



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 for air pollution and climate change categories, 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.

The COVID-19 pandemic has resulted in numerous effects on the environment and climate. The global reduction in modern human activity such as the considerable decline in planned travel was coined anthropause and has caused a large drop in air pollution in many regions. In China, lockdowns and other measures resulted in a 25 percent reduction in carbon emissions and 50 percent reduction in nitrogen oxides emissions, which one Earth systems scientist estimated may have saved at least 77,000 lives over two months. However, the pandemic has also provided cover for illegal activities such as deforestation of the Amazon rainforest and poaching in Africa, hindered environmental diplomacy efforts, and created economic fallout that some predict will slow investment in green energy technologies. This article contains the news which gives the information about changes in environment and climate during pandemic.

CONTENTS

Sr. No.	Title	Page No.
▪	Articles in Media - Global	
▪	January 2020	1
1	Tehran's Air Pollution Culprits: A Breakdown	1
2	Canberra air quality 'worst in world' as bushfire smoke chokes capital	3
3	Smog May Be Bad for Your Bones	4
4	Beijing's air quality shows significant improvements as 'war on pollution' targets coal use	5
5	Shutdown of coal-fired plants in US saves lives and improves crop yields	7
6	London's first permanent "City Trees" soak up pollution	8
7	Graphene gas sensors for real-time monitoring of air pollution	9
8	California's latest pollution push: Banning gas-powered mowers and blowers	10
9	Poor air quality caused by bushfire smoke posing serious risk for healthy people too, health experts warn	12
10	Genetically engineered poplar trees slash air pollution in 3-year field trial	15
11	Bangkok has world's third worst air quality	17
12	Dust from car BRAKES is as harmful as diesel fumes: Pollution 'damages the immune system and raises the risk of lung infections'	18
13	\$1.3M Air Pollution Fine Issued to Gorge Aluminum Recycler	20
14	Installing air filters in schools to sieve out toxic pollutants 'can boost pupils' grades and improve learning as much as cutting class sizes by a third'	21
15	Air pollution: your exposure and health risk could depend on your class, ethnicity or gender	23
16	How bushfires and air quality are putting pressure on the health system in communities away from the fire front	25
17	Sarajevo and Belgrade among the most polluted world capitals	27
18	Poor air quality in Bangkok and northern Thailand today	28
19	Allegheny County issues another fine to US Steel for air pollution violation	29
20	Smoke haze from Australian bushfires pose serious public health threat	30
21	Australian Open May Halt Play in Elevated Air Pollution	33
22	Breathing in fine particles from air pollution on a smoggy day for just six hours could trigger a heart attack, study finds	34
23	Govt blames public for PM2.5 levels	36

Sr. No.	Title	Page No.
24	Brazilian wildfire pollution worsens air quality in distant cities	37
25	New Hampshire Warns of Poor Air Quality Until Saturday	38
26	Air pollution in New York City linked to wildfires hundreds of miles away	39
27	Thai Protesters Demand Action as Air Pollution Clouds Bangkok	40
28	Air-filtering buses to be deployed in English towns and cities	41
29	Wildfires in Western Canada Created Air Pollution Spikes as Far Away as New York City	42
30	Living Near Major Roads And Their Polluted Air Tied to Parkinson's, Dementia	43
31	Red Sea is potent source of hydrocarbon emissions	45
32	7,000 trees will be planted in London to improve air quality	46
33	Suffocating in Thailand	47
34	Australia's bushfires are approaching its capital Canberra	49
▪	February 2020	52
35	Suffocating smoke is BACK: Choking smog from raging bushfires is expected to blanket Sydney - and it's not leaving any time soon	52
36	AIR POLLUTION Hazy days and Sundays – Bangkok has fifth highest air pollution in the world	53
37	Thai govt combats PM2.5 air pollution	55
38	S. Korea unveils 5-year plan to take big bite out of PM2.5 smog	56
39	Quality of air in Bucharest-Romania: is it fog or is it smog?	57
40	Bangkok Stopped Construction Activities for 3 Days because of the Poor Air Quality	58
41	Report: Half The Texas Refineries Spewing Benzene Above Federal Threshold Are Near Houston	59
42	Call for action on 'deadly impact' of air pollution in Islington	62
43	Starting (and Stopping) a Fire to Study It	64
44	Air pollution has major impact on children in sport, study warns	66
45	Stricter Clean Air Laws Could Save Thousands of Lives a Year: Study	68
46	Air Pollution from Fossil Fuels Costs \$8 Billion Per Day, New Research Finds	69
47	'Clearing the Air' author brings hope for the future of air pollution	70
48	China's capital shrouded in air pollution despite reduced emissions from coronavirus economic slowdown	71
49	Dublin council official calls for ban on parents driving children to school	73
50	Cyprus' struggle with air pollution	75
51	Opening your windows doesn't help reduce indoor air pollution	76
52	Sale of coal and most polluting wood burned at home will be phased out to combat air pollution	77
53	Calls for national action on bushfire smoke health impact	78

