained in the “very poor” category in Gurgaon and Faridabad in the National Capital Region, according to a government agency.

Concentration of major air pollutants PM 2.5 and PM 10 during the morning hours largely remained in the “severe” category in the four immediate neighbouring districts of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

In Ghaziabad, an AQI of 416 was recorded at the station in Loni followed by 374 at Indirapuram, 354 at Sanjay Nagar and 330 at Vasundhara, according to the CPCB data at 8 pm.

In Gautam Buddh Nagar's Noida, the AQI was 382 at Sector 116 followed by 363 at Sector 62, 356 at Sector 1, while the station at Sector 125 showed “insufficient” data for the last 24 hours.

In Greater Noida, an AQI of 423 was recorded in Knowledge Park V and 350 at Knowledge Park III, according to the CPCB figures.

In Gurgaon, an AQI of 379 was recorded at the station in Sector 51 followed by 329 at Vikas Sadan and 276 at NISE Gwal Pahari, while there was “no sufficient data” for Teri Gram, it showed.

In Faridabad, the AQI was recorded at 366 at Sector 16A, 365 at Sector 30, 363 at New Industrial Town and 319 at Sector 11 at 8 pm.

The concentration of PM 2.5 and PM 10 in Gurgaon, Faridabad, Gautam Buddh Nagar and Ghaziabad around 10 am on Sunday was near or upwards of 400 in the “severe” category, according to the CPCB data.

As a possible health impact, the CPCB states an AQI in the “very poor” category can lead to respiratory illness on prolonged exposure, while “severe” affects healthy people and seriously impacts those with existing diseases.

The worsening of the air quality comes even as the Graded Response Action Plan (GRAP) has been implemented in the Delhi-National Capital Region (NCR) from October 15 to check air pollution, which spikes around this time of the year.

Delhi's air quality 'very poor'; stubble-burning contribution may increase

Date:-26-Oct-2020, Source: tribuneindia.com

New Delhi, October 26

The national capital's air quality was recorded in the 'very poor' category on Monday morning and the share of stubble burning in the city's PM2.5 pollution is likely to increase, according to a central government agency.



Vehicles ply amid hazy weather conditions in New Delhi on Monday, October 26, 2020.

The Ministry of Earth Sciences' air quality monitor, SAFAR, said the wind direction and the wind speed is favourable for the transport of the pollutants from farm fires in Haryana, Punjab, and other neighbouring regions to Delhi.

The contribution of stubble burning in Delhi's PM2.5 concentration was 19 per cent on Sunday, it said.

The City recorded an air quality index (AQI) of 343 at 10 am on Monday. The 24-hour average AQI was 349 on Sunday.

An AQI between 0 and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

Calm winds and low temperatures allow accumulation of pollutants while favourable wind speed help in their dispersion.

The central government's Air Quality Early Warning System For Delhi said the predominant surface wind direction is northwesterly with wind speed up to 12 kmph, favourable for transport of pollutants from farm fires.

A large number of farm fires were observed over Punjab, Haryana and Uttar Pradesh, which is likely to impact Delhi-NCR's air quality, it said.

The air quality warning system said the ventilation index – a product of mixing depth and average wind speed – is likely to be 15,000 metre square per second on Monday – favourable for dispersion of pollutants.

Mixing depth is the vertical height in which pollutants are suspended in the air. It reduces on cold days with calm wind speed.

A ventilation index lower than 6,000 sqm/second, with average wind speed less than 10 kmph, is unfavourable for dispersal of pollutants.

Noida: Slight improvement in air quality

Date:-27-Oct-2020, Source: hindustantimes.com

Favourable meteorological conditions on Tuesday improved the air quality of Noida, Greater Noida and Ghaziabad, however the air quality still hovered within the “very poor” category.

Greater Noida and Noida was the second and third most polluted cities in national capital region (NCR), following Bhiwadi in Rajasthan, on Tuesday. The condition may however, deteriorate over Wednesday and Thursday.

According to the India meteorological department (IMD), the wind speed increased from average 8 kmph on Monday to around 20 kmph on Tuesday leading to proper dispersion of pollutants. This is likely to significantly drop on Wednesday and Thursday.

“Wind speed was good on Tuesday as expected, so the dispersion of the pollutants leads to slight improvement in the air quality. We had recorded an average wind speed of 18 to 20 kmph today of westerly and north westerly directions. However, the wind speed will drop to 8-10 kmph on October 28 and 29,” said Kuldeep Srivastava, head, regional weather forecasting centre, IMD.

He added that good wind speed is expected between October 30 and November 1.

“We expect good wind speed by the month end, which will further help in dispersal of pollutants,” said Srivastava. According to India Meteorological Department (IMD), the maximum temperatures for next three days are expected to hover around 32 degrees Celsius, while the minimum temperatures are likely to hover around 13 degrees Celsius.

According to the data assessed by the Uttar Pradesh Pollution Control Board (UPPCB), the air quality index (AQI) in Noida on Tuesday on a scale of 0 to 500 was 320 against 376 a day before. The AQI of Greater Noida was 332 against 384 a day earlier. The AQI of Ghaziabad was 306 against 365 a day earlier. The AQI between 300 to 399 is considered ‘very-poor’.

Meanwhile, the Knowledge Park-V area of Greater Noida showed marked improvement with an AQI of 316 against 435 (severe) a day earlier. While the second monitoring station of Greater Noida – Knowledge Park—saw an AQI of 327 against 349 a day earlier. The PM10 concentration

of the Greater Noida area dropped from 602.66 microgrammes per cubic metres on Monday to 336.32 units on Tuesday. The standard limit of PM10, or larger suspended particles in air is 60 units.

The average PM2.5 of Noida dropped from 198.67 units a day earlier to 166.88 unit on Tuesday. The PM10 concentration of Noida also dropped from 414.52 units on Monday to 314.30 units. The PM2.5 values of Ghaziabad also improved from 204.18 units to 170.73 units, while the PM10 concentration improved from 361.70 units to 308.71 units.

“Met conditions have favoured the dispersion of pollutant in the region leading to improvement of air quality on Tuesday. Besides, we have also recommended the agencies concerned to intensify the water sprinkling in several areas with heavy construction activities. We also held a meeting with over 40 builders instructing them to take appropriate dust and emission control measures at their respective sites,” said Archana Dwivedi, regional officer, UPPCB, Greater Noida.

Delhi Air Quality Remains ‘Very Poor’; To Deteriorate Even Further Over Next Two Days

Date:-28-Oct-2020, Source: weather.com



Smog engulfs Delhi's India Gate.

Wednesday, October 28: A layer of haze continues to engulf parts of Delhi, which continues to endure ‘very poor’ air quality on Wednesday, October 28.

According to the System of Air Quality and Weather Forecasting and Research (SAFAR), Delhi has recorded an overall air quality index (AQI) of 308 today, which lies towards the lower end of the

‘very poor’ category.

Within the capital, the locality of Jahangirpuri (AQI 348) recorded the highest pollution levels on Wednesday afternoon, closely followed by Bawana (320), Anand Vihar (312), and Mundka (310). On the other hand, Lodhi Road, with a ‘moderate’-level AQI of 189, has registered the purest air in the region on the day.

SAFAR categorises AQIs between 101-200 as 'moderate', 201-300 as 'poor', 301-400 as 'very poor', and those above 400 as 'severe'.

The SAFAR model further adds that while Delhi's overall AQI remains 'very poor', it has marginally improved as compared to the aftermath of Dussehra over the weekend.

But the improvement may not last long, as the surface-level winds in Delhi are expected to slow down, thereby resulting in low ventilation. Therefore, the capital's air quality will deteriorate once again tomorrow, rising to the higher end of the 'very poor' category on Thursday and Friday. The SAFAR model predicts the AQI to be around 352 tomorrow.

The stagnant wind-related non-dispersion of locally generated pollution, combined with the north-northwesterly winds that are bound to bring stubble smoke to Delhi, will combine to increase the PM2.5 levels in Delhi's atmosphere over the next two days.

Meanwhile, the stubble burning across the National Capital Region (NCR) continues to be a governing issue, and it is actively contributing towards a significant spike in north Indian pollution levels. On Tuesday, the SAFAR model observed at least 1830 fires in and around the capital region. And as of October 28, stubble smoke has added 18% to the total pollution in Delhi due to favorable transport-level wind direction and speed.

In an attempt to tackle these issues and improve the air quality, the Delhi government is all set to launch the 'Red Light On, Gaadi Off' campaign in all the 272 wards of the capital from November 2.

Motivating residents to participate in the campaign, Delhi Environment Minister Gopal Rai, on Wednesday, urged people to prompt five of their peers, friends or acquaintances to play their part in reducing the city's pollution by switching their vehicles off while waiting at traffic signals. The minister said that if followed properly, this measure has the potential to reduce around 15-20% of the pollution in Delhi.

According to the recently released State of Global Air 2020 report, air pollution remains the fourth biggest cause of death around the world. In 2019, India alone witnessed about 16 lakh deaths due to air pollution, and therefore, take sufficient measures to control the rising pollution menace is well and truly the need of the hour.

Air quality in certain areas of Kolkata & Howrah turn poor

Date:-29-Oct-2020, Source: deccanherald.com

Air quality in certain areas of the metropolis and neighbouring Howrah city turned poor since Wednesday for the first time in past seven months.

A West Bengal Pollution Control Board official attributed the air quality turning poor to change in weather conditions. While the Air Quality Index (AQI) at the automated air monitoring station at Rabindra Bharati University in north Kolkata was 257 (PM 2.5) at 11 am Thursday, it



Devotees immerse an idol of Goddess Durga in Ganga river after Durga Puja festival, in Kolkata, Wednesday, Oct. 28, 2020.

was 268 (PM 2.5) at around the same time the previous day, breaching the 200 mark (poor) for consecutive two days, the official said.

He, however, said with the retreat of monsoon and onset of winter the fine particulates hang on the air and the AQI shot up as a result. AQI between 201-300 is considered poor in environmental terms and this was the first time since lockdown, that air quality

reached that level, the official said.

At Ghusuri in Howrah, which also records spurt in air quality index during the season of October-March due to congested neighbourhood and existence of many foundries, the AQI showed 241 (PM 2.5) on Thursday, the official said.

In other pockets of Kolkata AQI hovered between 100- 150, termed as moderate by environmentalists, for the past two days. It was 143 at Ballygunje, 136 at Bidhannagar, 150 at Fort William, 157 at Jadavpur and 138 at Rabindra Sarobar on Thursday noon ,the official said.

On Wednesday noon AQI read at 169 at Jadavpur, 201 at Fort William, 161 in Rabindra Sarobar, 144 at Bidhan Nagar. In all these places AQI had not gone over 100 mark in past seven months mostly remaining within 50-70 limits.

Pollution control board chairman Kalyan Rudra said in a press meet last week that November 1 onwards, WBPCB will take measures like spraying water from sprinklers on construction sites to prevent pollutants mixing in air and keep watch on burning of solid waste and crop which aggravate the environmental conditions.

Delhi's Air Quality "Very Poor", Likely To Improve By Saturday

Date:-30-Oct-2020, Source: ndtv.com



Delhi Pollution today: On Thursday, Delhi's air quality index touched 'severe' levels for brief period

Delhi Pollution: According to the Ministry of Earth Sciences' air quality monitoring agency, SAFAR, the share of stubble burning in Delhi's PM_{2.5} pollution was 36 percent on Thursday - the maximum so far this season.

New Delhi: The national capital's air quality was recorded in the 'very poor' category this morning, while a government forecasting agency said some improvement is

likely due to favourable wind speed.

On Thursday, the Delhi's air quality index (AQI) touched 'severe' levels for a brief period before slipping back into the very poor category.

According to the Ministry of Earth Sciences' air quality monitoring agency, SAFAR, the share of stubble burning in Delhi's PM_{2.5} pollution was 36 percent on Thursday - the maximum so far this season.

Delhi recorded an AQI of 380 at 9:30 am. The 24-hour average AQI was 395 on Thursday. It was 297 on Wednesday, 312 on Tuesday, 353 on Monday, and 349 on Sunday.

Several monitoring stations, including at Shadipur (417), Patparganj (406), Bawana (447) and Mundka (427), recorded air quality in the severe category.

An AQI between 0 and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

On Thursday, PM₁₀ levels in Delhi-NCR peaked to 424 microgram per cubic meter (g/m³) at 10 am -- the highest this season so far, according to CPCB data. PM₁₀ levels below 100 g/m³ are considered safe in India.

PM₁₀ is particulate matter with a diameter of 10 micrometers and is inhalable into the lungs. These particles include dust, pollen and mold spores.

The levels of PM2.5 finer particles which can even enter the bloodstream were 231 g/m³. PM2.5 levels up to 60 g/m³ are considered safe.

NASA's satellite imagery showed a large, dense cluster of fires that covered most parts of Punjab and some regions of Haryana.

According to SAFAR, the share of stubble burning in Delhi's PM2.5 concentration was 36 percent on Thursday. It was 18 percent on Wednesday, 23 percent on Tuesday, 16 percent on Monday, 19 percent on Sunday and 9 percent on Saturday.

SAFAR said accumulation of locally generated pollutants and increased external intrusion due to north-north westerly boundary level winds from regions where stubble is burnt were the major factors for the increase in PM2.5 levels.

Extremely calm surface and boundary layer winds along with the low night time boundary layer height resulted in low ventilation practically stagnant, no dispersion condition has resulted in the current situation, it said.

An increase in surface wind speed and better ventilation conditions are likely to "significantly" improve the situation by Saturday, SAFAR said.

According to the India Meteorological Department, the predominant wind direction was northerly and the maximum wind speed was 10 kilometers per hour. The minimum temperature was recorded at 13.1 degrees Celsius. It was 12.5 degrees Celsius on Thursday the lowest in October in 26 years.

Calm winds and low temperatures trap pollutants close to the ground, while favourable wind speed helps in their dispersion.

The city's ventilation index a product of mixing depth and average wind speed is likely to be around 7,000 meter square per second on Friday favourable for dispersion of pollutants.

Mixing depth is the vertical height in which pollutants are suspended in the air. It reduces on cold days with calm wind speed. A ventilation index lower than 6,000 sqm/second, with the average wind speed less than 10 kmph, is unfavourable for dispersal of pollutants. On Thursday, the Centre introduced a new law through an ordinance that put in place a powerful oversight body to curb air pollution.

Under the ordinance released by the Union ministry of law and justice on Thursday, the 22-year-old Environment Pollution (Prevention and Control) Authority (EPCA) has been dissolved and replaced by a powerful commission comprising 18 members.

The Commission for Air Quality Management in the National Capital Region and Adjoining Areas will specifically look at Delhi-NCR and adjoining areas only and it will be binding on the states to follow its directions.

At 365, Delhi's air quality still in 'very poor' zone

Date:-31-Oct-2020, Source: hindustantimes.com



A man wearing a facemask rides his bicycle along a street amid smoggy condition in New Delhi on October 30.

The overall AQI of Delhi on Friday was 374, also in the same category. This was better than Thursday's 395.

Delhi's air marginally improved on Saturday as winds picked up speed and the contribution of stubble fires from the neighbouring states of Punjab and Haryana remained relatively low.

Central Pollution Control Board (CPCB) data shows that the hourly average air quality index of Delhi

at 7am was 365, in the "very poor" category.

The overall AQI of Delhi on Friday was 374, also in the same category. This was better than Thursday's 395. At many monitoring stations, the AQI had entered the severe category on Thursday afternoon. An AQI reading of 301 to 400 is in the "very poor" category and is associated with respiratory illnesses, especially in children and those exposed to the bad air. An AQI of 400-500 is considered "severe".

IMD scientists said that strong winds helped clear off the accumulated pollutants and that winds are expected to be favourable over the weekend.

Kuldeep Srivastava, head of IMD's regional weather forecasting centre, said that the wind speed on Friday remained in the range of 12-15kmph, which helped disperse pollutants.

"For a brief period, the wind speed had even touched 16kmph. On Saturday, the winds will pick up more and we are expecting that the air quality index can even reach the poor zone," Srivastava said. He said that on Sunday too, weather conditions will remain favourable.

November 2020

At 40 per cent, stubble burning's hand in Delhi pollution at season's high

Date:-1-Nov-2020, Source: hindustantimes.com

Last year, the stubble contribution to Delhi's pollution had peaked to 44 per cent on November 1, according to the Ministry of Earth Sciences' air quality monitor SAFAR data.



The Ministry of Earth Sciences' air quality monitor, SAFAR, said 3,216 farm fires were spotted over Punjab, Haryana, Uttar Pradesh and Uttarakhand on Saturday.

The share of stubble burning in Delhi's pollution rose to 40 per cent on Sunday, the maximum so far this season, according to a central government air quality monitoring agency.

The Ministry of Earth Sciences' air quality monitor, SAFAR, said 3,216 farm fires were spotted over Punjab, Haryana, Uttar Pradesh and Uttarakhand on Saturday. The share of stubble burning in Delhi's

PM 2.5 pollution was 40 per cent on Sunday, the maximum so far this season. It was 32 per cent on Saturday, 19 per cent on Friday and 36 per cent on Thursday, the second highest this season so far.

Last year, the stubble contribution to Delhi's pollution had peaked to 44 per cent on November 1, according to SAFAR data.

NASA's satellite imagery showed a large, dense cluster of fire dots covering Punjab and parts of Haryana and Uttar Pradesh. SAFAR said air quality has not improved much despite improved ventilation due to high stubble-related intrusion and trapping of pollutants during night time due to low wintertime boundary layer height. "However, it has not deteriorated further despite favourable North-North-Westerly boundary level wind direction. The highly favourable conditions for fire-related intrusion in Delhi is expected to continue," it said.

SAFAR predicted better ventilation for the next two days but said the AQI is likely to improve only marginally, depending on farm fires. It is set to deteriorate slightly on November 3, it said.

The city recorded an air quality index (AQI) of 370 at 3 pm. The 24-hour average AQI was 367 on Saturday. It was 374 on Friday, 395 on Thursday, 297 on Wednesday, 312 on Tuesday and 353 on Monday.

An AQI between 0 and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

Delhi Air Quality to Deteriorate on Nov 3-4; Northwest India Sees Highest Stubble Burning Activity So Far This Season

Date:-2-Nov-2020, Source: weather.com



Stubble burning at Khuda Lahora Village in Chandigarh.

Monday, November 2: Pollution levels in the National Capital Region have improved marginally at the dawn of the new week, with Delhi recording an overall air quality index (AQI) of 308. However, the next spike in air pollution is just 24 hours away, the latest forecast indicates.

Over the past few days, Delhi had persistently recorded an AQI towards the middle of the 'very poor' category, which houses indices between 301-400. But as of Monday morning, the air in the city has seen a slight improvement, thanks to moderate winds providing some much-needed ventilation and flushing out pollutants from the landlocked capital.

As of 12 noon on Monday, the monitoring station located in Pusa recorded the most polluted air in Delhi with an AQI of 345. It was closely followed by the localities of Jahangirpuri (AQI 342), Alipur (338), and Sonia Vihar (335). On the other hand, Lodhi Road registered the least polluted air in the region for the day, recording a 'moderate'-level AQI of 193.

These marginally improved conditions are likely to persist for the rest of the day, and they might even temporarily drag Delhi's overall AQI down to the higher end of the 'poor' category (AQIs 201-300).

But the refinement won't last long, as the System of Air Quality and Weather Forecasting And Research (SAFAR) has forecast another marginal deterioration in the air quality on Tuesday and Wednesday, which might take Delhi's AQI back to the middle of the 'very poor' category.

Meanwhile, on Sunday, November 1, SAFAR indicated that the stubble burning activity in the neighbouring northwest Indian states had peaked, and its share in Delhi-NCR's pollution levels rose to 40%—the highest so far this season. Even the stubble fire counts across Punjab, Haryana, Uttar Pradesh, Uttarakhand, and other neighbouring areas stood at approximately 3,045 on Sunday.

But luckily, while the winds have been blowing in the north-northwesterly direction, the wind speed remains low, which has restricted the intrusion of stubble smoke in the capital. In fact, the stubble burning share in Delhi's PM2.5 levels has significantly decreased today, and is now down to approximately 16%.

In spite of the high ventilation within the capital and restricted intrusion of stubble smoke, the quality of air across the capital region has remained unhealthy, primarily due to the low night-time winter temperatures trapping the pollutants closer to the surface. And unless the local wind speed picks up, any major improvement in air quality remains unlikely.

India Pollution tracker: Delhi's air quality turns 'very poor' after marginal improvement

Date:-3-Nov-2020, Source: moneycontrol.com



According to the Air Quality Early Warning System for Delhi, the city's ventilation index a product of mixing depth and average wind speed was expected to be around 8,000 metre square per second on Tuesday favourable for dispersion of pollutants.

The national capital's air quality slipped back into the very poor category again on November 3 after recording a marginal improvement. However, the share of stubble burning in Delhi's pollution dropped to 10 percent during the day due to a change in the wind direction, a central government agency said.

Officials at the India Meteorological Department said the air quality had improved on Monday with high wind speed aiding dispersion of pollutants. However, stagnant night-time conditions led to accumulation of pollutants.

The city recorded an air quality index (AQI) of 332 at 10 am. It improved to 302 by 4 pm as wind speed picked up.

The 24-hour average AQI was 293 on Monday which falls in the "poor" category. It was 364 on Sunday, with stubble burning contributing to 40 percent of Delhi's pollution.

An AQI between 0 and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The Ministry of Earth Sciences' air quality monitor, SAFAR, said the share of stubble burning in Delhi's PM 2.5 pollution has "decreased significantly" due to a change in the wind direction and is estimated at 10 percent for Tuesday.

It said 3,068 farm fires were spotted over Punjab, Haryana, Uttar Pradesh and Uttarakhand on Monday.

The boundary layer wind direction became southwesterly on Tuesday morning after a long spell which is unfavourable for the transport of pollutants from farm fires in Punjab and Haryana, according to the agency.

SAFAR said it was a typical example of high fire count and its low impact on Delhi's air quality due to unfavourable transport level winds, "demonstrating how meteorology can play a decisive role".

Stubble burning accounted for 16 percent of Delhi's pollution on Monday and 40 percent on Sunday, the maximum so far this season.

It was 32 percent on Saturday, 19 percent on Friday and 36 percent on Thursday.

Last year, the farm fire contribution to Delhi's pollution had peaked to 44 percent on November 1, according to SAFAR data.

SAFAR has predicted a marginal deterioration in the air quality on Wednesday and Thursday.

According to the India Meteorological Department, the maximum wind speed was 12 kilometers per hour on Tuesday. The city recorded a minimum temperature of 10 degrees Celsius, the lowest in the season so far.

Calm winds and low temperatures trap pollutants close to the ground, while favourable wind speed helps in their dispersion.

According to the Air Quality Early Warning System for Delhi, the city's ventilation index a product of mixing depth and average wind speed was expected to be around 8,000 metre square per second on Tuesday favourable for dispersion of pollutants.

Mixing depth is the vertical height in which pollutants are suspended in the air. It reduces on cold days with calm wind speed.

A ventilation index lower than 6,000 sqm/second, with the average wind speed less than 10 kmph, is unfavourable for dispersal of pollutants.

In a bid to control pollution, the Delhi government has also said that only green firecrackers can be manufactured, sold and used in the national capital in accordance with a 2018 Supreme Court order.

Green crackers' are not as polluting as the conventional types of firecrackers and they contain at least 30 percent less particulate matter such as sulphur dioxide and nitrogen oxide.

Fireworks can take place between 8 pm and 10 pm only on festivals like Diwali and GURPURAB etc. On Christmas eve and New Year eve, it would be from 11:55 pm till 12:30 am only, according to the Delhi Pollution Control Committee.

The National Green Tribunal has also issued notice to the Centre, Central Pollution Control Board, and the governments of Delhi, Haryana, Uttar Pradesh and Rajasthan, asking if crackers could be banned between November 7 and November 30 in the interest of public health and environment.

Air pollution as severe in villages as in urban India, reveals study

Date:-4-Nov-2020, Source: hindustantimes.com



An anti-smog gun sprays water to control air pollution, at ITO in New Delhi on November 3.

The new study, part-funded by NASA, combined satellite data with modelling to estimate levels of small particulate matter that damage health and lead to early death.

Outdoor pollution is not primarily an urban problem and ambient air is as toxic in rural parts of India as in the urban regions, found a new study part-funded by NASA that combined satellite data with

modelling to estimate levels of small particulate matter ($PM_{2.5} > 2.5 \mu m$) that damage health and lead to early death.

In the rest of India, the average PM_{2.5} levels are similar in rural and urban areas, found the study by researchers from the Colorado State University and Indian Institute of Technology Bombay. It found that most people in India (84% of the population) are exposed to pollution well above the limit of India's standard (40 µg/m³), and almost the entire country is exposed to levels higher than the WHO standard (10 µg/m³), with "a long tail of very high concentrations (>160 µg/m³) in the urban regions in the Indo-Gangetic plains and parts of non-urban areas in eastern and western India".

Around 16% of India's population is not affected by this pollution (below 40 µg/m³), and that is mostly confined to the very north-western parts of India, the Western Ghats, and a few regions within India. The fraction that is below the WHO standards is very small (<0.001%), said the study, which has implications for air quality monitoring, regulations, public health, and policy. It was published in the journal, Proceedings of the National Academy of Sciences (PNAS) on Tuesday.

"I was a little surprised (with the results), though our previous work was indicating this. We calculated these using satellite data, so no, there are no significant gaps," said lead author R. Ravishankara, University Distinguished Professor, Departments of Chemistry and Atmospheric Science at Colorado State University, US, in an email.

"Only the very north western part of India appears to be below the threshold for PM_{2.5}. We have used premature mortality as the metric to measure the health impact. In addition to premature mortality, there are other negative impacts such as asthma, hospital visits, medical costs, etc," said Ravishankaran.

The findings are in line with the State of Global Air 2020 report released in October, which said that India had recorded the highest annual average PM_{2.5} concentration exposure in the world in 2019, followed by Nepal, Niger, Qatar and Nigeria.

For the PNAS study, researchers calculated the annually averaged aerosol optical depth (AOD) from three satellite instruments (Methods) that were converted to surface PM_{2.5} abundances using PM_{2.5}:AOD ratios from the GEOSChem chemical transport model. They then compared the satellite-derived daily and annual PM_{2.5} with the surface PM_{2.5} measured by India's Central Pollution Control Board at 20 monitoring sites, most of which were in urban areas.

The annual premature deaths attributable to PM_{2.5} alone for urban and rural India is 1.05 million, found the study, which factored in six causes of death: ischemic heart disease, stroke, lower respiratory infections, chronic obstructive pulmonary disease, lung cancer, and type-2 diabetes.

Long-term exposure to outdoor and household air pollution contributed to over 1.67 million annual premature deaths from stroke, heart attack, diabetes, lung cancer, chronic lung diseases, and neonatal diseases, in India in 2019 according to State of Global Air Report 2020.

The analysis revealed that the risk of premature deaths attributable to PM2.5 is similar in rural and urban regions, but there were more deaths in rural areas as it is home to 69% of the country's population.

"We have used premature mortality as the metric to measure the health impact. These are quantified in the paper. In addition to premature mortality, there are other negative impacts such as asthma, hospital visits, medical costs, etc," said Ravisankaran.

The findings suggest that efforts to monitor and curtail air pollution should not be limited to India's urban areas. Enhancing monitoring and regulation in rural areas, which are virtually non-existent, could help better assess the risks and inform policy for pan-India reduction of PM2.5 levels keeping in mind the rural populations lower ability to reduce risks because of economic reasons.

"The Global Burden of Disease 2019 shows us that possibly 100% of India is exposed to air that is not meeting the WHO guidelines, and anywhere between 69% to 85% of the population is exposed to air that doesn't meet the national standard. Now there is a mix of satellite, chemical transport and ground monitor data to prove this. There are studies now showing that 30% to 50% of outdoor air pollution is contributed by household sources of emissions. The health impacts on both rural and urban populations could range from cardio-respiratory, cardiovascular conditions, diabetes, low birthweight, preterm birth and neonatal mortality," said Kalpana Balakrishnan, the director of the Indian Council of Medical Research Centre for Advanced Research on Air Quality, Climate and Health, Chennai.

"My key message is: Please don't forget non-urban India when dealing with air pollution. The second key message is: Science, measurements, and analyses can help overcome this problem with good information to the policymakers," said Ravisankaran.

Centre's decision to form panel to fight Delhi pollution arbitrary; involving states must for solution

Date:-5-Nov-2020, Source: firstpost.com

The Central government should have taken the decision to form a panel much before the pollution season started.



Air pollution at the National Capital

The Central government has recently come up with the Commission for Air Quality Management in National Capital Region and Adjoining Areas Ordinance, 2020. By this, the Central government has set up a statutory body which will have representatives of the states and the Centre.

After the ordinance, the Supreme Court-mandated pollution watchdog EPCA or Environment Pollution (Prevention & Control) Authority got dismantled and no other agency will now have any authority to monitor the pollution situation of northern India.

Most importantly this ordinance has clearly mentioned that no other court except the NGT will have the authority to listen to cases related to this commission. This sudden decision of the Central government has perplexed authorities who are fighting against air pollution.

In the morning of 5 November, the Central Pollution Control Board website notes that the air quality of Delhi is "severe". Thick haze has engulfed the city and the visibility has gone down severely. At one side the weather condition this year is very different from the last year as Delhi-NCR witnessed the coldest October so far, on the other side the stubble burning in Haryana and Punjab has shown a massive spike.

"As per data by Punjab Remote Sensing Centre (PRSC), around 40,000 incidents of stubble burning have been reported so far this year, said GS Gill, nodal officer, Punjab Pollution Control Board on Wednesday," noted a report in Economic Times.

The real problem lies in the arbitrariness of forming this commission. The pollution in the north Indian states is a well-known issue and it happens every year. The Central government should have taken the decision much before the pollution season.

But the Centre decided and notified the commission on the last week of October when the stubble burning has already started and the air quality worsened. Significantly, the Centre also did not first oppose the Supreme Court's direction to monitor the stubble burning issue by retired judge Justice Madan Lokur. After the direction was passed then the Centre informed the Supreme Court about their plan.

The ordinance passed by the Centre noted, "No other individual, or body, or authority, constituted either under the law enacted by Parliament or by the state government or nominated in terms of judicial order shall act upon or have jurisdiction in relation to the matters covered by this ordinance."

Under the order of the Supreme Court from 15 October-15 March, the Graded Response Action Plan (GRAP) comes into play and the authority to set up the norms of the GRAP was EPCA but the new ordinance has dismantled the existence of EPCA. This shows that the Central government has not lost oversight on the matter of pollution. Without discussing with any of the states of north India the Centre just abolished the agency.

This year the Delhi government rolled out the EV (electric vehicle) policy which is first of its kind in India. This policy is not only about a long term plan of a pollution-free National Capital but also it is motivating the current buyers of vehicles to shift to EV by encouraging various subsidy.

The Delhi government is, on the other hand, the only government in north India which has shut down all the major thermal power units in the National Capital. The AAP government has also launched an awareness campaign called Red Light On, Gaadi Off which is about encouraging people to avoid idling of the vehicles. The Delhi government has also used the Pusa Institute's bio-decomposer technique to convert stubble to manure.

But all these measures can only control the local sources of pollution. The Delhi government has no control over the stubble burning on the neighbouring states of Delhi which causes around 40 percent of Delhi's pollution. An article published in PTI noted, "The share of stubble burning in Delhi's pollution rose to 40% on Sunday, the maximum so far this season, according to a central government air quality monitoring agency. The Ministry of Earth Sciences' air quality monitor, SAFAR, said 3,216 farm fires were spotted over Punjab, Haryana, Uttar Pradesh and Uttarakhand on Saturday. The share of stubble burning in Delhi's PM 2.5 pollution was 40% on."

The Central government should sit with all the state governments this year before the pollution season and find out a solution to stop stubble burning. Despite knowing the risk of pollution during COVID-19 pandemic the Central government has stayed numb.

Earlier in 2019, it was found that the Centre has not sanctioned any fund to the Delhi government to fight pollution under National Clean Air Programme. An article published in Times of India, "The national capital facing severe air pollution+ has not received any funds from the Centre under the 'National Clean Air Programme' despite being among the 102 non-attainment cities, the Rajya Sabha was informed on Monday.

Calling air pollution as one of the biggest global environmental challenges, the Ministry of Environment, Forest and Climate Change in January 2019 launched the National Clean Air Programme (NCAP).

What are the state governments supposed to do now? Should they wait for the commission to act? Should they follow the GRAP? Should they just carry out their own plans? And then what will happen to the citizens?

Noida, Ghaziabad suffer year's highest PM10 and PM2.5 levels during Nov 4 to 6

Date:-6-Nov-2020, Source: hindustantimes.com

Ghaziabad: Noida, Ghaziabad and Greater Noida have fared badly in terms of PM10 and PM2.5 levels as the two primary pollutants were recorded at their highest levels at most of the monitoring stations in the three cities during the past three days, from November 4 to 6.

According to data of the Central Pollution Control Board (CPCB), the PM10 levels at 10 monitoring stations in the three cities spiked up to seven times the standard limits while the PM2.5 levels peaked to up to almost eight times the permissible limits during the period when the air pollution levels started deteriorating.

Officials of the Indian Meteorological Department (IMD) have indicated that the situation is more or less likely to remain same till Diwali. "The prevailing conditions are likely to remain more or less same till Diwali. There will be low wind speeds in range of 8-10 km per hour and the wind direction is likely to change to easterly around November 10-11. Thereafter, one-two days period will see less wind speed and by this time Diwali will arrive," said Kuldeep Srivastava, head of regional weather forecasting centre, IMD.

Starting November 4, Noida, Ghaziabad and Greater Noida have witnessed rising pollution levels with thick pollution cover engulfing the three cities.

CPCB's data assessed by HT indicates that monitoring station of Loni in Ghaziabad recorded highest PM10 and PM2.5 levels in the city with figures of 732.30 micrograms per cubic metre (ug/m3) and 456.59 ug/m3, respectively, during the period November 4 to 5, which is the highest this year so far.

During the same period, Noida's Sector 125 monitoring station also recorded highest PM10 and PM2.5 levels at 721.37ug/m3 and 468.70 ug/m3, respectively. This is also the highest spike in the current year for any of the four stations in Noida city.

For Greater Noida, the highest PM10 levels of the current year were also recorded during the period November 4 to November 5 when the levels were at 612.34 ug/m3 at Knowledge Park V

monitoring station. Greater Noida's highest PM2.5 level of the current year was also recorded at 338.73 ug/m3 during the same period.

The standard limits for PM10 is 100 ug/m3 while for PM2.5 is 60 ug/m3.

"It is likely that the PM10 and PM2.5 levels will further spike during the days before Diwali festival and also during post-Diwali days. Bursting of crackers will have major impact on pollution levels at that time. So, authorities have to take up stringent measures to curb pollution levels at least at local level," said Akash Vashishtha, a Ghaziabad-based environmentalist.

"Further, in case the authorities are contemplating any ban on firecrackers, they should be banned at least up to whole of January from November and not just during days of Diwali," he added.

The officials of the UP pollution control board (UPPCB) said that they have intensified pollution abatement measures at local level. "We have intensified water sprinkling as well as increased vigilance at construction sites, besides continuing with regular measures in order to curb PM10 and PM2.5 levels as they have been high during the current peak," said Praveen Kumar, regional officer of the UPPCB at Noida.

The Ghaziabad officials from the UPPCB said that conditions have largely worsened due to external factors. "The high levels of PM10 and PM2.5 have been observed during the past couple of days. External factors which also include effect of stubble burning have impacted air quality with 42% contribution as per SAFAR forecast on November 5. At local level, we have also intensified our pollution abatement measures and will seek more directions from the district administration to bring more stringent measures if possible," said Utsav Sharma, regional officer of UPPCB at Ghaziabad.

Delhi's Air Quality Remains 'Severe'; Multiple States Imposes Ban on Firecrackers Ahead of Diwali

Date:-7-Nov-2020, Source: weather.com

Saturday, November 7: A week ahead of Diwali celebrations, the pollution levels have continued to worsen in New Delhi. As of Saturday morning, the capital has recorded an overall air quality index (AQI) of 443, according to the System of Air Quality and Weather Forecasting and Research (SAFAR). AQI values above the 400-mark are categorised as 'severe'.



A layer of smog engulfs the Rajpath and Raisena hills in New Delhi.

As per the SAFAR model, the air quality has declined despite moderate day time dispersion conditions. While both local pollution and sustained unusually high fire emissions are responsible for the pollution, the unusually calm surface winds in the morning have caused accumulation of pollutants near the surface.

The share of stubble burning remains the prime concern as SAFAR observed at least 4528 stubble fires in the neighbouring states of Punjab, Haryana, Uttar Pradesh, Uttarakhand on Friday—the highest so far of this season. Overall, this sharp spike is said to have caused the sudden deterioration in Delhi's air quality, as it contributed to 32% of the total pollution in Delhi in the last 24 hours.

Within Delhi, Jahangirpuri locality recorded the highest pollution levels as of 10 a.m. Saturday with a 'severe' AQI of 458, followed by Punjabi Bagh (438), Rohini (433), Vivek Vihar (433), DTU (429), Mundka (425), and Dwarka (407).

The SAFAR model adds that the boundary layer wind direction is northwesterly, which is favourable for the fire-related intrusion to Delhi NCR region. Moreover, the surface winds are expected to decrease on November 8 as well and therefore, the air quality will continue to remain in 'severe' quality. The AQI for Sunday is expected to stand at around 414.

The quick recovery from 'severe' air quality is expected only when the number of fire counts in the neighbouring states of NCR is reduced. Therefore, no significant change is likely to be visible for the next two days and the AQI will remain in 'severe' to the higher end of 'very poor'.

Further, SAFAR has urged Delhiites to avoid all physical activity outdoors while these conditions persist. Being indoors, keeping the windows closed, and wet mopping the homes ought to be practised. In case one experiences any unusual coughing, chest discomfort, wheezing, breathing difficulty, or fatigue, a doctor should be consulted immediately. If heading outdoors is unavoidable, SAFAR recommends wearing N-95 or P-100 respirator masks, and not rely on simple dust masks for protection.

The model also states that fire-related emission is impacting air quality of the entire Indo Gangetic Plains, thus making conditions hard for efficient dispersion of pollutants. As for other cities, Lucknow's Lalbagh area has recorded AQI of 475 followed by Ghaziabad's Loni (442),

Noida's Knowledge Park (438), Haryana's Jind (436) and Kanpur's Nehru Nagar (432). SAFAR categorises AQIs between 201-300 as 'poor', 301-400 as 'very poor' and those above 400 as 'severe'.

Along with Delhi, its neighbouring states Haryana and Chandigarh have also imposed a complete ban on the use of firecrackers to prevent the risk of COVID-19 and to curb air pollution. Moreover, the Union Environment Minister, Prakash Javadekar has stated that all the polluting industries are being monitored 24/7 to control pollution levels ahead of the winter season.

Deteriorating Air Quality in Delhi Led to 13% Increase in COVID-19 Cases: IMA

Date:-8-Nov-2020, Source: weather.com



An anti-Smog gun installed by the Public Works Department (PWD) outside the Delhi Police headquarter as a measure to reduce air pollution, in New Delhi on Nov 4, 2020.

The Indian Medical Association (IMA) on Saturday expressed concern over the deteriorating air quality in the national capital which has coincided with the spike in COVID-19 cases.

The apex medical association of private practitioners estimated that 13 per cent of the rise in COVID-19 cases occurred due to the severely bad air quality in

Delhi while adding that it has increased the severity of the virus infection among patients.

"Environmental air pollution is one of the most important social determinants of health. The air pollution damages the inner lining of lungs and hence increases the severity of COVID-19 infection. In the last few days Delhi has reported more than 6,000 coronavirus cases everyday. 13 per cent of the increase has been estimated to be due to the pollution," the IMA stated.

The association said that the situation has worsened not just for patients of respiratory illnesses but healthy people as well. It also advised that people should avoid morning walks since pollution is at its peak during this time of the day.

Increased air pollution leads to increased inflammatory response and patients who are sensitive to respiratory diseases may find it difficult to breathe if the AQI is between 50 to 100.

"An AQI of above 300 makes it difficult not only for people with respiratory problems, but healthy people as well. Hence, it is advisable that people do not go out early in the morning

when pollution levels are the highest. Merely walking could result in health complications due to the high concentration of particulate matter (PM) 2.5 in Delhi's air," the IMA explained.

The medical association also said that elderly people and children are more likely to develop infections and allergies due to smog.

"Poor air quality may result in the aggravation of asthma, Chronic Obstructive Pulmonary Disease (COPD), high blood pressure and even cardiovascular diseases," it added.

It noted that N-95 masks and air purifiers may not provide full protection until curbs are put on major sources of air pollution in Delhi such as vehicular, industrial and powerhouse emissions, construction, burning of agricultural and municipal wastes, and mining in the Aravalli hill areas.

While stressing the need for the implementation of long-term measures to curb air pollution, the IMA suggested a few measures to improve the air quality in Delhi like the use of public transport, using solar powered, energy efficient products and recyclable products, planting gardens etc.

The dreaded season of air pollution has returned in Delhi-NCR. In the last 10 days the national capital and its satellite towns have seen a sudden sharp spike in air pollution levels.

Delhi's AQI on Saturday remained above 350 while the safe limit is between 0 and 50.

NGT bans firecrackers in places where air quality is "poor"

Date:-9-Nov-2020, Source: thehindu.com



The Delhi government on Thursday decided to ban firecrackers in the national capital.

The National Green Tribunal (NGT) on Monday directed that there would be a total ban on sale or use of all kinds of firecrackers between November 10 and 30 in all cities and towns across the country where the average ambient air quality in November fell under the 'poor' and above category.

A Bench headed by NGT Chairperson Justice Adarsh Kumar Goel also directed that in places where the ambient air

quality fell under the 'moderate' or below category, only green crackers would be permitted to be sold and timings restricted to two hours for bursting of crackers.

The panel specified that data from November 2019 would be calculated to ascertain the average ambient air quality for both the instances.

The Tribunal in its order noted that several States, including Odisha, Rajasthan, Sikkim, Delhi and Chandigarh among others had prohibited the sale and use of firecrackers to protect vulnerable groups such as the elderly, children, persons with co-morbidities among others.

Pointing to submissions from several States requesting that green crackers be allowed, it said, "The request is justified where air quality is moderate and below but not where air quality is poor and above which may result in deaths and diseases which has to be avoided even if there is financial loss."

'Pollution aggravates COVID-19'

"We are also of the view that since we have taken the view that pollution aggravates COVID-19, not only crackers are to be banned or restricted depending upon air quality, all State pollution control boards and committees must take special initiative to contain air pollution by regulating all other sources of pollution," it added.

If timings were not specified by respective States, then use of firecrackers would be permitted between 8 p.m. and 10 p.m. on Diwali and Gurupurb, 6 a.m. to 8 a.m. on Chhat and 11:55 pm to 12:30 am for Christmas and New Year eve (if the ban continues till then), it stated.

The Tribunal also directed the Central Pollution Control Board (CPCB) and the State pollution control boards and committees to regularly monitor the air quality during this period and upload the data on their respective websites.

Delhi's poor AQI not just a winter problem & why Centre can't arm-twist Punjab farmers

Date:-10-Nov-2020, Source: theprint.in

In episode 614 of 'Cut the Clutter', The Print's Editor-in-Chief Shekhar Gupta explains the various factors affecting Delhi's air quality and the Centre-Punjab standoff over farm laws.

New Delhi: Delhi continues to reel under severe air pollution, with a thick blanket of smog over the national capital city. The air quality index (AQI) of the city has crossed the 600-mark, which is considered 'severe'.



Delhi engulfed by toxic smog

In episode 614 of ‘Cut the Clutter’, ThePrint’s Editor-in-Chief Shekhar Gupta explains the various factors behind Delhi’s poor AQI and also the ongoing tussle between the central and Punjab governments.

“One reason this problem (Delhi air quality) is defying a solution year after year is because this also suffers from the Rashomon effect — how one situation can be

described differently by different witnesses, depending on a witness’ own predilections or prejudices,” Gupta said.

He added, “Every time air quality drops, each one of us goes after our favorite targets — diesel, all motor vehicles, even-odd masks, stubble burning in Punjab etc.”

The problem is much larger and complex, not restricted to the Delhi-NCR region, Gupta said. In the list of 20 most polluted cities in the world, India has 15 of them at any given point — they go as far as Varanasi and deep inside Madhya Pradesh. The South Asian subcontinent is badly affected by its air quality throughout the year. That has to do with geography and meteorology, that you cannot change, said Gupta.

IIT-Kanpur study

Gupta said that air pollution is a problem that afflicts all of the North Indian plains. So unless this issue is addressed as one, it cannot be resolved.

A report by IIT Kanpur reveals that the issue of bad air quality in Delhi and North India is much more complicated. The researchers chose six different spots in Delhi and measured pollution levels here. They found that at various points of time in a year, the air quality can be 18 times worse, seven times worse or 4-5 times worse in these areas.

“In terms of an annual average of 365 days, Delhi’s air quality is five times worse than the worst air quality that is considered safe for human beings. So if the limit to what is safe or not too dangerous is 100, then Delhi’s average is 500 over 365 days,” Gupta said.

Lahore’s AQI is much worse than Delhi because the weather pattern is different and stubble burning starts earlier there.

The IIT-Kanpur study also noted that in summer, the large-sized particles, i.e. SPM (suspended particulate matter) 10 is at the level of 500 in Delhi — 52 per cent of it is fly ash and dust — whereas the expected level shouldn't be more than 100.

Stronger summer winds churn up dust and fly ash. Wind directions in winter are different, so we don't see as much fly ash, but in summers they choke our lungs.

The scientists also analysed the large particles and found that these are filled with silicon, alumina and iron, all of which are harmful. A big amount of these large particles in the summer is what is called crustal (they come from the crust of the soil and include dust, fly ash, etc).

In winter, the crustal matter is much less (only 13 per cent) in North India's pollution due to less dust and fly ash. The study also said that it comes from burning 26 per cent of what is called secondary particle combustion, which means burning garbage, leaves and municipal solid waste. Only 2-3 per cent of Delhi's municipal waste is burnt, which then adds to the secondary particle pollution in winter. A lot of this is in the form of carbon and nitrous oxide.

Dust only contributes to 3.5 per cent of the small particle pollution in winters in North India and Delhi. Around 28 per cent also comes from secondary particles, essentially from burning, of which quite a bit comes from stubble burning.

Another 28 per cent secondary particles come from burning, 26 per cent is combustion-related carbon and 7 per cent municipal solid waste. Together, these come down to about 60 per cent.

"The report has 11 specific suggestions. If you follow those, then there are chances of the air quality getting better," Gupta said.

The study said that during Diwali, not only do SPM level double but the levels of barium and potassium also go up 10 times.

Tug of war between Centre & Punjab

"History tells you that Punjab has a very strong regional impulse. There is no way any central government can arm twist Punjab into doing anything," Gupta said.

He added, "Punjab farmers are agitating against the new farm laws and blockading trains. After a while, they said they will relent and let goods trains pass. Central law says that railways are a federal property and so unless all trains are safe to come to Punjab, we won't send selectively."

Punjab was the cradle of the green revolution in India — new methods of agriculture, hybrids and was also home to the country's paddy revolution.

“You cannot sell reforms to Punjab farmers by arm twisting them, not at the point of a blockade. Punjabi farmers know how to fight,” Gupta said, citing the Colonisation Bill the British came up with in 1906.

The bill gave the government the authority to confiscate land of any farmer in Punjab who died without an heir. A big agitation called ‘Pagri Sambhal Jatta’ followed. This movement was led by Lala Lajpat Rai and Ajit Singh, both of whom were sent to exile in Mandalay. Still the Punjabi farmers kept fighting.

India Pollution tracker: Delhi air quality in 'very poor' category after six-day 'severe' streak

Date:-11-Nov-2020, Source: moneycontrol.com



An official of the India Meteorological Department (IMD) said the predominant wind direction is east-northeasterly, which is not favourable for the transport of pollutants from farm fires in Punjab and Haryana.

After remaining in the severe zone for six days on the trot, Delhi's air quality improved slightly on November 11 as a change in the wind direction reduced the contribution of stubble burning to the pollution, though it was still in the very poor category.

The city recorded an air quality index (AQI) of 344. The 24-hour average AQI was 476 on Tuesday. An AQI between 201 and 300 is considered 'poor', 301-400 'very poor' and 401-500 'severe', while the AQI above 500 falls in the severe plus category.

The national capital had witnessed six consecutive severe air quality days till Tuesday. It had recorded seven such days in November last year. The neighbouring cities of Faridabad (327), Ghaziabad (360), Noida (309), Greater Noida (340), and Gurgaon (288), which fall in the National Capital Region (NCR), also recorded their AQI in poor and "very poor" categories on Wednesday.

The Central Pollution Control Board (CPCB) ordered the closure of hot mix plants and stone crushers in Delhi-NCR till November 17 in view of a likely increase in pollution levels during the coming days, when a number of festivals will be celebrated. It also asked the governments of

Punjab and Haryana to take immediate stringent actions to curb stubble burning and authorities in Delhi-NCR to strictly check biomass burning.

The levels of PM_{2.5} which is about three percent the diameter of a human hair and can lead to premature deaths from heart and lung diseases was 177 microgram per cubic meter (g/m³) at 5 pm, below the emergency threshold of 300 g/m³. The safe limit is 60 g/m³.

On Tuesday, PM_{2.5} levels had soared to 528 g/m³ in the afternoon. PM₁₀ level stood at 343 g/m³ at 5 pm. It had peaked at 685 g/m³ on Tuesday, according to CPCB data. PM₁₀ levels below 100 g/m³ are considered safe in India and 500 g/m³ is the emergency threshold.

According to the Graded Response Action Plan (GRAP), the air quality is considered in the severe plus or emergency category if PM_{2.5} and PM₁₀ levels persist above 300 g/m³ and 500 g/m³ for more than 48 hours. GRAP recommends measures such as a ban on construction activities, entry of trucks and car rationing scheme in such a scenario.

The Commission for Air Quality Management in the National Capital Region and Adjoining Areas on Tuesday tasked the CPCB with operationalising and monitoring GRAP measures till a mechanism is set up by the newly-constituted panel. The Ministry of Earth Sciences' air quality monitor, SAFAR, said the change in transport level wind direction has led to a significant decrease in stubble burning-related intrusion in spite of high fire counts.

The farm fire count in Punjab, Haryana, Uttar Pradesh, Uttarakhand and neighbouring areas was 2,422 on Tuesday and the share of stubble burning in Delhi's PM_{2.5} accumulation is almost negligible — 3 percent on Wednesday due to unfavourable transport-level winds, it said. Deterioration (in air quality) is expected on Friday towards the higher end of the 'very poor' category, it said.

An official of the India Meteorological Department (IMD) said the predominant wind direction is east-northeasterly, which is not favourable for the transport of pollutants from farm fires in Punjab and Haryana. The city recorded a minimum temperature of 11.4 degrees Celsius on Wednesday morning. Calm winds and low temperatures trap pollutants close to the ground, while favourable wind speed helps in their dispersion.

The central government's Air Quality Early Warning System for Delhi said, The change in wind direction and wind speed has positively impacted air quality. It is likely to remain in the upper end of the 'very poor' category on Thursday and deteriorate marginally on Friday. Delhi's ventilation index —a product of mixing depth and average wind speed—is likely to be around 12,500 m²/s on Wednesday, favorable for dispersion of pollutants.

Mixing depth is the vertical height in which pollutants are suspended in the air. It reduces on cold days with calm wind speed. The ventilation index lower than 6000 m²/s with an average wind speed less than 10 kmph is unfavourable for dispersion of pollutants.

At Least 12 Indian Cities Endure ‘Very Poor’ Air Quality on Thursday; Several States Ban Firecrackers Ahead of Diwali

Date:-12-Nov-2020, Source: weather.com



Smog engulfs Mumbai

Thursday, November 12: As the festival of Diwali approaches, the burning of firecrackers is set to undergo a rise, which will effectively impact the air quality in several places across India.

In fact, multiple cities located especially in the northern half of the country are already experiencing high levels of pollution, with stubble burning,

construction dust, and vehicular emission contributing to the rise of pollutants in the atmosphere.

According to the Central Pollution Control Board’s (CPCB) daily evening bulletin, the city of Fatehabad in Haryana has recorded the most polluted air across the country on Thursday, November 12, registering an AQI of 404, which falls under the ‘severe’ category.

Several cities from northwest, central and west India follow closely with AQIs in the ‘very poor’ category. These include Bahadurgarh in Haryana (AQI 343), Ghaziabad (328) and Greater Noida (327) in Uttar Pradesh, Sonipat (321) and Hisar (321) in Haryana, Gwalior (319) in Madhya Pradesh, Ankleshwar (315) in Gujarat, Agra (309) in Uttar Pradesh, Jodhpur (308) in Rajasthan, Noida (305) in UP, Faridabad (304) in Haryana, and Bhiwadi (301) in Rajasthan.

AQIs from 201-300 are categorised as ‘poor’; those between 301 and 400 are classified as ‘very poor’, while the ones between 401 and 500 belong to the ‘severe’ category. Prolonged exposure to ‘very poor’ and ‘severe’ quality air may lead to respiratory illness.



Smog engulfs Lucknow.

Meanwhile, other major cities like Ahmedabad, Amritsar, Bhopal, Gurugram, Indore, Jaipur, Lucknow, Navi Mumbai, and Ujjain have all recorded 'poor' quality air on the day.

On the flip side, the cities with purest air include Aizawl (AQI 17) in Mizoram, Amaravati (32) in Andhra Pradesh, Maihar (45) in Madhya Pradesh, and

Visakhapatnam (43) and Tirupati (44) in Andhra Pradesh.

As for Delhi, the capital city as well as the pollution hub of the country, the overall AQI stands at 319, which also lies in the 'very poor' category.

As of Thursday afternoon, pollution levels within the landlocked capital almost touch the 'severe' category, with the air monitoring station located in Delhi's Mundka locality recording an AQI of 388. It was closely followed by stations in Rohini (AQI 381), Shadipur (377), Anand Vihar (374), and Wazirpur (374).

Meanwhile, to prevent the escalation of the pollution situation across the country from bad to worse this Diwali—which is all the more important in the midst of the ongoing COVID-19 pandemic—several states have issued bans on the sale and usage of firecrackers. In addition to Delhi, other states where this ban will be active include West Bengal, Maharashtra, Odisha, Haryana, Karnataka, Rajasthan, Sikkim, Chandigarh, and Uttar Pradesh.

Air quality 'very poor' in Noida, Ghaziabad, Faridabad, Gurgaon

Date:-13-Nov-2020, Source: indiatvnews.com

The air quality deteriorated slightly but stayed in 'very poor' category in Noida, Greater Noida, Ghaziabad, Faridabad and Gurgaon in the National Capital Region (NCR) on Friday, according to a government agency.

The air quality deteriorated slightly but stayed in 'very poor' category in Noida, Greater Noida, Ghaziabad, Faridabad and Gurgaon in the National Capital Region (NCR) on Friday, according to a government agency.



Air quality 'very poor' in Noida, Ghaziabad, Faridabad, Gurgaon

However, the concentration of major air pollutants PM 2.5 and PM 10 remained high in the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200

'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The average 24-hour AQI at 4 pm on Friday was 382 in Ghaziabad, 337 in Noida, 336 in Greater Noida, 324 in Gurgaon and 319 in Faridabad, according to the CPCB's Sameer app.

On Thursday it was 328 in Ghaziabad, 327 in Greater Noida, 305 in Noida, 304 in Faridabad and 293 in Gurgaon.

PM 2.5 and PM 10 were the prominent pollutants in Noida, Greater Noida, Ghaziabad, Faridabad and Gurgaon, according to CPCB.

The CPCB states that an AQI in the 'very poor' category may cause respiratory illness on prolonged exposure, while air quality in the 'poor' zone may lead to breathing discomfort to most people on prolonged exposure.

The AQI for each city is based on the average value of all stations there. Noida, Faridabad, Ghaziabad have four stations each, while Gurgaon has three and Greater Noida has two, according to the app.

Air quality in Delhi, adjoining areas turns 'severe' as people defy cracker ban on Diwali

Date:-14-Nov-2020, Source: indiatvnews.com

Delhi's air quality turned "severe" on Diwali with stubble burning accounting for 32 percent of the city's PM2.5 pollution and calm winds worsening the situation as they allowed the accumulation of pollutants, weather officials said.

Delhi's air quality turned "severe" on Diwali with stubble burning accounting for 32 percent of the city's PM2.5 pollution and calm winds worsening the situation as they allowed the



Air quality in Delhi, adjoining areas turns 'severe' as people defy cracker ban on Diwali

accumulation of pollutants, weather officials said. The Ministry of Earth Sciences' air quality monitor, SAFAR, said, "Even a small increase in local additional emissions is likely to have significant deterioration impact on Sunday and Monday."

It said peak levels of PM10 and PM2.5 are expected between 1 am and 6 am in case of additional internal emissions.

Earlier, it had said that the PM2.5 concentration in Delhi on Diwali is likely to be the "lowest" in the last four years if no firecrackers are burnt.

The city recorded an overall AQI of 414 on Saturday, which falls in the "severe" category.

The 24-hour average AQI was 339 on Friday and 314 on Thursday.

Delhi recorded a 24-hour average AQI of 337 on Diwali last year (October 27), and 368 and 400 in the next two days. Thereafter, pollution levels remained in the "severe" category for three days on the trot.

In 2018, the 24-hour average AQI (281) on Diwali was recorded in the "poor" category. It deteriorated to 390 the next day and remained in the "severe" category on three consecutive days thereafter.

In 2017, Delhi's 24-hour average AQI on Diwali (October 19) stood at 319. It, however, slipped into the "severe" zone the next day.

This time, the India Meteorological Department has said that a fresh western disturbance is likely to increase the wind speed and improve the air quality in Delhi-NCR post Diwali.

Light rain is likely on Sunday under the influence of a western disturbance. It is still to be seen if it is enough to wash away pollutants, Kuldeep Srivastava, the head of the IMD's regional forecasting centre, said.

"However, Delhi-NCR's air quality is likely to improve post Diwali due to an expected increase in the wind speed on Sunday," he said.

V K Soni, the head of the IMD's environment research centre, said calm winds, smoke from farm fires and firecrackers emissions may push the air quality to the "severe" zone on Diwali night.

The wind speed is expected to pick up thereafter and the wind direction will be east-southeasterly, he said.

There will be a significant improvement in air quality by November 16, Soni said.

The Air Quality Early Warning System for Delhi also said the situation is likely to "improve significantly" on Sunday.

"Under the influence of a Western Disturbance, isolated rainfall over plains of northwest India and adjoining central India is likely on Sunday. The predominant surface wind is likely to be coming from East-Southeast direction of Delhi with wind speed up to 20 kmph," it said.

"Generally cloudy sky, light rain, thundershowers accompanied with gusty winds (speed 30-40 kmph) is likely towards afternoon-evening on Sunday," the central agency said.

The Commission for Air Quality Management (CAQM) on Friday directed the CPCB and states concerned to ensure there is no lapse in the implementation of the National Green Tribunal's directions in view of the air quality scenario during the Diwali period.

"In pursuance of NGT order dated November 9 and considering the concerns of air quality scenario in the NCR and its adverse health impact, the Commission directed CPCB, state governments and authorities concerned for strict compliance of the directions of NGT, with zero tolerance on violation," it said.

The National Green Tribunal (NGT) had on Monday imposed a total ban on sale or use of all kinds of firecrackers in the National Capital Region (NCR) from November 9 midnight to November 30 midnight, saying "celebration by crackers is for happiness and not to celebrate deaths and diseases".

A bench headed by NGT Chairperson Justice Adarsh Kumar Goel clarified that the direction will apply to all cities and towns in the country where the average of ambient air quality during November 2019 was in "poor" and above categories.

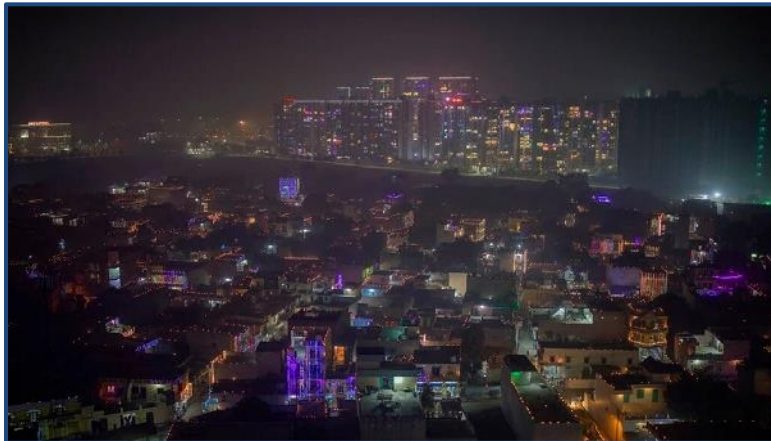
"At other places, restrictions are optional for the authorities but if there are more stringent measures under orders of the authorities, the same will prevail," the NGT had said.

The Central Pollution Control Board (CPCB) had on Wednesday ordered closure of hot mix plants and stone crushers in Delhi-NCR till November 17 in view of a likely increase in pollution levels during the festive season.

It also asked the governments of Punjab and Haryana to take immediate stringent actions to curb stubble burning and authorities in Delhi-NCR to strictly check biomass burning.

Day after Diwali, Delhi records worst air quality in four years as pollution crosses emergency threshold

Date:-15-Nov-2020, Source: firstpost.com



A layer of smog envelops the skyline as residential buildings are decorated with colorful lights during Diwali on Saturday.

The levels of PM2.5, which can lead to premature deaths from heart and lung diseases, were 329 microgram per cubic meter in Delhi-NCR at 7 pm, above the emergency threshold of 300 g/m³.

New Delhi: Delhi recorded the worst air quality in four years on the day after Diwali as pollution levels in the city and its suburbs crossed the "emergency" threshold on Sunday due to the

combined effect of stubble burning and firecrackers.

However, higher wind speed — up to 25 kilometers per hour — and light rainfall under the influence of a fresh Western disturbance brought some relief.

The air quality had turned "severe" on Saturday evening with stubble burning accounting for 32 percent of Delhi's PM2.5 pollution, but firecrackers emissions and calm winds made the situation even worse.

The levels of PM2.5, which is about three percent the diameter of a human hair and can lead to premature deaths from heart and lung diseases, were 396 microgram per cubic meter (g/m³) in Delhi-NCR at 6 am, above the emergency threshold of 300 g/m³.

PM2.5 levels stood at 329 g/m³ at 7 pm. The safe limit is 60 g/m³.

PM10 level stood at 543 g/m³ at 6 am, above the emergency threshold of 500 g/m³, before it started decreasing. It was 441 g/m³ at 7 pm, according to the Central Pollution Control Board (CPCB) data. PM10 levels below 100 g/m³ are considered safe in India.

According to the Graded Response Action Plan (GRAP), the air quality is considered in the "severe plus" or "emergency" category if PM_{2.5} and PM₁₀ levels persist above 300 g/m³ and 500 g/m³ for more than 48 hours.

As per Delhi Pollution Control Committee data, hourly PM₁₀ concentrations soared to 1,636 g/m³ by 1 am at Punjabi Bagh and 1,937 g/m³ by midnight at Jahangirpuri.

A large number of people burst crackers across the National Capital and its suburbs on Saturday night, flouting the ban imposed by the National Green Tribunal.

The tribunal had on Monday imposed a total ban on sale or use of all kinds of firecrackers in the National Capital Region (NCR) from 9 November midnight to 30 November midnight, saying "celebration by crackers is for happiness and not to celebrate deaths and diseases".

The city recorded an overall AQI of 414 on Saturday. It had soared to 454 by 10 pm. On Sunday, the 24-hour average AQI stood at 435 at 4 pm, which was the worst on the day after Diwali in the last four years.

Delhi recorded a 24-hour average AQI of 337 on Diwali last year (27 October), and 368 and 400 on the next two days. Thereafter, pollution levels remained in the "severe" category for three days on the trot.

In 2018, the 24-hour average AQI (281) on Diwali was recorded in the "poor" category. It deteriorated to 390 the next day and remained in the "severe" category on three consecutive days thereafter.

In 2017, Delhi's 24-hour average AQI on Diwali (19 October) stood at 319. It, however, slipped into the severe zone the next day and stood at 403.

According to India Meteorological Department, Delhi-NCR witnessed light rain on Sunday and higher wind speed under the influence of a fresh Western Disturbance which aided in the dispersion of pollutants.

The maximum wind speed was around 25 kilometers per hour on Sunday. It will be around 12 to 15 kmph on Monday — which will be favorable for dispersion of pollutants, Kuldeep Srivastava, the head of the IMD's regional forecasting centre, said.

The Ministry of Earth Sciences' air quality monitor, SAFAR, said the magnitude of PM_{2.5} suggests significant local additional emissions (probably firecracker related) on Saturday night combined with farm fire-related pollutant concentrations led to "such a scenario where hourly average concentrations touched more than 1000ug/m³ at midnight yesterday".

However, the boundary layer wind direction has changed to easterly which is not favourable for stubble fire-related intrusion.

Stubble fires have reduced to around 350 on Sunday compared to around 2,586 a day before. The share of farm fires in Delhi's PM2.5 was around 4 per cent on Sunday.

The Air Quality Early Warning System for Delhi also said the situation is likely to improve significantly on Monday.

Chandigarh Witnesses Improved Air Quality Due to Firecracker-Free Diwali

Date:-16-Nov-2020, Source: weather.com



With Chandigarh saying no to crackers, the city on Sunday saw AQI at 140 against 341 on last Diwali, officials said.

Thanking the residents for cracker-free Diwali on Saturday, the local administration said it was committed to provide a pollution-free environment, and an air action plan is being implemented

in the city to reduce the air pollution.

Keeping in view the need to check the spread of COVID-19 pandemic and to avoid inconvenience to affected persons and persons with other respiratory issues, the administration had banned the sale and bursting of crackers.

The ambient air quality data collected for the city is the testimony to the fact that the citizens of Chandigarh stood to the occasion for the cause of health and environment, the administration said in a statement.

The results indicated that there was remarkable reduction in air pollution in comparison to last year despite the fact that last year, Diwali was on October 27, when the air pollution is comparatively less than November, it said.

From the data captured from the Continuous Ambient Air Quality Monitoring Station (CAAQMS), it is observed that there is drastic reduction in AQI (Air Quality Index) from 341 (very poor) in 2019 to 140 (moderate) in 2020.

The ambient air quality data recorded on Diwali was almost equivalent to the data captured on normal days before Diwali.

However, it has been observed during the past years that the AQI worsens drastically on Diwali day, compared to the normal days recorded prior to Diwali. During 2019, the AQI on normal day was 110 compared to 341 on Diwali day, it said.

Likewise, remarkable observation has also been made in the ambient noise levels wherein maximum noise level recorded during Diwali was 66.6 dB (A) Leq. against the maximum value of 79.8 dB(A) Leq. recorded in 2019.

Air quality improves in NCR, returns to 'moderate' levels at Noida, Ghaziabad, Faridabad

Date:-17-Nov-2020, Source: indiatvnews.com

The air quality improved further to reach "moderate" levels at Noida, Greater Noida, Ghaziabad and Faridabad, while it stayed in the "poor" category in Gurgaon on Tuesday, according to a government agency.

The air quality improved further to reach "moderate" levels at Noida, Greater Noida, Ghaziabad and Faridabad, while it stayed in the "poor" category in Gurgaon on Tuesday, according to a government agency. According to the Central Pollution Control Board's (CPCB) Sameer mobile application, the average 24-hour air quality index (AQI) was 166 in Ghaziabad, 172 in Faridabad, 178 in Noida, 186 in Greater Noida and 204 in Gurgaon at 4 pm.

An AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

On Monday, the average AQI was 186 in Faridabad, 207 in Ghaziabad, 226 in Greater Noida, 243 in Noida and 246 in Gurgaon, showing a drastic improvement over the previous day due to a spell of rain in the National Capital Region (NCR).

On Sunday, the average AQI was 448 in Ghaziabad, 441 in Noida, 417 in Greater Noida, 425 in Gurgaon and 414 in Faridabad.

According to the CPCB, an AQI in the "poor" category may cause breathing discomfort to most people on a prolonged exposure, while a "moderate"

AQI may cause such discomfort to people with asthma, lung and heart diseases.

The AQI for each city is based on the average value of all air quality-monitoring stations there. Noida, Faridabad and Ghaziabad have four such stations each, while Gurgaon has three and Greater Noida two, according to the app. PTI KIS RC.

COVID-19 Restrictions Reduced Global Nitrogen Dioxide Concentrations by Nearly 20%: Study

Date:-18-Nov-2020, Source: weather.com

Using computer models, NASA researchers have found that since February, the COVID-19 pandemic restrictions have reduced global nitrogen dioxide (NO₂) concentrations by nearly 20 per cent. Nitrogen dioxide is an air pollutant that is primarily produced by the combustion of fossil fuels used by industry and transportation.



Pandemic-related shutdowns have affected how people act, so scientists began monitoring how that's affected the planet — specifically nitrogen dioxide emissions.

Since the COVID-19 pandemic began, space- and ground-based observations have shown that Earth's atmosphere has seen significant reductions in some air pollutants.

However, scientists wanted to know how much of that decline can be attributed to changes in human activity during pandemic-related shutdowns, versus how much would have occurred in a pandemic-free 2020.

"We all knew the lockdowns were going to have an impact on air quality," said study lead author Christoph Keller with Universities Space Research Association (USRA) at NASA's Goddard Space Flight Center in the US.

The model simulation and machine learning analysis took place at the NASA Center for Climate Simulation. Its "business as usual" scenario showed an alternate reality version of 2020—one that did not experience any unexpected changes in human behaviour brought on by the pandemic.

The difference between the model simulated values and the measured ground observations represents the change in emissions due to the pandemic response.

The researchers received data from 46 countries—a total of 5,756 observation sites on the ground—relaying hourly atmospheric composition measurements in near-real time.

On a city-level, 50 of the 61 analysed cities show nitrogen dioxide reductions between 20-50 per cent.

"In some way, I was surprised by how much it dropped. Many countries have already done a very good job in lowering their nitrogen dioxide concentrations over the last decades due to clean air regulations, but what our results clearly show is that there is still a significant human behaviour-driven contribution," Keller added.

Delhi's air quality poor as farm fire share increase again

Date:-19-Nov-2020, Source: indiatvnews.com



Delhi's air quality was recorded in the "poor" category on Thursday as the share of stubble burning in the city's pollution increased to 20 percent.

Delhi's air quality was recorded in the "poor" category on Thursday as the share of stubble burning in the city's pollution increased to 20 per cent. Government agencies

said the air quality may dip to the "very poor" category on Friday and improve slightly on Saturday due to favourable surface wind speed.

Delhi's 24-hour average air quality index was recorded at 283. It was 211 on Wednesday and 171 on Tuesday.

An AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

According to the Ministry of Earth Sciences' air quality monitor, SAFAR, stubble burning accounted for 20 per cent of Delhi's PM2.5 pollution on Thursday. It was 8 per cent on Wednesday and 3 per cent on Tuesday.

A total of 967 fire fires were observed in Punjab, Haryana and western Pakistan on Thursday, it said.

The central government's Air Quality Early Warning System for Delhi also said Delhi-NCR's air quality is likely to remain in the "poor" to the lower end of the "very poor" category on Friday.

SAFAR also said the conducive meteorological environment created after rainfall is slowly retreating and a deterioration in the air quality is likely.

The minimum temperature settled at 9.4 degrees Celsius on Thursday - the lowest this season so far - and the maximum wind speed was predicted to be 10 kmph, according to the India Meteorological Department.

Calm winds and low temperatures trap pollutants close to the ground, while favourable wind speed helps in their dispersion.

Delhi's ventilation index - a product of mixing depth and average wind speed - was around 7,000 m²/s on Thursday and is likely to be 12,000 m²/s on Friday.

Mixing depth is the vertical height in which pollutants are suspended in the air. It reduces on cold days with calm wind speed.

A ventilation index lower than 6,000 sqm/second, with the average wind speed less than 10 kmph, is unfavourable for dispersal of pollutants.

The IMD had earlier said the minimum temperature in Delhi will drop to 9 degrees Celsius by Saturday, as cold winds have started blowing from hilly regions, which have witnessed a fresh bout of snowfall.

The minimum temperature this month, barring on November 16, has remained 2-3 degree Celsius below normal in the absence of a cloud cover, according to IMD officials.

Delhi to Endure 'Very Poor' Air Next Week After An Unusually Pollution-Free Post-Diwali Phase

Date:-20-Nov-2020, Source: weather.com

Despite a plethora of restrictions this year, Diwali 2020 too was marked by severe-plus levels of air pollution. Along with the continued bursting of firecrackers, unfavourable meteorological conditions, stubble burning and local pollution transformed the capital into the virtual gas chamber last weekend—an annual occurrence in November.

In the week following Diwali, however, Delhi and other northern parts of the country have witnessed drastically low pollution levels. In fact, no Indian city recorded a 'very poor' Air Quality Index (AQI) on November 17 and 18, as per the Central Pollution Control Board (CPCB)'s real-time updates. This improvement was largely down to the season's first western

disturbance, whose approach to north India on Sunday was followed by stronger winds and rainfall activity in many parts of north and northwest India.

However, this relief is likely to be temporary, with the overall air quality across the northern region expected to worsen again in the days to come. As for Delhi-NCR in particular, the overall AQI has already deteriorated to a 'poor' 250 on November 19, and might end up falling into the 'very poor' category from Friday onwards, predicts the System of Air Quality and Weather Forecasting And Research (SAFAR).

This deterioration will be down to two factors: firstly, the boundary layer wind direction being northwesterly will result in stubble smoke entering the capital from surrounding regions. As per SAFAR's satellite data, the number of stubble fires in the neighbouring states has risen once again after the dip during Diwali, and currently stands around 967.

To add to the stubble plumes, the calm surface winds within Delhi-NCR will provide minimal ventilation, thereby failing to blow the polluted air out of the landlocked capital.

On Friday and Saturday, contrary to last weekend, Delhiites may experience a marginal improvement in their city's overall AQI, which will nevertheless remain within the 'very poor' category. This minor yet positive change will be a result of improved ventilation conditions caused by the acceleration of local surface winds.

The Air Quality Early Warning System for Delhi has taken a more optimistic outlook in its forecast, as it forecasts the capital city's AQI to fall somewhere between the 'moderate' (AQIs 101-200) and 'poor' (AQIs 201-300) categories over this weekend. But next week, by November 25-26, the overall AQI shall return to the upper ends of 'very poor'.

Overall, as far as the winter months are concerned, the pollution levels are bound to remain high as compared to other times of the year.

This is because during winters, when there's also a drop in mercury levels as well as solar radiation, the emitted pollutants fail to disperse into the higher atmosphere and stay near the ground, affecting the breathing air quality—a phenomenon that is referred to as the winter inversion.

Therefore, a respite from toxic air during this season is only to be expected when the wind direction and speed remains favourable, or when the region experiences moderate to heavy rainfall activity produced by a western disturbance.

Air quality improves but remains in 'poor' category in Noida, Ghaziabad, Gurgaon, Faridabad

Date:-21-Nov-2020, Source: indiatvnews.com

The air quality improved on Saturday but remained in the "poor" category in Noida, Greater Noida, Ghaziabad, Gurgaon and Faridabad in the National Capital Region (NCR), according to a government agency.

The air quality improved on Saturday but remained in the "poor" category in Noida, Greater Noida, Ghaziabad, Gurgaon and Faridabad in the National Capital Region (NCR), according to a government agency. Presence of pollutant PM 2.5 also remained high in the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The average 24-hour AQI at 4 pm on Saturday was 256 in Gurgaon, 246 in Faridabad, 238 in Ghaziabad, 231 in Noida and 228 in Greater Noida, according to CPCB's Sameer app.

On Friday, it was 325 in Ghaziabad, 306 in Noida, 314 in Greater Noida, 297 in Faridabad and 275 in Gurgaon.

The CPCB states that an AQI in the "poor" category may cause breathing discomfort to most people on prolonged exposure, while in the "very poor" category, it may may cause respiratory illness on prolonged exposure.

The average AQI on Thursday was 305 in Ghaziabad, 207 in Noida, 315 in Greater Noida, 255 in Faridabad and 284 in Gurgaon.

On Wednesday, it was 236 in Ghaziabad, 207 in Noida, 228 in Greater Noida, 172 in Faridabad and 141 in Gurgaon.

The average AQI on Tuesday was 166 in Ghaziabad, 172 in Faridabad, 178 in Noida, 186 in Greater Noida and 204 in Gurgaon.

On Monday it was 186 in Faridabad, 207 in Ghaziabad, 226 in Greater Noida, 243 in Noida and 246 in Gurgaon, showing drastic improvement over the previous day due to a spell of rain in the NCR.

On Sunday, the average AQI was 448 in Ghaziabad, 441 in Noida, 417 in Greater Noida, 425 in Gurgaon and 414 in Faridabad.

The AQI for each city is based on the average value of all stations there. Noida, Faridabad, Ghaziabad have four stations each, while Gurgaon has three and Greater Noida two, according to the app.

Delhi's air quality 'poor', likely to deteriorate further

Date:-22-Nov-2020, Source: indiatvnews.com



Delhi's air quality 'poor', likely to deteriorate further

Delhi's air quality remained "poor" on Sunday and government agencies said it is likely to deteriorate further due to unfavourable meteorological conditions.

Delhi's air quality remained "poor" on Sunday and government agencies said it is likely to deteriorate further due to unfavourable meteorological

conditions. The city's 24-hour average AQI was 274 on Sunday. It was 251 on Saturday, 296 on Friday, 283 on Thursday and 211 on Wednesday.

An AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

The central government's Air Quality Early Warning System for Delhi said Delhi-NCR's air quality is likely to deteriorate to the "very poor" category on Monday due to unfavourable meteorological conditions.

The predominant surface wind direction was northwesterly and the maximum wind speed 12 kmph on Sunday, it said, adding that the wind speed is likely to drop to eight kmph on Monday.

The central agency said the AQI is likely to deteriorate to the upper end of the "very poor" category between Tuesday and Friday.

As many as 649 farm fire counts were observed over Punjab, Haryana and adjoining regions on Saturday, according to the Ministry of Earth Sciences' air quality monitor, SAFAR.

Stubble burning accounted for 12 per cent of Delhi's PM_{2.5} pollution on Sunday. It was 13 per cent on Saturday, 15 per cent on Friday, 20 per cent on Thursday and eight per cent on Wednesday.

The minimum temperature settled at 6.9 degrees Celsius on Sunday, the lowest in the month of November in 17 years, according to IMD.

Calm winds and low temperatures trap pollutants close to the ground, while favourable wind speed helps in their dispersion.

Delhi's ventilation index -- a product of mixing depth and average wind speed -- was around 6,500 m²/s on Sunday and is likely to drop to 1,500 m²/s on Monday and Tuesday.

Mixing depth is the vertical height in which pollutants are suspended in the air. It reduces on cold days with calm wind speed.

A ventilation index lower than 6,000 sqm/second, with the average wind speed less than 10 kmph, is unfavourable for dispersal of pollutants.

Earlier in the day, Delhi Environment Minister Gopal Rai said the Public Works Department has installed 23 anti-smog guns and deployed 150 tankers for water sprinkling at key intersections and construction sites to reduce dust pollution.

Delhi's Air Quality Remains 'Poor'; Set to Deteriorate Further This Week

Date:-23-Nov-2020, Source: weather.com



Monday, November 23: After relatively low pollution levels last week, Delhi's air quality continued to witness deterioration over the weekend and now lies in the 'poor' category on Monday.

According to the System of Air Quality and Weather Forecasting and Research (SAFAR), Delhi has recorded an overall air quality index (AQI) of 297 today—marginally less than 'very poor', which refers to AQI values from 301 to 400.

As of Monday at 2 pm, Jahangirpuri recorded the highest pollution levels in the capital with an AQI of 370. In fact, 14 out of 34 monitoring stations in Delhi have already entered the 'very poor' category on Monday, as per the Central Pollution Control Board (CPCB) data. Jahangirpuri was followed by Wazirpur(AQI 333), Ashok Vihar (326), and Nehru Nagar (AQI 324). On the other hand, Lodhi Road recorded the purest air quality in the region with 'moderate' AQI of 188.

The CPCB categorises AQIs between 201-300 as 'poor', 301-400 as 'very poor' and those above 401 as 'severe'. According to the SAFAR model, the overall air quality of Delhi remains 'poor' and is expected to further deteriorate into 'very poor' category in the latter half of Monday.

Ventilation is forecast to be lower due to the slow winds, deteriorating the air quality further. According to SAFAR, boundary layer winds are moderate and are blowing in the northwesterly direction which is favourable for the intrusion of pollutants into the capital. As a result, the AQI is likely to deteriorate towards the high end of the 'very poor' category by Tuesday and is likely to stay at the same level on November 25.

The air quality may further deteriorate to 'Severe' category in a few locations for a brief period on Wednesday.

Stubble burning has decreased to 149 fires and its share in Delhi's pollution is less than 6 per cent on Monday thanks to calm winds. If the stubble burning count increases, then the air quality could deteriorate further. If not, then marginal improvement is expected by 26th November.

Delhi Government on Sunday said that it has installed 23 anti-smog guns at key places across the city to fight the pollution. Delhi Environment Minister Gopal Rai said that the Public Works Department (PWD) has also been asked to sprinkle water on trees, construction sites and roads to minimize dust pollution, and 150 water tankers have been deployed as a part of this drive that began on October 17.

Gurugram least polluted in NCR although city air remains toxic

Date:-24-Nov-2020, Source: hindustantimes.com

Air quality in the city remained "poor" on Tuesday, recording 296 on the Central Pollution Control Board's (CPCB) daily air quality index (AQI) bulletin, up from 285 the previous day in the same category. Gurugram was the least polluted city in the National Capital Region (NCR) with the AQI in Delhi and Noida staying in the "very poor" category. Ghaziabad stayed in the "severe" category.

Experts attributed the poor AQI to slow wind speeds due to which pollutants couldn't be dispersed.

The level of ultrafine particulate matter 2.5 (PM 2.5), which has a diameter of 2.5 microns or less (PM 2.5), the city's primary pollutant, was 243.38 micrograms per cubic metre ($\mu\text{g}/\text{m}^3$) on Tuesday, as per the CPCB's air quality monitor at Vikas Sadan in Sector 11.

According to the early air quality warning system for Delhi-NCR, the air quality is likely to deteriorate further and remain in the "very poor" category on Wednesday. The air quality is expected to improve but remain in the "very poor" category on Thursday.

Gurugram's minimum temperature settled at 9.6 degrees Celsius on Tuesday, according to the India Meteorological Department's (IMD) Palam Observatory in Delhi, which, according to the MeT department officials, gives a fairly accurate reading of the city's weather. The IMD's automatic weather station (AWS) did not record the city's minimum temperature on Tuesday. The city recorded a maximum temperature of 23.8 degrees Celsius, as per the Palam observatory.

Kuldeep Srivastava, head of IMD's regional weather forecasting centre, said that temperature will continue to be in a similar range on account of a western disturbance over the next 2-3 days. "After the western disturbance passes, cold winds will again start blowing from the region and the mercury is again set to dip from November 27," said Srivastava.

As per IMD's weekly forecast, the maximum temperature will hover around 23 degrees Celsius while the minimum temperature is expected to stay at eight degrees. As per the weekly forecast, fog and mist will prevail in the morning hours on Wednesday followed by partly cloudy skies later during the day.

Meanwhile, Delhi's air quality took a turn for the worse on Tuesday, sparking fears that meteorological conditions and local pollution sources could choke the city for days yet again. Government agencies have forecast that the air quality could enter the 'severe' zone on Wednesday.

The city's air quality index (AQI) on Tuesday settled at 379, in the upper end of the "very poor" zone, according to CPCB's recordings at 4pm. Ghaziabad emerged as the most polluted city in the country for the third consecutive day. Experts pointed out that since stubble burning count from other states had reduced considerably, local pollutants now have a major impact over the air quality.

City air on the verge of 'very poor' zone, rain to improve AQI on Thursday

Date:-25-Nov-2020, Source: hindustantimes.com

Air quality in the city remained in the 'poor' zone on Wednesday, with a reading of 299 on the Central Pollution Control Board's (CPCB) daily air quality index (AQI) bulletin, marginally worse than the AQI of 296 recorded the previous day. Experts attributed the lack of improvement in air quality to local factors and slow wind speeds, due to which pollutants couldn't be dispersed.

Gurugram remained the least polluted city in the National Capital Region (NCR) for the second consecutive day, as the AQI in neighbouring Delhi, Noida and Ghaziabad worsened to the 'severe' category, while Faridabad was in the 'very poor' category.

Kuldeep Srivastava, head of India Meteorological Department's (IMD) regional weather forecasting centre, said that since Gurugram was located to the south, local factors, such as geography and relatively better dispersion of pollutants, might have played a role in keeping the air quality marginally better than other NCR cities. "Wind direction and location play a role due to which there might be a variation in the air quality of different cities. When we look at Palam or Gurugram, towards the south, the dispersion is slightly higher, whereas places such as Delhi are densely populated and vehicular emissions are also higher, due to which dispersion doesn't take place properly. Comparatively, winds also slightly faster on the outskirts," said Srivastava.

The level of ultrafine particulate matter having a diameter of 2.5 microns or less (PM_{2.5}), the city's primary pollutant, was at 243.38 micrograms per cubic metre (µg/m³) on Wednesday, as per the CPCB's air quality monitor at Vikas Sadan in Sector 11. The PM_{2.5} level was almost four times the permissible limit of 60µg/m³.

According to the early air quality warning system for Delhi-NCR, the air quality is likely to improve significantly and reach the lower end of 'poor' category on Thursday, with a chance of light rain. The air quality is likely to improve further but remain in the 'poor' category on Friday.

"Since stubble burning has decreased these days, the air pollution is mostly due to local factors and emissions from industries. The pollutants are not getting dispersed on account of slow wind speed," said Srivastava.

The minimum temperature of Gurugram increased by two degrees on Wednesday, to settle at 11 degrees Celsius, as per IMD data, up from a minimum temperature of 9.6 degrees Celsius on Tuesday. The city recorded a maximum temperature of 22.6 degrees Celsius on Wednesday, which decreased by one degree from the day before, according to the IMD's Palam observatory

in Delhi, which, according to the MeT department officials, gives a fairly accurate reading of the city's weather.

The IMD's automatic weather station (AWS) did not record the city's maximum temperature on Wednesday.

Srivastava said that the minimum temperature would remain in a similar range on Thursday while very light rain may occur in a scattered manner in some parts. "The city might see very light rain or drizzling on account of the western disturbance on Wednesday night or Thursday morning. The temperature won't be affected much and will stay around 10-11 degrees Celsius in Gurugram," said Srivastava.

He said that while the minimum temperature had stayed in a similar range over the past two days, the maximum temperature had fallen by a degree or two. "Due to a cloud cover, the maximum temperature might fall marginally on Thursday. The minimum temperature will stay in a similar range," said Srivastava. He said that the temperature would again dip from November 28-29 once the western disturbance passes.

As per the IMD's weekly forecast, the maximum temperature will hover around 24 degrees Celsius while the minimum temperature is expected to stay at 13 degrees. As per the weekly forecast, clear skies will prevail on Thursday.

India's Outdoor Air Pollution Is as Bad in Villages as in Cities: Study

Date:-26-Nov-2020, Source: theswaddle.com



India's rural inhabitants are just as exposed to outdoor air pollution as their city-dwelling counterparts, a new study has found.

Published in Proceedings in the National Academy of Sciences this month, the study was partially funded by NASA. The researchers studied satellite data indicating concentrations of small particulate matter across the country and analyzed it against

population densities.

They found that exposure to air pollution was similar for both city and village-dwellers — in both cases, not meeting the World Health Organization’s healthy-air guidelines — with “a long tail of very high concentrations in the urban regions in the Indo-Gangetic plains and parts of non-urban areas in Eastern and Western India.”

The study found that “household cooking with solid fuels” is a significant contributor to outdoor pollution in rural areas. The paper also cited stubble burning, brick kilns, coal-fired factories, agricultural processing, power generation, cement factories, and cottage industries as other sources responsible for polluting the air in non-urban areas.

Pervasive pollution comes with a wide range of health risks for India, which already reported in 2019 the highest number of infant deaths due to air pollution in the world.

“The health impacts on both rural and urban populations could range from cardio-respiratory, cardiovascular conditions, diabetes, low birthweight, preterm birth and neonatal mortality,” Kalpana Balakrishnan, the director of the Centre for Advanced Research on Air Quality, Climate and Health at the Indian Council of Medical Research, told Hindustan Times. Balakrishnan was not involved in the study.

To understand the health risks better, the researchers focused on premature deaths caused by air pollution in India. They found that while the risk itself was similar in both rural and urban areas, the number of pollution-related premature deaths was higher in rural areas, since 69% of the population lives there.

“Only the very northwestern part of India appears to be below the threshold for PM2.5.... In addition to premature mortality, there are other negative impacts such as asthma, hospital visits, medical costs, etc.,” noted the study’s lead author, Professor Akkihebbel Ravisankara, who specializes in chemistry and atmospheric science at Colorado State University.

“My key message is: Please don’t forget non-urban India when dealing with air pollution. The second key message is: Science, measurements, and analyses can help overcome this problem with good information to the policymakers,” Ravisankara concluded.

Stubble burning rose by over 20% this year: Air quality commission official

Date:-27-Nov-2020, Source: business-standard.com

Stubble burning incidents saw a steep rise of more than 20 per cent this year in comparison to the last two years, a factor which plays a significant role in spiking pollution levels in the Delhi-NCR.



Stubble burning incidents saw a steep rise of more than 20 per cent this year in comparison to the last two years, a factor which plays a significant role in spiking pollution levels in the Delhi-NCR, K J Ramesh, member of the newly formed commission for air quality management, said on Friday.

Ramesh said the 'Air Quality Management in the National Capital Region and Adjoining Areas' has started discussions with stakeholders and he exuded confidence of coming up with an "acceptable and suitable solution" to combat air pollution by next year.

He said 2018 recorded 51,751 incidents of farm fires from mid-October to November end. This figure was the highest between 2010-2018, he said. The number dropped marginally to 50,738 a year later.

"This year, 73,000 cases of farm fires were reported until November 17," Ramesh, who was the former director general of the India Meteorology Department, said citing a study done by the Air Pollution Action Group.

Ramesh was speaking at a webinar on 'Clean Air Management for Public Welfare'. The webinar was organised by the Indian Institute of Tropical Meteorology, a research body under the Ministry of Earth Sciences. IITM has launched several initiatives like SAFAR (System of Air Quality and Weather Forecasting And Research) to track air pollution.

Farm fires or stubble burning post-harvest season during October-November in the states of Punjab, Haryana, Uttar Pradesh, Rajasthan significantly contribute to the pollution levels in Delhi-NCR.

Last month, the Centre announced formation of the Air Quality Management in the National Capital Region and Adjoining Areas.

The members include a chairperson, a representative of Environment secretary and five ex-officio members who are either chief secretaries or secretaries in charge of the environment departments of Delhi, Punjab, Haryana, Rajasthan and Uttar Pradesh.

It also has two full-time members who have been joint secretaries to the central government, three full-time independent technical members who have specific scientific knowledge

regarding air pollution, one technical member from Central Pollution Control Board (CPCB), one technical member nominated by ISRO and three members of NGOs having experience in matters concerning combating of air pollution.

Ramesh, who is the one of the technical members, said the commission began its work from November 16.

"Our work is to develop a common understanding on the issues of concern for Delhi's (Delhi-NCR) air quality by taking all states and central government ministries into assessment, understanding the process and evolving the most acceptable approach to emission reduction in Punjab, neighbouring states of Uttar Pradesh...."

He said the commission has started interactions with various groups in Delhi, with the Central Pollution Control Board, IMD and Indian Agricultural Research Institute's microbiology group where the bio-decomposer option is being talked about and tested at selected field sites.

"We had a very detailed briefing from member of the EPCA (Environment Pollution [Prevention and Control] Authority), Sunita Narain.

"With everybody's effort, the most acceptable and suitable solution for air quality improvement would emerge, definitely by next year. The target is to show some substantive changes with which the commission is working," he said.

Increased dust, air pollution increasing COPD cases post lockdown

Date:-28-Nov-2020, Source: ehealth.eletsonline.com



Amid fear and uncertainties, Covid 19 pandemic has given us a less polluted environment. The lockdown imposed throughout the country has improved the air quality over the past few months. However, post the relaxation of lockdown, the pollution levels are increasing due to people taking out their vehicles even for a short commute.

The fear of spreading infection through the public transport system and walking on the road has forced many to use their vehicles even for small tasks like going to the supermarket or visiting a nearby vegetable store.

With winter starting, pollution and Diwali might worsen the situation with increasing COPD problems along with existing COVID 19.

Chronic Obstructive Pulmonary Disease (COPD) is a condition that limits the airflow in and out of the lungs. Certain substances and change in weather can cause COPD problems or can flare up the condition. Cold, windy weather combined with air pollution can worsen the condition. A drop in temperature affects the lungs and prolonged exposure to cold weather further affects the respiratory system.

COPD is an umbrella term for lung diseases that can manifest in the human body without showing any symptoms for many years. The biggest risk factor being smoking. Indoor and outdoor pollution and genetic risk factors alpha, antitrypsin defenses are also responsible for development of COPD. COPD patients can get frequent exacerbation based on severity of lung infection. The condition majorly makes breathing difficult by showing symptoms like shortness of breath and cough in some people. Most people attribute these symptoms to aging ignoring the possibility of lung problems.

How to recognize COPD?

Shortness of breath especially during physical activities

- Wheezing
- Chest tightness
- Persistent cough with phlegm
- Frequent respiratory infections
- Lack of energy
- Unintended weight loss
- Swollen ankles
- Tiredness

These symptoms might increasingly get worse over time and make the situation difficult to perform day to day activities.

With COVID 19 posing respiratory-related problems, people suffering from COPD and Asthma are at a higher risk of developing complications during winter. Also, the resumption of construction activities has posed challenges to the environment by increased dust accumulation

leading to a drop in air quality. Smog, stubble burning is also adding to the poor air quality. The environment which was cleaning itself and improving during the lockdown is worsening with the relaxation.

It is crucial for people with lung problems to take the necessary precautions during the season.

Managing COPD in winter

- It is advised to cover the face with the mask when you step out during winter. It will also help in avoiding any sort of infection like cold, flu, cough etc
- Keep yourself hydrated throughout the day
- Reduce exposure to any kind of smoke
- Keep your indoors free of dust, pet dander
- Avoid crowded places

Asthma, bronchiectasis, anemia also show similar symptoms of COPD. A simple breathing test is enough to identify the difference. Taking the necessary precautions and timely treatment helps in managing COPD.

City shivers at 7.5 degrees Celsius; air quality drops further

Date:-29-Nov-2020, Source: hindustantimes.com

The city recorded its lowest minimum temperature of this season at 7.5 degrees Celsius on Sunday — three degrees below the previous day's minimum temperature of 10.5 degrees Celsius. Sunday's minimum temperature was also three degrees below the normal for this time of the year. The city recorded a maximum temperature of 24.5 degrees Celsius on Sunday.

IMD officials on Sunday said that below-normal minimum temperatures are likely over most subdivisions of north, northwest, central and few subdivisions over east India during the winter season — December to February — this time. As per the IMD's weekly forecast, the maximum temperature will hover around 25 degrees Celsius while the minimum temperature is expected to stay at 9 degrees on Monday. As per the weekly forecast, clear skies will prevail on Monday.

The city's air quality stayed in the "poor" category for the second consecutive day on Sunday, recording a reading of 242 on the Central Pollution Control Board's (CPCB) daily air quality index (AQI) bulletin — a fall from Saturday's AQI reading of 204. Experts attributed the deterioration to slow wind speeds due to which pollutants couldn't be dispersed.

The level of ultrafine particulate matter having a diameter of 2.5 microns or less (PM 2.5) — the city's primary pollutant — also increased and was recorded at 143.9 micrograms per cubic metre ($\mu\text{g}/\text{m}^3$) on Sunday, as per the data by CPCB's air quality monitor at Vikas Sadan in Sector 11. The concentration of PM2.5 pollutants on the previous day stood at 109 $\mu\text{g}/\text{m}^3$.

According to the early air quality warning system for the National Capital Region (NCR), the air quality is likely to remain in the very poor category on Monday and Tuesday owing to unfavourable meteorological conditions for the dispersal of pollutants.

In the national Capital, air quality also deteriorated as a consequence of a marginal increase in farm fires in neighbouring states and slower winds over the region, government agencies said. As per the CPCB, the AQI for Delhi was recorded at 256 on Sunday, up from 231 the previous day, both categorised as "poor".

Sachin Panwar, a Gurugram-based independent air quality scientist, said that the air quality had deteriorated on account of slow winds due to which pollutants couldn't be dispersed. He said that with falling temperature in the morning hours and thermal inversion, the air quality is expected to deteriorate further as the temperature falls. "As winter sets in, the morning temperature will fall day by day. Right now, since the presence of fog is not significant; the air quality is still better. Once the fog starts setting in, air quality will become poorer due to greater accumulation of pollutants," said Panwar.

November 2020 third-warmest month for Mumbai in over 10 years

Date:-30-Nov-2020, Source: hindustantimes.com



People standing in the Hazy weather near the Bandra Worli Sealink in Mumbai

However, last year was the warmest November in over a decade since 2009 when the minimum temperature did not fall below 20 degrees Celsius.

November ended up being one of the warmest months over the past decade for Mumbai. The weather bureau on Monday said cooler conditions are expected owing to a drop in temperatures for Mumbai from the third week of

December.

According to the India Meteorological Department (IMD), the Santacruz weather observatory, representative of the suburbs and Mumbai, recorded the minimum temperature below 20 degrees Celsius only twice this month at 19.2 degrees Celsius on November 10 and 19.7 degrees Celsius on November 7. For the rest of the month, the minimum temperature ranged between 20 and 24 degrees Celsius, making November 2020 the third-warmest month in over a decade.

However, last year was the warmest November in over a decade since 2009 when the minimum temperature did not fall below 20 degrees Celsius at all. The second warmest month was 2010 when the minimum did not drop below 19.4 degrees Celsius. November 2020 equalled the lowest minimum recorded in 2018 of 19.2 degrees Celsius.

KS Hosalikar, deputy director-general (western region), IMD said, “the minimum temperatures this November did not show any declining trend this year. The trend has been similar over the past three to four years. However, the maximum temperatures during November exhibited a very good decreasing trend in south Mumbai and the suburbs. As per climate models, temperatures in Mumbai are expected to drop from the second fortnight of December.”

Over the past 12 years, from 2009 to 2020, the lowest minimum temperatures have hovered between 14 and 19 degrees Celsius. The all-time coldest day for the month was on November 19, 1950, when the minimum temperature dropped to 13.3 degrees Celsius.

Last month, the maximum temperature was 36 degrees Celsius on November 15 and 17, the highest temperature for the season at Santacruz. However, the maximum temperature has been 37.6 degrees Celsius on November 4, 2018, the all-time highest day temperature for the month. At the Colaba weather observatory, representative of south Mumbai, the highest maximum temperature was 35 degrees Celsius on November 14 and the lowest minimum temperature did not drop below 22 degrees Celsius (on November 11). “The morning nip, however, during the first two weeks of the month was pleasant,” said Hosalikar.

On Monday, the minimum temperature recorded at Santacruz was 2.3 degrees above normal at 22.2 degree Celsius. At Colaba, the minimum temperature stood at 23.5 degrees Celsius, 1.5 degrees above normal. The maximum temperature was at the normal mark in south Mumbai at 33.2 degrees Celsius, and 34.6 degrees Celsius in the suburbs, which was 1 degree Celsius above normal. Humidity levels were 90 per cent in south Mumbai and 73 per cent in the suburbs.

Meanwhile, the air quality index (AQI) was recorded at 99, falling under the satisfactory category, according to the System of Air Quality Weather Forecasting and Research (SAFAR). None of the 10 locations in Mumbai were in the poor category. Worli had the cleanest air with the AQI at 43 (good). An AQI of 97 (satisfactory) has been predicted for Tuesday.

December 2020

Air quality 'severe' in Ghaziabad, 'very poor' in Noida, Gurgaon, Faridabad

Date:-1-Dec-2020, Source: indiatvnews.com



Air quality 'severe' in Ghaziabad, 'very poor' in Noida, Gurgaon, Faridabad

The air quality plunged to 'severe' level in Ghaziabad, while it remained 'very poor' across Noida, Greater Noida, Faridabad and Gurgaon, according to data provided by a government agency on Tuesday.

The air quality plunged to 'severe' level in Ghaziabad, while it remained 'very poor' across Noida, Greater Noida, Faridabad

and Gurgaon, according to data provided by a government agency on Tuesday. The presence of pollutants PM2.5 and PM10 also remained high in the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The average 24-hour AQI at 4 pm on Tuesday was 424 in Ghaziabad, 388 in Greater Noida, 387 in Noida, 335 in Faridabad and 311 in Gurgaon, according to CPCB's Sameer app.

On Monday, it was 298 in Faridabad, 291 in Gurgaon, 346 in Noida, 349 in Greater Noida and 377 in Ghaziabad.

On Sunday, it was 236 in Faridabad, 242 in Gurgaon, 268 in Noida, 273 in Greater Noida and 300 in Ghaziabad.

The CPCB states that an AQI in the 'very poor' category may cause respiratory illness on prolonged exposure, while that in the 'severe' zone affects even healthy people and seriously impacts those with existing diseases.

The AQI for each city is based on the average value of all stations there. Noida, Faridabad, Ghaziabad have four stations each, while Gurgaon has three and Greater Noida two, according to the app.

National Pollution Control Day 2020: Studies highlight link between particulate matter, AQI and COVID-19

Date:-2-Dec-2020, Source: firstpost.com



Air pollution. Image courtesy Prami.ap90/Wikimedia Commons

As more and more research is conducted, scientists might discover more about the link between air pollution and COVID-19.

On 2 December 1984, India witnessed one of the world's worst industrial disasters. The Bhopal Gas Tragedy affected the lives of over 600,000 people due to a leak of at least 30 tonnes of

methyl isocyanate gas from the pesticide factory of Union Carbide India Ltd. Every year, the Indian National Pollution Control Day is observed on 2 December to honour the lives lost that day and to renew attention and campaigns to fight pollution in the country.

In 2020, National Pollution Control Day falls around the end of a year marked by a global health crisis - the COVID-19 pandemic. It's very important to understand that pollution, especially air pollution, has a severe impact on our lives. When combined with an ongoing pandemic that is still going strong in India, the need to highlight and understand the dangerous association between COVID-19 and air pollution is crucial.

The state of air pollution in India

The rising air pollution levels in India are a huge cause of concern. The winter months usually see a critical spike in the air quality index (AQI), especially in and around the states where crop stubble is burnt. Despite partial or complete firecracker bans, the festive seasons of Dussehra-Diwali inevitably witness AQI deteriorations. But outdoor air pollution apart, indoor air pollutants are also on the rise.

According to the State of Global Air 2020 (SoGA 2020) under the Global Burden of Disease project, particulate matter (PM) air pollution is now the biggest health risk in India. The report

states that more than 116,000 infants die every year in the country due to outdoor and household PM pollution. In 2019, long-term exposure to outdoor and household air pollution contributed to over 1.67 million deaths from stroke, heart disease, heart attack, diabetes, lung cancer, chronic lung disease and neonatal diseases. This state of air pollution and associated risks proves that the Indian population already has high exposure to air pollutants, which is well known to lead to slow and steady lung damage.

How air pollution contributes to COVID-19

Come 2020 and you have to add COVID-19 — a respiratory viral infection that has a huge impact on the lungs, heart and brain — into the equation too. A 2003 study in Environmental Health found a positive correlation between both short- and long-term exposure to ambient air pollution and the SARS epidemic in China, suggesting that viruses that predominantly affect the respiratory system cause severe disease in populations exposed to air pollution. Preliminary studies about SARS-CoV-2 and air pollution have found a similar link.

A study published in Environmental Pollution in June 2020 found that areas of Italy that had high levels of air pollution exposure also reported a higher number of COVID-19 patients developing acute respiratory distress syndrome (ARDS) and eventually dying. The study clearly showed that prolonged exposure to air pollution leads to chronic inflammatory stimulus even in young and healthy people, which in turn leads to chronic respiratory conditions that leave the lungs and body vulnerable to severe COVID-19 infection. The risks associated with PM pollution and COVID-19 are graver still, as other studies indicate.

Can PM pollution fuse with SARS-CoV-2?

A study published in Science Advances by researchers at the Harvard TH Chan School of Public Health in November 2020 suggests that someone living in an area with long-term exposure to high PM pollution has a roughly 11 percent increased risk of dying from COVID-19 infection and its severe complications. While the absence of individual-level data of air pollution exposure could not help the scientists pinpoint any causal specificities about how exposure leads to higher odds of dying from COVID-19, the study clearly shows that there's a clear and present mortality threat when air pollution and COVID-19 coexist.

The findings of a study published in Environmental Research in September 2020 is even more alarming. A team of Italian researchers hypothesized that SARS-CoV-2 may be present in PM and conducted experiments to evaluate this link. They found that the ribonucleic acid (RNA) and gene structure of SARS-CoV-2 virus could indeed fuse with PM, providing the first evidence that PM and similar aerosols that cause air pollution can actually work as carriers for COVID-19. Another study in the International Journal of Environmental Research and Public Health

suggests that searching for SARS-CoV-2 RNA in PM can help researchers predict where an outbreak or wave of COVID-19 is going to hit next.

As more and more research is conducted, scientists might discover more about the link between air pollution and COVID-19. In the meantime, it's urgent that policymakers and health agencies take strict steps to help control air pollution levels to not only minimise long-term health risks but also to curb the risk of spikes in COVID-19 cases.

Three cities of Bihar continue to wait for cleaner air

Date:-3-Dec-2020, Source: india.mongabay.com

- The clean air action plan was implemented in three non-attainment cities of Patna, Gaya and Muzaffarpur in April 2019 but progress on the front has been slow according to environmentalists.
- Some medical experts and the local residents claim that the increasing air pollution is contributing to severe impacts to health.
- Solid waste and bio-medical waste is one of the reasons for emissions as waste being burnt openly is adding to the emissions in the air.

Seventy-year-old Raj Kumar Yadav suffers from breathlessness and was admitted to a hospital twice in three months. He often wakes up in the dead of night spending hours coughing and reeling with a severe headache. Yadav, who was a labourer till a few years ago, is now completely dependant on his children for survival. He blames the mountain of garbage close to his house for his deteriorating health.

His two-storey house is just a few metres away from a 74-acre dumping ground at Ramachak-Bairiya village on the Patna-Gaya road in Patna, the state capital of Bihar. He says that the filthy air has been making him ill, "The situation is worse than hell. Heaps of garbage without any segregation is dumped and even burnt here every day. The poisonous gases emanating from the waste are causing severe diseases among the locals. But none seems to be bothered. Even during polls, political leaders refuse to campaign here because of the putrid smell," he says before coughing up again.

Local residents say they believe that several among them could be diagnosed with severe pulmonary diseases in case their medical examinations are done. "It often becomes difficult to stay inside the houses due to filthy air. The pungent smell simply refuses to go away. It's everywhere starting from our food, utensils and even in our clothes. The government has left us to die," rued Lal Charan Shukla, 45, a local shopkeeper.

Rising cases of lung cancer

Medical experts claim that they have observed an increase in the cases of lung cancer in Bihar and attribute air pollution as being one of the major reasons for it. “We used to receive around 19,000 cases of lung cancer annually in 2015 which has now jumped to 25,000 cases, that includes 7.4 percent male and 4.2 percent female patients,” said Dr. Arun Kumar, senior scientist at Mahavir Cancer Sansthan and Research Centre, one of the premium cancer hospitals in Patna that gets patients from across the state.

“Sadly, majority of the patients, however, come in the third and fourth stages of cancer where recovery is almost impossible. They cannot be blamed as most of them face no health complications and continue to live a normal life. It’s too late when they come here. Rising air pollution is obviously one of the reasons for the increasing lung cancer cases in Bihar,” said Kumar.

He further claimed that around 60,000 fresh lung cancer cases are detected every year in the state of which 50 percent succumb due to detection in final stages.

A released by Greenpeace South Asia, a non-profit environmental organisation, had declared Patna, the seventh most polluted city in the world and sixth in the country in 2019. Muzaffarpur, another city in Bihar, was 13th in the report.

The most dangerous aspect of the report was the dramatic increase in PM 2.5 levels – tiny pollutants in air that infect lungs and could cause cancer.

As per 2018 World Air Quality jointly compiled by IQAir, AirVisual and Greenpeace, the annual level of PM 2.5 – particulate matter less than 2.5microns – was 119.7 micrograms at Patna, which is regarded as unhealthy air.

Monitoring air quality

Bihar has 11 Air Quality Index (AQI) monitoring stations in the state located at Patna (6), Gaya (2), Muzaffarpur (2) and Vaishali (1) districts.

The clean air action plan by Bihar State Pollution Control Board (BSCB) that came into effect in April 2019 in non-attainment cities of Patna, Gaya and Muzaffarpur remains mostly on papers.

The clean air action plan had identified road dust, vehicular emission, domestic fuel burning, open waste burning, construction activities and industrial emissions as major sources of air pollution.

The action plan had recommended various measures to improve the condition that included, restriction on plying and phasing out of 15 years old commercial diesel-driven vehicles,



Brick kilns are the major source of air pollution in Bihar

promotion of e-rickshaws, tree plantations along the roads, introduction of cleaner fuels (CNG/LPG) for vehicles, covering of construction sites among others.

The time target for various activities in the action plan range from short-term (to be implemented in 2019) to long-term (going up to 2024), varying

from city to city.

Environmental organisations tracking the implementation of clean air action plan in three non-attainment cities of Bihar have expressed displeasure over the performance so far. “We have been campaigning for the drafting of clean air action plan since 2015. Finally, it became a reality last year after a long battle. But nothing visible has been done on the ground yet,” pointed out Ankita Jyoti, Senior Programme Officer, Centre for Environment and Energy Development (CEED), an environment organisation that has been campaigning for clean air, specifically “a systematic clean air action plan for Patna with well defined targets and timeline that frame a comprehensive public health policy.”

“There is a complete absence of transparency and accountability in its implementation coupled with lack of community involvement. The government agencies should involve civil society organisations and activists working for environment along with individuals but nothing seems to have been done. The violators are fined sporadically and no regular checks are being conducted to nab those flouting the norms. The air quality has changed a little in Bihar due to lockdown and lesser human activities. The clean air action plan has nothing to do with it,” she said.

As per the action plans, a long term goal in the cities is to have auto-rickshaws convert to CNG and LPG continue to ply with diesel emitting harmful gases.

“Most of the autos in Patna are still running on diesel and petrol because there aren’t enough CNG refill stations. We are keen to convert to clean gas as it cheaper than petrol or diesel but more refill points should be introduced across the city to avoid standing in long queues that results in losses for us,” said Vikash Pandey, 45, an auto driver in Patna.

Senior officials of Bihar State Pollution Control Board (BSPCB) said that stern action is being taken against those flouting the air pollution norms, “Over 6000 brick kilns in Bihar are one of the major sources of air pollution. We have issued them notices to adopt zig-zag technology that prevents pollution. We have been also recycling the fly ash generated from thermal power plants to reduce pollution. At present, we have around 250 fly ash brick units in Bihar,” said Ashok Ghosh, Chairman of Bihar State Pollution Control Board.

Talking about why government constructions are uncovered with dust flying in the air that can cause respiratory problems, Ghosh said, “We have been planting plants on the road sides but covering the construction work still remains a mammoth task because the pollution control board is a regulatory authority. The district administration has the duty to implement the rules. We have been sending advisories to different department to implement the rules as per the clean air action plan.”

Poor waste segregation and burning of solid waste adds to emissions

The lack of solid waste segregation and management is one of the reasons for emissions that can occur due to burning of such waste.

At present, waste is separated in just 3 out of the 75 municipal wards of the state capital, Patna. “It takes lot of time for us to convince people to segregate the waste at the source because most of them consider the lifting of the garbage from their houses as waste management. We convince them to separate the waste in their houses itself before dumping it. We are currently working in three wards of Patna where slowly people are coming to understand the importance of solid waste segregation,” said Monalisa, managing director of Mithinga waste management private limited, a Patna based start-up involved in creating awareness on waste management through roadshows.



Solid waste being burnt in Patna

Environmental activist Vikash Chandra, commonly known as Guddu Baba, also blamed wrong disposal of bio-medical waste as one of the biggest reasons for rising air pollution. “It is a major problem in Bihar as hospitals, both government and private, continue to burn the waste in open leading to emission of poisonous gases in the air. There are only three units for disposing

bio-medical waste in the state located in Bhagalpur, Muzaffarpur and Patna which are simply not enough. As per norms, the waste should not be transported more than 70 kilometres for disposal but in Bihar it covers several hundreds of kilometres before being destroyed," said Guddu Baba who has been fighting a legal battle against bio-medical waste in the Patna High Court.

Delhi's air pollution situation remains serious despite stopping stubble burning: Javadekar

Date:-4-Dec-2020, Source: oneindia.com

New Delhi, Dec 04: Stubble burning has stopped now but Delhi's air pollution situation remains serious, Union Environment Minister Prakash Javadekar said on Friday urging the Arvind Kejriwal government to take swift action on the complaints forwarded to it by the CPCB.

The minister said several complaints that activities like biomass and garbage burning, improper waste disposal, violation of construction and demolition waste rules, unpaved roads and dust, which cause pollution, are still being carried out.

In a message from his residence, Javadekar said that the apex pollution watchdog -- Central Pollution Control Board (CPCB) -- has issued a notice to the Delhi government to take strict and swift action on the complaints forwarded to it about activities causing pollution in Delhi-National Capital Region.

"The situation of air pollution in Delhi is still serious. Stubble burning has stopped but Delhi's air quality index still remains in 'very poor' category," Javadekar said. "CPCB's 50 teams inspect Delhi and NCR every day and submit the complaints and observations from those visits to the agencies concerned. Yet, some work is done, some not. Hence, the CPCB has issued a notice to the Delhi government asking it to take necessary and swift action on complaints we are forwarding to it," he said. "Delhi government and all agencies concerned should swing into action as stubble burning has stopped now," Javadekar said. In its notice, the CPCB asked the Delhi government to take strict action against industrial activities causing pollution like tyre pyrolysis, burning of tyres and other wastes etc.

Most parts of north India remains dry; Mumbai sees seasons' lowest minimum temperature

Date:-5-Dec-2020, Source: in.news.yahoo.com

New Delhi, Dec 5 (PTI) Mumbai recorded the season's lowest minimum temperature on Saturday even as most parts of north India remained dry except Keylong in Himachal Pradesh which received fresh snowfall.

In the south, Tamil Nadu continued to receive rains, even as Chief Minister K Palaniswami deputed 11 ministers to personally visit cyclone 'Burevi' affected districts to coordinate rescue and relief operations.

Heavy rains under the influence of 'Burevi' lashed the state on December 3 and 4, particularly several southern districts of the state. Mumbai also recorded the season's lowest minimum temperature at 18.4 degree Celsius , and most other parts of Maharashtra also witnessed an overall drop in the mercury levels.

Delhi's air quality turned 'severe' with slow wind speed allowing the accumulation of 'locally generated' pollutants, India Meteorological Department (IMD) officials, said, adding that the city's air quality index (AQI) was 401.

However, it is expected to improve by Monday as the wind speed is likely to pick up.

The national capital's minimum temperature was 11 degrees Celsius and the maximum temperature was 27.8 degrees Celsius, the weather department said.

However, the minimum temperature is likely to dip again with the wind direction changing to northwesterly by Monday, according to IMD officials.

Westerly and northwesterly winds blow from snow-laden western Himalayas towards the plains and shallow to moderate fog is also predicted over the next two days, the IMD said.

The minimum temperature this season has remained 2-3 degrees Celsius below normal in the absence of a cloud cover on most days.

In the hills, Keylong in Lahaul and Spiti district received fresh snowfall and remained the coldest place in Himachal Pradesh at minus 3.5 degrees Celsius.

The meteorological department has forecast rain and snowfall in the middle and high hills of Himachal Pradesh between Monday and Wednesday along with rain in plains and low hills on Tuesday.

Further north, night temperatures at most places in Kashmir stayed above the freezing point owing to overcast condition with Gulmarg and Kokernag being the two weather stations where the mercury stayed below zero. Gulmarg skiing resort in north Kashmir was the coldest recorded place in the Valley with a minimum temperature of minus 3.8 degrees Celsius.

Wet weather is forecast in the Kashmir Valley over the next few days with a possibility of snow in higher reaches owing to a western disturbance affecting the local weather system.

Meanwhile, the minimum temperatures settled above normal limits in Haryana and Punjab, with Chandigarh, the common capital of the two states, recording a low of 10.6 degrees Celsius, up three notches against normal limits.

In Haryana, Ambala recorded a low of 11.8 degrees Celsius, up four notches while Amritsar in Punjab recorded a minimum temperature of 12.6 degrees Celsius, eight notches above normal.

In Uttar Pradesh, the weather remained dry with dense to very dense fog observed at isolated places over eastern parts of the state, the meteorological office said, adding that moderate fog was observed at isolated places over of western UP and there was no significant change in day temperature.

The highest maximum temperature of 32.1 degrees Celsius was recorded at Jhansi while the lowest minimum temperature of 6.5 degrees Celsius was registered in Fatehgarh.

Mount Abu was the coldest recorded place in Rajasthan even as the minimum temperature in parts of the state increased by one to two notches in the past 24 hours. Mount Abu recorded a minimum temperature of 5 degrees Celsius, while in the plains, Sikar recorded 9 degrees Celsius. The MeT department has forecast dry weather for the next 24 hours.

In the south, rains continued in Tamil Nadu as Chief Minister K Palaniswami deputed 11 ministers to personally visit cyclone 'Burevi' affected districts to coordinate rescue and relief operations.

He also announced a solatium of Rs 10 lakh each to the families of seven people who died due to the cyclone, an official statement quoting him said.

The chief minister also announced compensation for those whose houses were damaged and also to cattle owners whose animals perished.

About 14 NDRF teams have been stationed in six districts to help people.

Heavy rains under the influence of 'Burevi' lashed the state on December 3 and 4, particularly several southern districts. Mumbai also recorded the season's lowest minimum temperature at 18.4 degrees Celsius and most other parts of Maharashtra also witnessing an overall drop in the mercury levels, with IMD saying it could be an onset of winter.

Cyclones and severe depressions in the Bay of Bengal had delayed the arrival of winter in the state.

According to the IMD, the Santacruz observatory in Mumbai recorded a minimum temperature of 18.4 degree Celsius, which is the lowest so far this season.

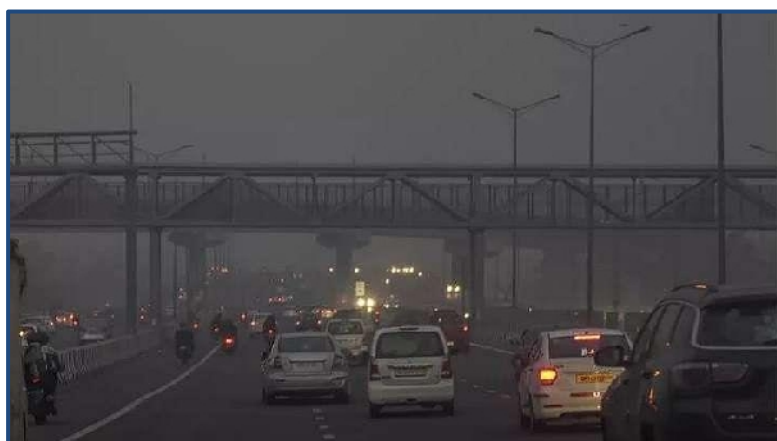
The IMD said the well-marked low pressure area over Gulf of Mannar persists and the associated cyclonic circulation extending upto mid tropospheric level also continues.

Under its influence, heavy to very heavy rainfall at isolated places are likely over Tamilnadu, Puducherry, Kerala, Mahe on December 6.

It has also said thunderstorm with lightning is also likely at isolated places over Tamil Nadu, Puducherry, Karaikal, Kerala, Mahe and Lakshadweep for Sunday, it said.

Noida, Ghaziabad's air quality remains 'severe' for third day on trot

Date:-6-Dec-2020, Source: indiatvnews.com



Noida, Ghaziabad's air quality remains 'severe' for third day on trot

The air quality remained "severe" in Ghaziabad and Noida for the third day in a row while it stayed "very poor" in Greater Noida, Faridabad and Gurgaon, according to a government agency data issued on Sunday.

The air quality remained "severe" in Ghaziabad and Noida for the third day in a row while it stayed "very poor" in Greater Noida, Faridabad and Gurgaon, according

to a government agency data issued on Sunday. Presence of pollutant PM 2.5 and PM 10 also remained high in the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The average 24-hour AQI at 4 pm on Sunday was 428 in Ghaziabad, 402 in Noida, 396 in Greater Noida, 392 in Faridabad and 325 in Gurgaon, according to CPCB's Sameer app.

On Saturday, it was 434 in Ghaziabad, 414 in Noida, 408 in Greater Noida, 347 in Faridabad and 338 in Gurgaon.

On Friday, it was 440 in Ghaziabad, 414 in Noida, 415 in Greater Noida, 383 in Faridabad and 318 in Gurgaon.

The CPCB states that an AQI in the "very poor" category may cause respiratory illness on prolonged exposure, while air quality in the "severe" zone affects even healthy people and seriously impacts those with existing diseases.

The AQI for each city is based on the average value of all stations there. Noida, Faridabad, Ghaziabad have four stations each, while Gurgaon has three and Greater Noida two, according to the app.

Delhi's Air Quality Remains 'Very Poor'; Improvement Expected in Next Three Days

Date:-7-Dec-2020, Source: weather.com



Smog in New Delhi on Friday

Monday, December 07: After having recorded 'Severe' levels of pollution over the weekend, Delhi's air quality has since witnessed a slight improvement. As of Monday afternoon, the capital has registered an overall air quality index (AQI) of 373, which lies towards the upper end of the 'Very Poor' category.

As of 1 p.m. on Monday afternoon, Vivek Vihar in Delhi recorded the highest pollution levels in the city with a 'severe' AQI of 448, closely followed by Jahangipuri and Ashok Vihar with AQIs 446 and 445, respectively. On the other hand, the lowest pollution levels in Delhi were seen in Shadipur with 'Very Poor' AQI of 325.

The System of Air Quality and Weather Forecasting and Research (SAFAR) categorises AQIs between 201-300 as 'poor', 301-400 as 'very poor', and those above 401 as 'severe'.

From here on, the SAFAR model has predicted that Delhi's overall air quality is likely to improve on Tuesday, and then remain within the 'very poor' category on Wednesday and Thursday.

This improvement in air quality will be down to an increase in surface-level wind speed, which will enhance the ventilation within the landlocked capital.

Furthermore, the low number of stubble fires in and around Delhi have also brought stubble burning's contribution to the city's pollution down to negligible levels. As per SAFAR's latest count, around 239 stubble fires were observed around the capital region.

The height of the atmospheric boundary layer—the lowest part of the troposphere that is directly influenced by the Earth's surface—will also lower in the coming days due to cold winters, which will in turn increase the fog content in Delhi's atmosphere. This, along with the formation of droplets, will lead to a deterioration in visibility.

While Delhi continues to experience unhealthy levels of air pollution, it was only the tenth-most polluted city across India on Sunday, December 6. Here's a list of the ten most polluted cities in the country on Sunday:

Ghaziabad - AQI 428 - Severe

Baghpat - AQI 409 - Severe

Rohtak - AQI 405 - Severe

Bulandshahr - AQI 403 - Severe

Noida - AQI 402 - Severe

Greater Noida - AQI 396 - Very Poor

Kanpur - AQI 393 - Very Poor

Faridabad - AQI 392 - Very Poor

Muzaffarpur - AQI 390 - Very Poor

Delhi - AQI 389 - Very Poor

Delhi Air Quality Inches Closer to 'Severe' Again

Date:-8-Dec-2020, Source: weather.com



Despite negligible stubble burning, there seems to be no respite from the pollution in the national capital as the air quality index inched closer to the "severe" category on Tuesday afternoon.

The city's air quality index stood at 392 micrograms per cubic meter, which is in the "very poor" category. According to the Central

Pollution Control Board (CPCB), 18 out of 36 pollution monitoring stations in Delhi showed severe air quality index reading. Jahangirpuri has the most noxious air at 439.

The Ministry of Earth Sciences has advised sensitive groups to avoid all physical activity outdoors and move activities indoors. If asthmatic, then keep relief medicine handy, it emphasized.

The System of Air Quality and Weather Forecasting and Research (SAFAR), a central government agency, said that dominating factors influencing air quality are making a swift transformation from biomass to intense winter cooled stagnation conditions, lowering of boundary layer height and fog formation.

"Surface winds are likely to be picking up slightly and the AQI is forecast to be in the very poor category for the next two days. AQI is likely to improve and stay in the middle-end of the very poor category on 11th December," the forecasting agency stated.

The contribution of stubble burning to the pollution crisis is also negligible at one per cent, according to the SAFAR. At 42 per cent, stubble burning's share in pollution had soared to season's high on November 5. It however, started plummeting from November 23 onwards.

Delhi's neighbouring regions—Faridabad, Noida and Greater Noida are logging very poor quality of air. Ghaziabad and Greater Noida's air quality remained the worst, with very poor air quality of 439 and 414 micrograms per cubic meter, respectively.

India's pandemic recovery plan could cost air quality goals

Date:-9-Dec-2020, Source: ksat.com

NEW DELHI – India is facing two public health emergencies simultaneously: critically polluted air and the pandemic. And Surinder Singh, a bus driver in the capital New Delhi, is trapped between them both.

In previous years, the government encouraged more people to use buses that run on cleaner fuels, like the one he drives, as an emergency air quality measure. But this year there are limits on passengers to maintain social distance. The air stings Singh's eyes and he worries about contracting the virus every time a person gets on board.

Still reeling from India's harsh lockdown that dried up his \$9 daily income for two months, the 47-year-old father of two says he has no choice but to work. Masked and armed with a bottle of hand sanitizer, he starts his journey near a private hospital that is overwhelmed by virus



Commuters drive on a road engulfed in smog in New Delhi, India, Thursday, Nov. 5, 2020. India is grappling with two public health emergencies: critically polluted air and the pandemic. Nowhere is this dual threat more pronounced than in the Indian capital New Delhi, where the spike in winter pollution levels has coincided with a surge of COVID-19 cases.

patients. He travels through roads packed with traffic to the city's largest and most frenetic railway station.

"I drive the bus in constant fear," he said.

Millions of others are equally desperate in India's historic recession. The economy contracted by 23.9% in the April-June quarter — its worst performance in at least 24 years — and by 7.5% in the next quarter.

The virus, meanwhile continues to spread with over 9.7 million cases, and more than 140,000 deaths. And India's underfunded

hospitals, already strained by the virus, are also filling up with patients in respiratory distress from air pollution.

The pandemic has made emergency measures, such as boosting public transit, harder to implement. And long-term targets, including weaning power plants from dirty fossil fuels, are taking a back seat. India plans to increase coal production to reduce imports, and its recovery plan remains heavily reliant on energy sources that produce carbon emissions.

"This pandemic will define the pathway of how we move in the future (to control air pollution)," said Sunil Dahiya, an analyst at the advocacy group Centre for Research on Energy and Clean Air. India's environment ministry did not respond to requests for comment.

The dual threat is particularly pronounced in the Indian capital New Delhi, where the annual spike in winter pollution levels has come amid a surge in new COVID-19 cases. The city is among the most polluted in India, where an estimated 1.67 million people die annually from bad air. Dr. Akshay Budhreja, a pulmonologist at a private hospital here, said it was flooded with patients with respiratory distress who thought they had COVID-19. "Patients are very, very anxious," he said.

The Delhi pollution gets worse in the fall and winter when the burning of crop debris in neighboring states coincides with cooler temperatures that trap smoke close to the city. Over

76,000 farm fires were spotted by satellites in Punjab state -- the most since 2016 — and Delhi's air quality levels in October were worse than previous years, government data shows.

Although the city of 29 million people and 10 million cars is enveloped in smog, authorities have fewer options than before the pandemic. Last year, authorities had restricted some of the capital's private vehicles and increased public transportation. But this year, standing passengers aren't allowed in Delhi's buses, and metro coaches are only allowing about 50 people, compared to a maximum of 300 in the past. Anumita Roychowdhury, a director at the advocacy group Centre for Science and Environment, estimated that public transit is operating at a third of capacity overall.

The pandemic also has hindered efforts to clean emissions at coal-fired power plants, which account for 65% of India's electricity. The government had asked plants to install technology that would remove sulfur dioxide from their emissions by 2022. But after initial delays from problems in getting loans, the pandemic snapped supply chains and made it impossible to import the required equipment, said Ashok Kumar Khurana, who heads the Association of Power Producers.

India's power ministry has sought a deadline extension from the environment ministry while the government has undertaken measures aimed at boosting coal production. In June, Indian Prime Minister Narendra Modi announced the auction of 40 new coal leases to private miners. Modi described this shift from India's state-controlled coal industry as "freeing the coal sector from decades of lockdown."

Last year, the government asked the state-run Coal India to increase the annual production from the current 661 million tons (600 million metric tons) to over a billion tons by 2024. To make the transition to domestic coal easier, it has also waived regulations that mandated a federal environment ministry review if a power plant wanted to change the type of coal being used.

Much of India's coal reserves have a high ash content that burns inefficiently and results in increased emissions and air pollution, said Roychowdhury. India is the third-highest emitter of carbon dioxide, behind China and the United States.

These are efforts to save "an industry that is already circling the drain," said Kanika Chawla, an energy policy expert at the New Delhi-based think tank Council on Energy, Environment and Water. Before the pandemic, India's power plants were running below capacity because the growth in power production capacity had outpaced demand.

With demand dipping further, Chawla said that the government had an opportunity to pivot away from fossil fuels and accelerate a "just" transition to cleaner fuels. "We were clearly at a crossroad," she said.

India faces two health emergencies simultaneously — COVID-19 pandemic and air pollution

Date:-10-Dec-2020, Source: firstpost.com



A traffic policeman wears a mask to protect himself from dust in Delhi

The dual-threat is particularly pronounced in the Indian capital New Delhi, where the annual spike in winter pollution levels has come amid a surge in new COVID-19 cases.

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Although the city of 29 million people and 10 million cars is enveloped in smog, authorities have fewer options than before the pandemic. Last year, authorities had restricted some of the capital’s private vehicles and increased public transportation. But this year, standing passengers aren’t allowed in Delhi’s buses, and metro coaches are only allowing about 50 people, compared to a maximum of 300 in the past. Anumita Roychowdhury, a director at the advocacy group Centre for Science and Environment, estimated that public transit is operating at a third of capacity overall.

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Air quality 'very poor' in Ghaziabad, Noida, 'poor' in Faridabad, Gurgaon

Date:-11-Dec-2020, Source: tribuneindia.com

The AQI for each city is based on the average value of all stations there.

The air quality was "very poor" in Ghaziabad, Noida and Greater Noida, and was "poor" in Faridabad and Gurgaon, according to a government agency data on Friday.



Presence of pollutant PM 2.5 and PM 10 also remained high in the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

The average 24-hour Air Quality Index (AQI) at 4 pm on Friday was 347 in Ghaziabad, 330 in Greater Noida, 324 in Noida, 290 in

Faridabad and 256 in Gurgaon, according to the Central Pollution Control Board's (CPCB) Sameer app.

On Thursday, it was 330 in Ghaziabad, 322 in Greater Noida, 310 in Noida, 300 in Faridabad and 217 in Gurgaon. On Wednesday, it was 418 in Ghaziabad, 394 in Noida, 404 in Greater Noida, 395 in Faridabad and 296 in Gurgaon.

An AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The CPCB states that an AQI in the 'poor' category may cause breathing discomfort while 'very poor' may cause respiratory illness on prolonged exposure.

The AQI for each city is based on the average value of all stations there. Noida, Faridabad, Ghaziabad have four stations each, while Gurgaon has three and Greater Noida two, according to the app.

Delhi wakes up to light drizzle, AQI likely to improve

Date:-12-Dec-2020, Source: hindustantimes.com

The IMD had forecast that Delhi and the neighbouring towns are likely to receive rainfall on December 11 and December 12. This is also likely to improve the air quality of the city.

The national capital and its neighbouring areas received light drizzle on Saturday, as was the forecast by the Indian Meteorological Department (IMD).

The IMD had forecast that Delhi and the neighbouring towns are likely to receive rainfall on December 11 and December 12. This is also likely to improve the air quality of the city.



The IMD had forecast that Delhi and the neighbouring towns are likely to receive rainfall on December 11 and December 12

“Light intensity rain would occur over south-Delhi, south-west Delhi, Dwarka, and IGI airport during the next 2 hours,” IMD said.

Kuldeep Srivastava, head of IMD’s regional weather forecasting centre, said that Delhi and the neighbouring satellite towns are likely to receive light rainfall between December 11 and December 12, as a result of a

Western Disturbance passing over the Himalayas. After the passing of this Western Disturbance, the minimum temperature in Delhi is expected to fall by at least three to four degrees Celsius.

“From December 14, temperatures will start falling again. North-westerly winds from Himachal Pradesh, Uttarakhand and Jammu and Kashmir, which have been receiving a good spell of snowfall, will be carrying cold winds. This will bring down the temperature here,” said Srivastava.

He said that in the second week of November, the minimum temperature had fallen to 6.3 degree Celsius, but it rose again because of a few Western Disturbances that passed over Delhi-NCR in the last week of the month and the first week of December. He said that the frequent change in the wind direction to easterly had also caused the temperature to remain on the higher end.

Outdoor air purifiers for Chandigarh to control pollution

Date:-13-Dec-2020, Source: hindustantimes.com

To ‘reduce pollutants at specific spots and help improve air quality,’ says senior UT official privy to the development.

Finally, a man-made remedy is being tested to check the city’s worsening air quality due to increasing traffic and cooler temperatures. Yes, 10-foot outdoor air purifier towers will be set up at key points in the city to enable people to breathe freely again.



Air quality has worsened in Chandigarh due to traffic jams and wintry conditions

The UT administration will be setting up around 10 towers in different locations with very poor air quality. These will “reduce pollutants at specific spots and help improve air quality,” said a senior UT official privy to the development.

This is part of a solution UT adviser Manoj Parida sought from the Central Pollution Control Committee (CPCC) sometime

back.

Chandigarh is one of the non-attainment cities in the country according to National Clean Air Programme (NCAP) norms, which means it has over a five-year period not consistently met the National Ambient Air Quality Standards (NAAQS) for harmful PM 10 (particulate matter that is 10 microns or less in diameter), PM 2.5 or NO₂ (nitrogen dioxide).

After remaining “satisfactory” and “moderate” during the lockdown period and a few months after, the air quality index (AQI) again turned “poor” for the first time this year in November.

CPCC has floated tenders inviting firms to install the purifiers. “It is being done on a pilot basis. After examining its effectiveness we will be deciding on expanding the project to other parts of the city,” the official said.

The company that is selected will install, operate and maintain the purifiers.

PATHOGENS, VIRUSES WILL ALSO BE FILTERED

“The effectiveness of the Delhi experience with the outdoor purifiers hasn’t been very positive. So, we have decided to avail better and latest technology for the purifiers to be installed in the city,” the official said.

The purifiers will have gas neutralisation systems and filters for different categories of pollutants such as PM 10 and PM_{2.5}. A UVC system will nullify the micro-organisms, pathogens and viruses present in the air.

LOCATIONS BEING IDENTIFIED

The administration is yet to finalise the locations for the purifiers. "We are in the process of identifying them, and might choose areas with heavy traffic density all day long, such as rotaries or traffic light junctions," the official said.

Any places with traffic congestion such as schools with cars and buses picking up and dropping children through the day can also be selected, he added.

Towers are also likely to be set up in parking lots of markets and tourist spots (Sukhna Lake or Rock Garden).

Delhi's Temperature Dips Sharply as Air Quality Remains 'Moderate'; More Cold, Pollution Forecast This Week

Date:-14-Dec-2020, Source: weather.com



Fog over Delhi

Monday, December 14: The national capital saw a massive dip in mercury on Monday and is expected to plummet further by Thursday-Friday, the India Meteorological Department (IMD) said. With an overall AQI 118, the capital city witnessed 'moderate' levels of air pollution on Monday morning.

Delhi recorded a minimum temperature of 8.4°C, down from 11.4 on Sunday and 14.4 on Saturday. "The temperature has dropped by six notches as compared to Saturday," head of the IMD's regional forecasting centre, Kuldeep Srivastava told the news agency IANS.

As of 1 pm on Monday, in the National Capital Region, highest pollution levels were recorded in Jahangirpuri and Vivek Vihar with AQI 268. This was closely followed by Anand Vihar and Sonia Vihar with AQIs 230 and 226 respectively. The least pollution levels were witnessed in IGI Airport (T3) with an AQI of 90. The average AQI on Sunday was 305 (poor), mainly due to the light rainfall on Saturday that led to the formation of secondary pollutants.

As per the forecasts, a fall in minimum temperatures by 3-5°C is expected over most parts of northwest India during the next four days till Friday. There will be, however, no significant change in minimum temperatures over most parts of central and east India. Dense fog will form

its blanket over Jammu division, Uttarakhand, Punjab, Haryana, Chandigarh, Rajasthan, Uttar Pradesh, Bihar, Sub-Himalayan West Bengal, Sikkim, Assam, Meghalaya and Tripura.

The Safdarjung Observatory, which provides the representative data for Delhi, recorded a minimum temperature of 8.4°C, while Lodhi Road Observatory recorded it at 7.4°C, according to the data provided by the weather forecasting agency. "The temperature will dip further on December 17-18. There will be shallow fog and the sky will be clear during the day. No rainfall is expected in the coming days," the senior IMD official added.

The overall air quality is 'moderate' owing to good ventilation conditions due to higher wind speed. Better boundary layer height has also helped to clean the accumulated pollutants, says System of Air Quality Weather Forecasting and Research (SAFAR). Surface level winds are moderate and towards the west-northwesterly direction and the ventilation is expected to further improve today.

However, the overall air quality is also expected to marginally deteriorate to the 'poor' category in the next two days due to the drop in temperatures and ventilation. The air quality of Mumbai is satisfactory with an AQI of 86, while Ahmedabad and Pune have 'moderate' levels of air quality on Monday.

Cold Wave Grips Delhi, Haryana as Mercury Levels Drop to 3°C; Severe Cold to Continue This Week

Date:-15-Dec-2020, Source: weather.com



A man warms himself by igniting firewood in Delhi as the capital experiences a drop in temperatures

Cold wave and dense fog are sweeping plains of northwest India as temperatures continue to drop over the region. On Tuesday, many parts of Delhi, Haryana and Punjab recorded season's lowest temperatures so far with the minimum temperature dropping to a numbing 3°C in Hisar.

In the wee hours of Tuesday, the national capital witnessed a sharp drop in the mercury levels with

the minimum temperatures falling as low as 4.1°C in the base station at Safdarjung—lowest minimum temperatures so far in this season. On December 14, the minimum temperature was

recorded at 8.4°C, while it was noted at 11.4°C and 14.4°C on Sunday and Saturday respectively. Within 72 hours the minimum temperature has dropped by a whopping 10°C in Delhi.

As per the Indian Meteorological Department (IMD), cold day to severe cold day conditions are likely to prevail in some pockets over Punjab, Haryana, Chandigarh, and Delhi during the next 48 hours. In addition, cold day conditions are expected over some isolated pockets of Jammu Division, Himachal Pradesh, northwest Rajasthan and west Uttar Pradesh.

The forecast adds that the minimum temperatures are expected to fall by 3-5°C over most parts of northwest India during the next 3 days.

Owing to these cold weather conditions, IMD has placed Punjab, Haryana, Chandigarh and Delhi under an orange alert for Tuesday. The alert urges residents to 'be updated' of the weather. The other neighbouring regions including Jammu and Kashmir, Himachal Pradesh, West Uttar Pradesh, and West Rajasthan have also been placed under the yellow watch for the next 48 hours.

The cold day conditions are likely to improve marginally over Punjab, Haryana, Chandigarh and Delhi by tomorrow (December 16) and therefore all the regions will be placed under a yellow watch, which urges people to 'be aware' of the cold conditions.

The Safdarjung recorded a minimum temperature of 4.1°C, while other ground-based stations like Ayanagar and Jafarpur recorded even lower temperatures at 4°C and 3.6°C respectively. Meanwhile, Drass in Kargil recorded freezing temperature at -18.6°C on Tuesday, while Gulmarg registered -10.2°C. In Punjab, Gurdaspur recorded the lowest temperature of 6°C.

In Haryana, except Hisar, other cities witnessed minimum temperatures of more than 7°C, as per the IMD data. However, amateur meteorologists on the ground have complained that the temperature in cities like Rohtak did drop to 4°C, but the IMD observatory has failed to record the same due to negligence. IMD officials are yet to clarify on this matter.

Furthermore, the regional met department's seven days forecast says that the nighttime temperatures are expected to remain below 10°C with shallow to moderate fog in the morning for this entire week. Therefore, cold wave conditions are very likely at isolated places over Punjab, Haryana, Chandigarh & Delhi and north Rajasthan in the next five days.

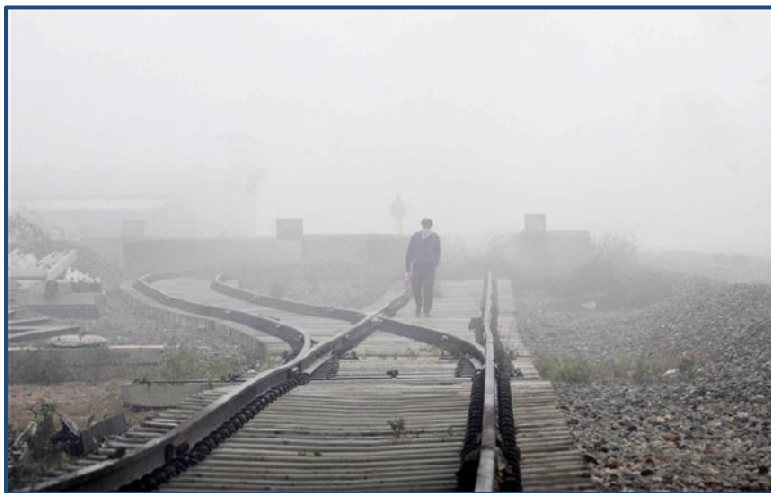
For declaring the cold wave, IMD considers the wind chill factor—the effective minimum temperature due to wind flow. The cold wave conditions are associated with the fall of minimum temperature much below normal and are usually less than 10°C. In the winter season, the cold wave conditions prevail mainly along the Indo-Gangetic Plains.

As of Tuesday noon, Delhi's air quality remained in the "moderate" category due to favourable wind speed. The city's air quality index (AQI) was 192 at noon. Otherwise, the weather is likely to be dry over northwest India for this week.

On Monday, severe cold day conditions were observed in several parts of Punjab, Haryana, Chandigarh and Delhi, while cold day conditions were witnessed in isolated pockets over Jammu Division, Himachal Pradesh, northwest Rajasthan and West Uttar Pradesh. Moreover, dense fog occurred at isolated places over Himachal Pradesh, Uttarakhand, Uttar Pradesh and Rajasthan.

Dense fog in parts of Delhi; cold wave expected on December 17, 18

Date:-16-Dec-2020, Source: tribuneindia.com



Minimum temperature likely to remain around 5 degrees Celsius till Friday: IMD

Dense fog blanketed parts of the national capital that recorded a minimum temperature of 5.8 degrees Celsius on Wednesday morning.

The India Meteorological Department has predicted both

“cold day” and “cold wave” in parts of Delhi on Thursday and Friday.

The visibility dropped to 100 metres in the Palam area in the morning, it said.

According to the IMD, “very dense” fog is when visibility is between 0 and 50 metres, 51 and 200 is “dense”, 201 and 500 “moderate”, and 501 and 1,000 “shallow”.

The minimum temperature was three notches below normal. The maximum temperature is likely to settle around 19 degrees Celsius, it said, predicting ‘cold day’ conditions at a few places.

The IMD had declared a cold wave in Delhi on Tuesday as icy winds blowing from snow-covered western Himalayas brought the minimum temperature down to 4.1 degrees Celsius, the lowest in the city this season so far.

The maximum temperature had also dipped to 18.5 degrees Celsius, more than four notches below normal.

According to the IMD, the minimum temperature is likely to remain around five degrees Celsius till Friday.

Kuldeep Srivastava, the head of the IMD's regional forecasting centre, said the Western Himalayas recorded widespread snowfall due to strong Western Disturbances and now frosty winds have been blowing towards the plains, bringing the mercury down.

He said both "cold wave" and "cold day" conditions are likely in Delhi on Thursday and Friday.

For the plains, the IMD declares a cold wave when the minimum temperature is 10 degrees Celsius or below and is 4.5 notches less than normal for two consecutive days.

"However, for small areas such as Delhi, a cold wave can be declared if the criteria is fulfilled even for a day," Srivastava said.

A "cold day" is when the minimum temperature is less than 10 degrees Celsius and the maximum is 4.4 degrees Celsius below normal.

The air quality was recorded in the "poor" category.

The city's air quality index (AQI) was 278 at 9 am. The 24-hour average AQI was 230 on Tuesday. It was 160 on Monday, 305 on Sunday and 356 on Saturday.

An AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

A four-point action plan to improve Delhi's air

Date:-17-Dec-2020, Source: hindustantimes.com

A sustainable plan to reduce emissions from the transport sector requires a comprehensive and multi-year effort.

The deteriorating air quality in Delhi has led the Centre to set up the Commission for Air Quality Management in National Capital Region and Adjoining Areas. Every year, as the air quality reaches dangerous proportions, emergency measures are taken to ease the situation. However, in the absence of a long-term strategy, the problem recurs every winter. The new commission, it is hoped, will initiate a comprehensive, multi-sectoral action strategy.



Gurugram: Vehicles ply on roads, amid hazy weather conditions, in Gurugram, Saturday, Oct. 31, 2020. The concentration of major air pollutants PM 2.5 and PM 10 are high in the five immediate neighbours of Delhi including Gurugram, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB)

The causes of poor air in the National Capital Region (NCR) range from stubble-burning in neighbouring states to construction dust, industrial pollution, localised bonfires to meet the heating needs of the poor and emissions from motor vehicles. Transport remains a

consistent and significant contributor to pollution across all seasons and time frames. Several source apportionment studies carried out variously by the Central Pollution Control Board,

IIT, Kanpur and TERI have shown that on-road vehicular exhaust emissions account for nine per cent to 38% of particulate matter (PM_{2.5}) in the atmosphere. Reducing vehicular emissions alone could positively impact the air quality of NCR.

Short-term interventions like the odd-even scheme have yielded temporary relief. Some significant initiatives to convert the state's bus and para-transit fleet to run on Compress Natural Gas (CNG) have also resulted some results, despite the substantial cost.

A sustainable plan to reduce emissions from the transport sector requires a comprehensive and multi-year effort. A four-pronged approach could help. One is deployment of clean technologies; electric mobility is a rapidly-growing choice, globally. India is focused on this sector, having formulated a National Electric Mobility Mission Plan and has instituted programmes that offer financial incentives for electric buses and other vehicles. However, effective deployment requires a comprehensive and actionable road map involving all stakeholders which has not been put in place. A phased road map stretching over 10-15 years needs to be prepared to raise the stakeholders' confidence.

This road map must cover supply- and demand-side interventions – mandating purchase of Electric Vehicles (EVs), establishing charging and swapping stations, awareness campaigns, setting standards and incentives to vehicle and component manufacturers. It should establish the way forward for registering Zero Emission Vehicles (ZEVs), increasing its share on roads by 50% or more (of all vehicles) and mandating that all buses, locally- operated freight vehicles, auto rickshaws and taxis in NCR become ZEVs by 2035.

Hydrogen Fuel Cell vehicles (HFCs), though not yet commercialised, are said to be a fitting complement to EVs, especially to cover long distances of freight and passenger commute.

A second is adopting shared and non-motorised transport. The key to effecting a modal shift is to persuade people to move from personal motor vehicles to either shared modes, like buses, metro rail and shared taxis or to non-motorised modes, like cycling and walking.

Unfortunately, the quality of India's public transport systems – especially our city buses – have discouraged private vehicle commuters from making a shift. To date, our city bus systems are primarily designed for affordability, not quality.

Affluent commuters seek high-quality options, featuring door-to-door travel, greater comfort, less crowding, and tracking and smart ticketing choices. They are willing to pay higher fares for such services. To earn their buy-in, public transport should incorporate a variety of premium services that ensure quality even if it means steeper ticket prices. A strong push for premium, vastly improved last-mile connectivity options, to and from the Delhi metro would ensure ridership.

Meanwhile, Mobility as a Service (MaaS) is an emerging concept in some European cities that allows transportation services to be available on demand and as per need, through a mobile app. Identical to the app-based taxi services in India, MaaS cuts across modes of transport to offer multi-modal trip options based on willingness to pay, time availability and other parameters. In India, MaaS can revolutionise daily commutes and offer the much-needed solution for a modal shift.

To promote non-motorised modes, NCR must invest in well-planned and safer infrastructure for cycling and walking. Developing bicycling and pedestrian masterplans and implementing them effectively could be key. For shorter commutes, these can be important modes of travel.

A third is improving traffic flow. If traffic congestion is reduced and vehicles move seamlessly, then vehicular pollution will diminish. This is because moving vehicles will disperse the emissions effectively, ensuring they don't get locked up in one location.

Staggering peak time travel could be a solution to distribute the movement of traffic over a longer period of the day. Offices and commercial establishments can adopt staggered and flexible timings for employees.

A fourth is reducing travel demand. Improving online delivery of public services can help reduce the average number of trips people make. Policies and supporting infrastructure that allow citizens to work from home and shop online will help this effort.

Likewise, mixed land-use planning could reduce trip lengths. Newly-developing areas should co-locate offices, commercial and residential addresses to minimise long commutes.

These actions to reduce vehicular pollution could begin the process of improving NCR's air quality. However, the need of the hour is a focused, comprehensive, systematic and multi-year effort across sectors. Today, Delhi looks up to the commission to develop a scientific plan with a long-term vision, be adequately resourced and empowered to implement it. This holds out a glimmer of hope that people can breathe easy in future winter seasons.

Air quality dips in Mumbai as cold wave continues in northern India

Date:-18-Dec-2020, Source: hindustantimes.com

Bandra Kurla Complex recorded the poorest air quality with an AQI of 362, followed by Navi Mumbai where an AQI of 329 was recorded—both in the very poor category. SAFAR has predicted that air quality will remain poor on Saturday as well.

The ongoing cold wave in north-western India had an impact on the air quality in Mumbai on Friday, with many parts of the city reporting poor to very poor quality of air.



The city recorded an air quality index (AQI)—a pollutant measuring indicator—of 218 on Friday, falling in the poor quality category

The city recorded an air quality index (AQI)—a pollutant measuring indicator—of 218 on Friday, falling in the poor quality category. The AQI was calculated by the System of Air Quality Weather Forecasting and Research (SAFAR) as the average of indices recorded at 10 locations

in the city and suburbs.

This is the poorest quality of air the city has had since December 5 when the AQI shot up to 225. SAFAR categorizes AQI levels for PM2.5 in the 0-50 range as good; 51-100 as satisfactory; 101-200 as moderate; 201-300 as poor; 301-400 as very poor and above 400 as severe.

Bandra Kurla Complex recorded the poorest air quality with an AQI of 362, followed by Navi Mumbai where an AQI of 329 was recorded—both in the very poor category. SAFAR has predicted that air quality will remain poor on Saturday as well.

“The poor air quality is primarily because of the cold wave which is likely to continue for at least two-three days. At the same time, now the air flow has changed and more wind is coming in

from the land, rather than the sea. The air quality from the land is poorer,” said a spokesperson for SAFAR.

While north-western India is reeling under a severe cold wave, temperatures in Mumbai were relatively high. Colaba recorded a maximum temperature of 31.6 degrees Celsius, only 0.7 degrees below the normal temperature. The Santacruz station of the Indian Meteorological Department (IMD) recorded a maximum temperature of 32.9 degrees Celsius. The minimum temperature at the Colaba station was 22 degree Celsius and at Santacruz was 21.2 degree Celsius. KS Hosalikar, deputy director general, western region, IMD, said that temperatures are likely to drop in the last week of December.

Air quality 'very poor' in Noida; 'poor' in Ghaziabad, Gurgaon, Faridabad

Presence of pollutant PM 2.5 and PM 10 also remained high in the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

Air quality 'very poor' in Noida; 'poor' in Ghaziabad, Gurgaon, Faridabad

Date:-19-Dec-2020, Source: moneycontrol.com



Presence of pollutant PM 2.5 and PM 10 also remained high in the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

The average air quality was recorded very poor in Noida and poor in Ghaziabad, Greater Noida, Gurgaon and Faridabad in the national capital region, according to a 24-hour data issued by a government agency on Saturday.

Presence of pollutant PM 2.5 and PM 10 also remained high in the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

As per the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'. The average 24-hour AQI at 4 pm on Saturday was 301 in Noida, 295 in Ghaziabad, 292 in Greater Noida, 260 in Faridabad and 260 in Gurgaon, according to CPCB's Sameer app.

The CPCB states that an AQI in the very poor category may cause respiratory illness on prolonged exposure while poor may lead to breathing discomfort to people. The average AQI on Friday was 304 in Ghaziabad, 297 in Greater Noida, 288 in Noida, 214 in Faridabad and 224 in Gurgaon. On Thursday, it was 277 in Ghaziabad, 283 in Greater Noida, 267 in Noida, 213 in Faridabad and 241 in Gurgaon.

The AQI for each city is based on the average value of all stations there. Noida, Faridabad, Ghaziabad have four stations each, while Gurgaon has three and Greater Noida two, according to the app.

Air quality 'very poor' in Noida, Ghaziabad, 'poor' in Gurgaon, Faridabad

Date:-20-Dec-2020, Source: tribuneindia.com

The average AQI on Saturday was 301 in Noida, 295 in Ghaziabad, 292 in Greater Noida, 260 in Faridabad and 260 in Gurgaon.

The average air quality deteriorated and was recorded "very poor" in Noida, Greater Noida and Ghaziabad, while it was "poor" in Gurgaon and Faridabad, according to a 24-hour data issued by a government agency on Sunday.

Presence of pollutant PM 2.5 and PM 10 also remained high in the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The average 24-hour AQI at 4 pm on Sunday was 346 in both Ghaziabad and Greater Noida, 333 in Noida, 294 in Faridabad and 262 in Gurgaon, according to CPCB's Sameer app.

The CPCB states that an AQI in the "very poor" category may cause respiratory illness on prolonged exposure while "poor" may lead to breathing discomfort to people.

The average AQI on Saturday was 301 in Noida, 295 in Ghaziabad, 292 in Greater Noida, 260 in Faridabad and 260 in Gurgaon.

The AQI for each city is based on the average value of all stations there. Noida, Faridabad, Ghaziabad have four stations each, while Gurgaon has three and Greater Noida two, according to the app.

Air remains 'very poor' in Noida, Ghaziabad, 'poor' in Gurgaon, Faridabad

Date:-21-Dec-2020, Source: business-standard.com

The average air quality remained "very poor" in Ghaziabad, Noida and Greater Noida, and "poor" in Gurgaon and Faridabad, according to a 24-hour data issued by a government agency.

The average air quality remained "very poor" in Ghaziabad, Noida and Greater Noida, and "poor" in Gurgaon and Faridabad, according to a 24-hour data issued by a government agency on Monday.



Presence of pollutant PM 2.5 and PM 10 also remained high in the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor',

301 and 400 'very poor', and 401 and 500 'severe'.

The average 24-hour AQI at 4 pm on Monday was 391 in Ghaziabad, 366 in Greater Noida, 363 in Noida, 289 in Faridabad and 271 in Gurgaon, according to CPCB's Sameer app.

The CPCB states that an AQI in the "very poor" category may cause respiratory illness on prolonged exposure, while "poor" may lead to breathing discomfort to people.

The average AQI on Sunday was 346 in both Ghaziabad and Greater Noida, 333 in Noida, 294 in Faridabad and 262 in Gurgaon.

The AQI for each city is based on the average value of all stations there. Noida, Faridabad, Ghaziabad have four stations each, while Gurgaon has three and Greater Noida two, according to the app.

Pollution: Air Quality in National Capital Remains in 'Very Poor' Category As Overall AQI Reaches 329

Date:-22-Dec-2020, Source: in.news.yahoo.com

New Delhi, December 22: The air quality in Delhi continued to be in the 'very poor' category on Tuesday as the overall air quality index (AQI) was recorded at 329. The concentration of PM10 and PM2.5 pollutants increased since Monday and as a result, the AQI rose up to this level the following day. According to System of Air Quality and Weather Forecasting & Research (SAFAR), the overall Air Quality Index (AQI) in the national capital on Tuesday stood at 329. In its forecast, SAFAR had said that the PM10 pollutants would increase to 293 on Tuesday and PM2.5 would rise up to 168, which comes under the 'very poor' category. Air Pollution Shortened Average Indian Life Expectancy by 5.2 Years: Report.



According to the index, an AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe". On Monday, the AQI in the national capital had entered the 'very poor' category. The average air quality remained

also remained 'very poor' in Ghaziabad, Noida and Greater Noida, and 'poor' in Gurgaon and Faridabad. According to CPCB's Sameer app, the AQI was 391 in Ghaziabad, 366 in Greater Noida, 363 in Noida, 289 in Faridabad and 271 in Gurgaon.

On Sunday, the average AQI was 346 in both Ghaziabad and Greater Noida, 333 in Noida, 294 in Faridabad and 262 in Gurgaon. According to the Central Pollution Control Board (CPCB), if the AQI in any region is in the 'very poor' category, it may cause respiratory illness on prolonged exposure, while "poor" may lead to breathing discomfort to people.

Delhi's air quality turns severe, to improve on Christmas

Date:-23-Dec-2020, Source: thehansindia.com

New Delhi: The pollution levels in the national capital shot up on Wednesday and mounted to severe category, prompting the Ministry of Earth Sciences to advise people to avoid outdoor physical activities and wear N-95 or P-100 respirators. Delhi's air quality index stood at 436 micrograms per cubic meter in severe category at noon. According to the Central Pollution



Delhi's air quality turns severe, to improve on Christmas

Control Board (CPCB), 29 out of 36 pollution monitoring stations in Delhi showed severe air quality index reading.

Jahangirpuri, Patparganj and Anand Vihar areas of the national capital have the most noxious air, inching towards emergency levels. The System of Air Quality and Weather Forecasting and Research (SAFAR), which comes under the aegis of Ministry of Earth Sciences

issued a stringent warning, asking everyone to avoid physical activity outdoors and consult doctor if they experience unusual coughing, chest discomfort, wheezing, breathing difficulty, or fatigue.

"If the room has windows, close them. If the air conditioner provides a fresh air intake option, close it. Avoid burning anything, such as wood, candles or even incense. Do not vacuum. Do wet mopping frequently. Masks known as N-95 or P-100 respirators may only help if you go out. Do not rely on dust masks for protection," the ministry further advised.

The air quality index is forecasted to remain in severe category by December 24 and "marginally improve to the higher end of very poor on December 25" due to slightly better ventilation conditions.

According to the weather forecasting agency, high humidity, colder temperature and calm surface-level winds will continue to put a break to the dispersion of accumulated pollutants till then.

Meanwhile, Delhi's neighbouring regions — Ghaziabad, Faridabad, Noida and Greater Noida also recorded 'severe' quality of air, leaving aside Gurugram which had slightly better AQI at 333 micrograms per cubic meter.

Ghaziabad and Greater Noida have the most polluted amongst all at 482 micrograms per cubic meter. Nationwide, as many as 11 cities have very poor quality of air. Uttar Pradesh's Greater Noida and Ghaziabad top the charts, followed by Noida and Bulandshahr. Aizawl city of Mizoram recorded the cleanest air in the country at 19 micrograms per cubic meter.

Delhi's Air Quality Remains in 'Severe' Category With Overall AQI at 450, Respite Unlikely Till December 26

Date:-24-Dec-2020, Source: in.news.yahoo.com



New Delhi, December 24: The air quality in Delhi continued to be in the 'severe' category even on Thursday. The overall air quality index (AQI) in the national capital stood at 450, the System of Air Quality and Weather Forecasting & Research (SAFAR) said. On Wednesday, Delhi recorded AQI level of 404, in severe category.

The AQI is in the severe category since Tuesday, with slow wind speed and low temperature allowing accumulation of pollutants. According to Kuldeep Srivastava, the head of the India Meteorological Department's regional forecasting centre, the air quality is likely to remain 'severe' this week as no major improvement is predicted till December 26. Delhi Air Pollution: Air Quality Commission Directs Strict Enforcement of Dust Control Measures in Delhi-NCR.

The official informed that the dip in the air quality to slow wind speed, low temperature, and high humidity due to a Western Disturbance. The low temperature makes the air heavier, trapping pollutants close to the ground. Meanwhile, the average air quality remained 'severe' in Ghaziabad, Noida, Greater Noida and Faridabad for the second day in a row on Wednesday, while it was 'very poor' in Gurgaon, according to data for a 24-hour period issued by a government agency on Wednesday.

An AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'. As per the Central Pollution Control Board (CPCB), an AQI in the 'very poor' category may cause respiratory illness on prolonged exposure, while 'severe' affects even healthy people and seriously impacts those with existing diseases.

According to CPCB's Sameer app, the average 24-hour AQI on Wednesday was 472 in Ghaziabad, 476 in Greater Noida, 462 in Noida, 428 in Faridabad and 340 in Gurgaon.

Air quality improves to 'very poor' in Noida, Ghaziabad, Faridabad & Gurgaon

Date:-25-Dec-2020, Source: moneycontrol.com



The average air quality in Noida, Greater Noida, Ghaziabad and Faridabad was recorded in severe category for three days in a row till Thursday, according to the agency.

The average air quality improved from severe level and was recorded in very poor category in Ghaziabad, Noida, Greater Noida, Faridabad and Gurgaon, according

to a 24-hour data issued by a government agency on Friday.

Presence of pollutant PM 2.5 and PM 10, though, remained high in the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The average 24-hour AQI at 4 pm on Friday was 391 in Ghaziabad, 376 in Greater Noida, 386 in Noida, 328 in Faridabad and 302 in Gurgaon, according to CPCB's Sameer app.

The average air quality in Noida, Greater Noida, Ghaziabad and Faridabad was recorded in severe category for three days in a row till Thursday, according to the agency.

The CPCB states that an AQI in the very poor category may cause respiratory illness on prolonged exposure while severe affects even healthy people and seriously impacts those with existing diseases.

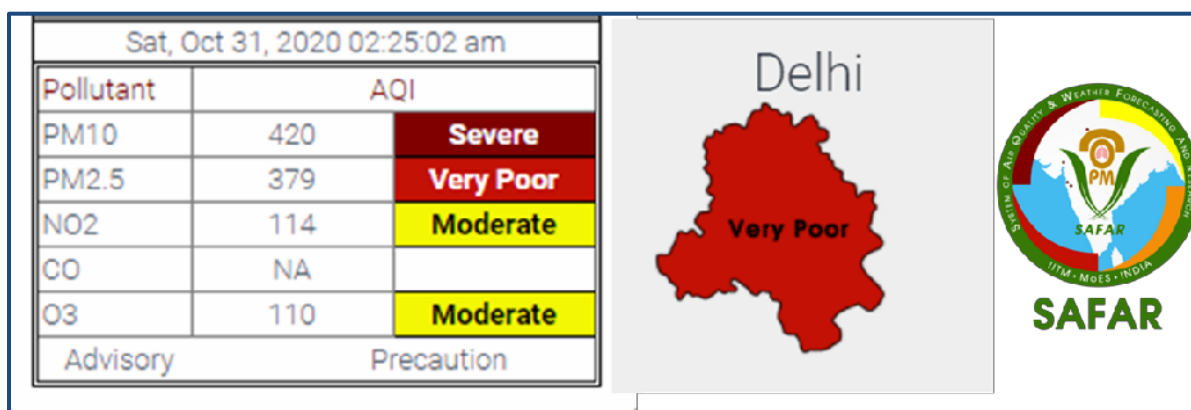
The average AQI on Thursday was 440 in Ghaziabad, 448 in Greater Noida, 441 in Noida, 408 in Faridabad and 361 in Gurgaon. On Wednesday it was 472 in Ghaziabad, 476 in Greater Noida, 462 in Noida, 428 in Faridabad and 340 in Gurgaon. On Tuesday, it was 458 in Ghaziabad, 450 in Greater Noida, 437 in Noida, 407 in Faridabad and 377 in Gurgaon. The AQI for each city is based on the average value of all stations there. Noida, Faridabad, Ghaziabad have four stations each, while Gurgaon has three and Greater Noida two, according to the app.

Rising air pollution challenge in Delhi-NCR during COVID-19 period

Date:-26-Dec-2020, Source: krishijagran.com

The air quality in Delhi NCR is the worst of any major city in the world and the poor quality of air has caused irreversible damages to the lungs of 2.2 million or 50 per cent of all children. According to the WHO, India has the world's highest death rate from chronic respiratory diseases and asthma. Certain experts say that this is the equivalent of smoking 45 to 50 cigarettes a day.

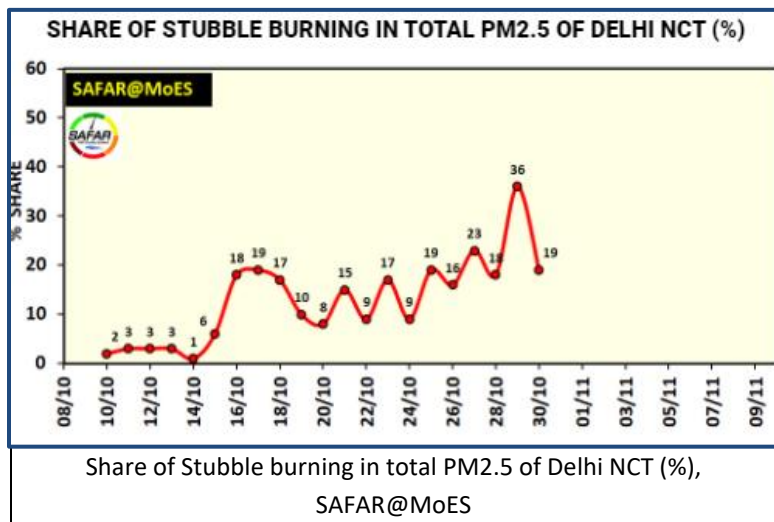
But how does it happen in Delhi-NCR? The contribution of stubble burning to Delhi's air pollution today rose to 36 per cent on October 29, 2020, which is the maximum this season so far as skies in the national capital turned yellow and hazy.



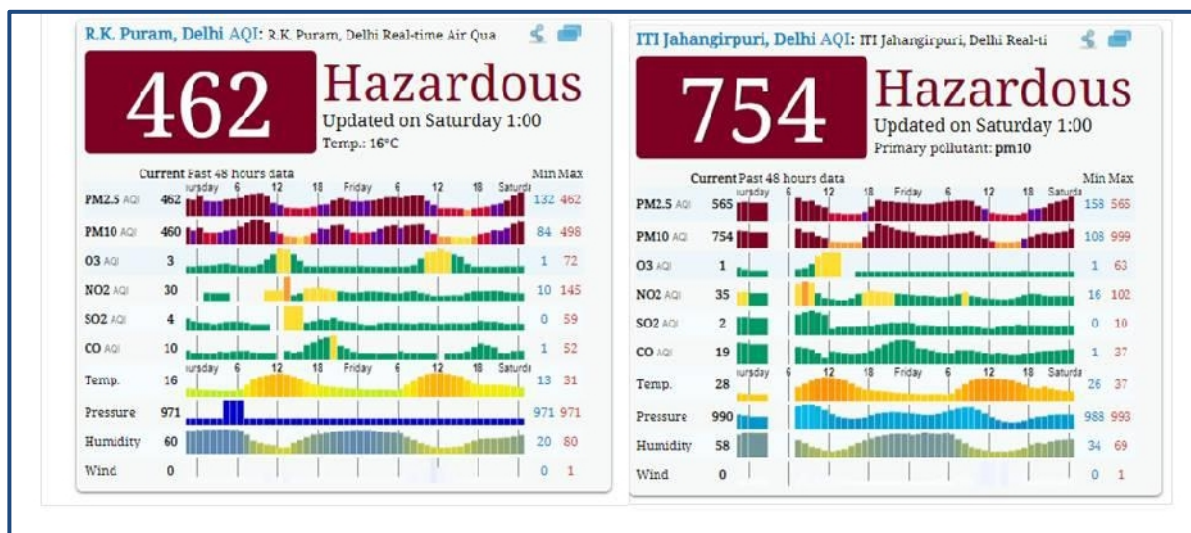
New Delhi in Very Poor Categories as per System of Air Quality & Weather Forecasting and Research, (SAFAR)

As per the data shared by System of Air Quality and Weather Forecasting & Research, (SAFAR), stubble burning contribution to Delhi's air pollution has doubled within a day. It rose from 18 per cent on October 28 to 36 per cent by the end of the month as per the NASA's satellite imagery showed a large, dense cluster of fires that covered most parts of Punjab and some regions of Haryana, indicating little relief from toxic air in the days to come.

The winter air pollution which is considered a mix of local factors and stubble burning in Punjab, Haryana, Uttar Pradesh and Rajasthan, has been a matter of great concern this year, with experts saying it could not only lead to a spike in COVID-19 cases but add to the severity of symptoms.



The Air Quality Index (AQI) on Thursday ranged from hazardous to very poor category in Delhi such as AQI was at 754 in Jahangirpuri, in the ‘Hazardous’ category, as per Central Pollution Control Board (CPCB) data. Other places AQI was 462 in RK Puram, 384 in ITO, 311 in Lodhi Road, and 387 in Punjabi Bagh, all four in the ‘Hazardous to Very Poor’ category.



Air Quality Index of R.K. Puram and Jahangirpuri, Source Air Quality Data provided by the Delhi Pollution Control Committee, aqicn.org

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To address the problem of rising pollution in the national capital, Chief Minister of Delhi Arvind Kejriwal on October 29 launched the ‘Green Delhi’ mobile app to increase citizen participation in our fight against pollution and ensure timely action against pollution sources in the city.

Farmers have to change the crop now as they have a very small window. Since the environmental concern over depleting groundwater levels in Punjab delays the sowing period

for paddy and that also delays the harvesting and when they harvest, they have little time left to sow the new crop. Therefore, for them, the fastest and easiest way to get rid of the stubble is to burn it.

Due to intense burning happening in Punjab and Haryana and Delhi's air quality becomes bad. This can only be stopped when the farmers need to be made aware about what burning of crop residue is doing to the air, to their soil because it burns and destroys the micronutrients and reduces soil fertility.

Other common air pollution causes in Delhi are:

Industrial Emission from factories

Indoor Air Pollution

Transportation

Open Burning of Garbage Waste

Construction and Demolition

To curb all this central government has issued an ordinance, making pollution an offence with a jail term, which can go up to 5 years and a penalty up to Rs 1 crore. The ordinance was issued on October 28 after the approval of President Ram Nath Kovind.

According to the ordinance, a Commission for Air Quality Management will be set up for the National Capital Region (NCR) and adjoining areas in Delhi, Haryana, Punjab, Uttar Pradesh and Rajasthan.

"Any non-compliance of this Ordinance, rules made thereunder or any other order or direction issued by the Commission shall be an offence punishable with imprisonment for a term which may extend up to five years or with fine which may extend up to one crore rupees or with both", said the ordinance.

The estimates produced by the US-based Health Effects Institute and the Institute for Health Metrics and Evaluation's Global Burden of Disease project said, "1.16 lakh infants died from air pollution in India in 2019."

The key to improving air pollution is reducing emissions and stop of stubble burning. The central government has also launched the National Clean Air Program (NCAP) earlier which aims to cut pollution in 102 of the most polluted cities by 20-30% by 2024. Under the NCAP, the government plans to cut industrial and transport emissions, reduces dust pollution, and

imposes stricter rules on biomass burning and there are also plans to upgrade and increase air monitoring systems.

Individuals can take steps in their daily life to reduce personal emissions by carpooling or taking public transport, switching to greener fuel alternatives, cycling and much more. Arvind Kejriwal has also launched a campaign to tackle air pollution in the national capital and urged people to switch off the engines of their vehicles while waiting at traffic signals "Red light on, Gaadi off.

Delhi's air quality turns "severe" again

Date:-27-Dec-2020, Source: bollyinside.com

New Delhi, Dec 27 (PTI) Delhi's air quality turned "severe" again on Sunday as high moisture content due to light rains in neighbouring areas made pollutants heavier, weather department officials said.

The city's 24-hour average air quality index (AQI) was 396, which falls in the "very poor" category. However, it rose to 406 by 10 pm.

The 24-hour average AQI was 337 on Saturday, 357 on Friday, 423 on Thursday, 433 on Wednesday and 418 on Tuesday.

An AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

Kuldeep Srivastava, the head of the India Meteorological Department's regional forecasting centre, said light rainfall in neighbouring areas due to a Western Disturbance increased moisture content in the air.

"Water droplets suspended in the air and made pollutants heavier which do not get dispersed easily even with a moderate wind speed," he said.

A marginal improvement is likely as wind speed picks up during the day, Srivastava said.

The central government's Air Quality Early Warning System for Delhi said the city's ventilation index — a product of mixing depth and average wind speed — was 3,500 metre square per second.

Mixing is the vertical height in which pollutants are suspended in the air. It reduces on cold days with calm wind speed.

A ventilation index lower than 6,000 sqm/second, with the average wind speed less than 10 kmph, is unfavourable for dispersal of pollutants.

Air quality improves significantly in Noida, Ghaziabad, Faridabad

Date:-28-Dec-2020, Source: business-standard.com



The average air quality improved drastically to reach "poor" level from "severe" in Ghaziabad, Noida, Greater Noida, Faridabad and Gurgaon.

The average air quality improved drastically to reach "poor" level from "severe" in Ghaziabad, Noida, Greater Noida, Faridabad and Gurgaon, according to a 24-hour data issued by a government agency on Monday.

Presence of pollutants PM 2.5 and PM 10 also remained high in the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The average 24-hour AQI at 4 pmonMonday was 256 in Ghaziabad, 237 in Greater Noida, 225 in Noida, 296 in Faridabad and 226 in Gurgaon, according to CPCB's Sameer app.

The CPCB states that an AQI in the poor category may cause breathing discomfort to people on prolonged exposure.

The average AQI onSunday was 407 in Ghaziabad, 418 in Greater Noida, 405 in Noida, 404 in Faridabad and 359 in Gurgaon.

The AQI for each city is based on the average value of all stations there. Noida, Faridabad, Ghaziabad have four stations each, while Gurgaon has three and Greater Noida two, according to the app.

Air pollution poses a grave health risk in India

Date:-29-Dec-2020, Source: [gulftoday.ae](https://gulfnews.com/india-south-asia/air-pollution-poses-a-grave-health-risk-in-india-1.1044444)



Study pointed out that air pollution killed nearly 1.7 million people in India in 2019.

Causing 18 per cent of deaths in India and a loss of \$36.8 billion in 2019, air pollution is an urgent and pressing obstacle on India's target to become a \$5-trillion economy by 2024.

Stating this, a study by the India State-Level Disease Burden Initiative, published in the reputed medical journal, *The Lancet*, pointed out that air pollution killed nearly 1.7 million in India in 2019 – of which, 0.98 million deaths were due to ambient

particulate matter pollution and 0.61 million due to household air pollution. The economic loss due to air pollution was 1.36% per cent of India's GDP in 2019.

Prof. Lalit Dandona, Director of the initiative, who is also National Chair of Population Health at ICMR, Professor at PHFI, and senior author of this paper has said that improved methods in this paper have led to a higher estimate of the impact of air pollution on health and disease in India than previously estimated.

In October, the State of Global Air 2020 report had highlighted that 1.6 million premature deaths in India are attributable to the menace of air pollution in 2019 alone.

As Down to Earth highlights, the report has both good and bad news for India: Indoor, or household, air pollution caused 64 per cent fewer deaths in the last two decades (1990-2019). The bad news is that outdoor air pollution, or ambient air pollution, is not only increasing but also killing more.

The death rate due to ambient particulate matter pollution increased by 115.3% from 1990 to 2019, due to ambient ozone pollution increase of 139.2% and household air pollution increase by 64.2%. Of the total deaths attributed to air pollution, 32.5% were due to chronic obstructive pulmonary disease, 29.2% due to ischemic heart disease, 16.2% due to stroke and 11.2% due to lower respiratory infections.

The report notes, the fight against household air pollution needs to be intensified, given household pollution is a large contributor to the overall particulate matter pollution.

The study explains that the death rate due to household air pollution decreased by 64.2% from 1990 to 2019, while that due to ambient particulate matter pollution increased by 115.3% and that due to ambient ozone pollution increased by 139.2%.

The economic loss due to premature deaths and illness attributable to air pollution — outdoor and household — as a percentage of state GDP was 1.08% in Delhi. The highest loss to GDP was recorded by Uttar Pradesh at nearly 2.6% followed by Bihar at 1.9% and Madhya Pradesh and Rajasthan 1.7% each.

Haryana, Delhi, Uttar Pradesh and Bihar endure maximum exposure to PM_{2.5} pollution while 70% of the populations in Bihar, Jharkhand, Chhattisgarh and Odisha are still dependent on solid fuels.

A Weather Channel reports highlights that data presented in the study shows that most of the states suffering maximum economic losses due to exposure to pollution are also the states with the lowest per-capita income. The states across Indo-Gangetic Plain, including Haryana, Delhi, Uttar Pradesh and Bihar, endure maximum exposure to PM_{2.5} pollution, with an annual mean concentration of more than 100 units, while the international safe limit for PM_{2.5} exposure remains 10 units. The annual average population-weighted mean PM_{2.5} concentration was shown to be 91.7 units in India in 2019.

On the other hand, more than 70% per cent of the populations in Bihar, Jharkhand, Chhattisgarh, Odisha, Assam and Meghalaya, are still dependent on solid fuels, increasing the risk of deaths due to household air pollution exponentially.

The study records that the high burden of air pollution in India and its substantial adverse impact on output could impede India's overall economic development and social wellbeing unless they are addressed as a priority. The variations in these impacts between states indicate that investments in state-specific air pollution control strategies are needed to reduce the significant adverse health and economic impact of air pollution across India.

Citing the US, the study said every dollar invested in the control of ambient air pollution since 1970 is estimated to have yielded an economic benefit of \$30, based on the willingness-to-pay approach. The study highlights the reduction in pollution in the US as a case example that a substantial reduction in pollution can be achieved even with a growing economy.

The government has launched several programmes to curb air pollution. The National Clean Air Programme launched in 2019 aims for a 20-30% reduction in PM2.5 and PM10 concentrations by 2024 in 102 cities.

Mumbai records lowest temperature of the season at 15 degree Celsius

Date:-30-Dec-2020, Source: hindustantimes.com



People take a walk in Aarey Milk Colony, on Tuesday, December 29, 2020

The city woke up to a chilly Tuesday morning as temperatures dipped to their lowest this season.

The Santacruz station of the India Meteorological Department (IMD) recorded a minimum temperature of 15 degree Celsius, 2.4 degrees below normal, and Colaba recorded 17 degree Celsius, 2.8 degrees below normal.

The minimum temperature at Powai dropped to 12.82 degree Celsius while in Goregaon it was 13.8 degree Celsius.

Maximum temperatures also remained low on Tuesday. Santacruz recorded a maximum temperature of 29.9 degree Celsius, 1.4 degrees below normal. Colaba recorded 28.5 degree Celsius, 2.2 degrees below normal.

“The fall in temperature is mostly due to the cold northerly to north-westerly winds from the northern plains in association with the passage of western disturbance. Cold conditions are likely to continue through Wednesday,” said KS Hosalikar, deputy director-general of western region, IMD.

IMD had predicted a fall in temperatures for two to three days from Sunday.

Earlier, the lowest temperature recorded this season was 15.8 degree Celsius on December 23. Last year, the lowest recorded temperature was 16.4 degree Celsius, and in 2018 it was 14.4 degrees.

Meanwhile, the air quality in Mumbai and around deteriorated on Tuesday to poor from moderate on Monday. The city’s overall air quality index (AQI) — a pollutant measuring indicator – was 239 (poor) according to the System of Air Quality Weather Forecasting and Research (SAFAR).

Bandra-Kurla Complex (BKC) experienced very poor quality of air with an AQI of 341. Air quality was also very poor in Navi Mumbai, which recorded an AQI of 322.

A spokesperson from SAFAR said that the air quality dipped on expected lines as lower temperatures lead to higher levels of pollution.

Delhi's air quality in December best in 4 years: CPCB

Date:-31-Dec-2020, Source: deccanherald.com

The capital recorded four "severe" air quality days this December as compared to eight each in 2019 and 2018 and one in 2017.

Pollution levels in Delhi this December were the lowest in the last four years, according to the Central Pollution Control Board (CPCB).



A man walks along a road on a smoggy morning in New Delhi, India,
December 23, 2020

The average air quality index (AQI) for December stood at 308. It was 337 last year, 360 in 2018 and 316 in 2017, the CPCB data showed. The capital recorded four "severe" air quality days this December as compared to eight each in 2019 and 2018 and one in 2017. There were 10 "poor" air days this

December as against seven, four and nine in 2019, 2018 and 2017, respectively.

The city recorded a peak AQI of 433, which is also the lowest in four years. In December 2019, the peak AQI was 446. It was 450 in 2018 and 469 in 2017. Kuldeep Srivastava, the head of the regional forecasting centre of the India Meteorological Department, said strong winds, courtesy western disturbances, led to better air quality this December as compared to previous years.

High daytime temperature led to better ventilation conditions. Light rainfall under the influence of western disturbances also washed away the pollutants, he said.



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