Sr. No.	Title	Page No.
54	Government moves to ban old-style wood and coal-fueled burners to improve air quality	80
55	Climate change causes disease and pollution	82
56	Kathmandu slightly up in global air quality ranking	83
	Coronavirus: Space images reveal drastic fall in pollution over China as factories closed	85
▪	March 2020	87
57	NASA images show 'dramatic' drop in air pollution amid coronavirus	87
58	Chiang Mai has the world's worst air quality for second straight day	88
59	NASA maps show the effect of a quarantine on air pollution	89
60	Dramatic cuts to air pollution in Europe and Asia could SPEED UP climate change in the short term and lead to heatwaves and heavier rainfall - but 'doing nothing would be worse'	90
61	Albuminuria, CKD Linked to Air Pollution	91
62	Electric cars may not stop air pollution as experts find this car part is most dangerous	93
63	'Ghost Flights' Still Polluting the Skies as Coronavirus Keeps Passengers Grounded	95
64	A breath of fresh air: Pollution in China drops	96
65	Satellite images show how smog pollution has dropped in northern Italy after weeks of coronavirus restrictions	98
66	Italy's Coronavirus Lockdown Is Already Lowering Air Pollution	99
67	Malaysia Installs Air Pollution Early Warning System Using Gas Chromatography	100
68	Air Pollution in Italy Drops Dramatically During Coronavirus Outbreak	101
69	How Pollution Aggravates the Impact of Coronavirus	103
70	Thousands of lives have been SAVED in China since the coronavirus outbreak started, claim scientists after lockdowns drive down air pollution around the globe	105
71	Unexpected upside to coronavirus shutdown? Cleaner air.	109
72	30% cut in Israel's air pollution	111
73	AI system can predict air pollution before it happens	112
74	At Least Air Quality Is Much, Much Better With Everyone In Quarantine	113
75	Novel AI system can predict air pollution levels in advance	115
76	Air pollution in Malta falls by up to 70 per cent in just one month	116
77	Air quality is picking up in quarantined countries	117
78	Coronavirus: Bay Area air quality is improving as people stay home Fewer vehicles on the road, slowing economy lead to blue skies in Bay Area, China, Italy	118
79	Coronavirus pandemic leads to huge drop in air pollution	121
80	Virus lockdown makes big dent in Paris air pollution	122

Sr. No.	Title	Page No.
81	Coronavirus lockdown leading to drop in pollution across Europe	123
82	Is Turkmenistan Responsible for Poor Air Quality in Zagreb?	124
83	Dangerous air pollutants falling as people stay home during the lockdown	125
84	Vietnam's Big Air Pollution Challenge	126
85	Kathmandu breathes relaxed as lockdown improves air-quality	128
▪	April 2020	131
86	Coronavirus: Wales' air pollution drops because of lockdown	131
87	Is the COVID-19 pandemic impacting air quality?	132
88	Lockdown eases seasonal smog – but less than expected	133
89	Birdsong and clear views: coronavirus lockdown clears Paris pollution	135
90	Tehran Air Quality Worsens	136
91	Colorado sees “significant declines” in air pollution as coronavirus ramps down driving, industrial activity	136
92	As Many Stay Home, L.A.'s Air Quality Is Better Than It's Been in Decades	140
93	Air pollution falls dramatically in parts of Ireland following travel restrictions	141
94	Curbing rush hour isn't reducing air pollution in some parts of Houston	142
95	Babies in low strollers may be exposed to higher levels of air pollutants	143
96	Air pollution down 38% in Indianapolis as Hoosiers stay home to stop spread of coronavirus	144
97	Coronavirus Air Pollution Plunge Could Guide San Diego Climate Plans	147
98	When coal plants decrease pollution or shut down, people have fewer asthma attacks	150
99	Portland Air Pollution Drops Along With I-5 Traffic	153
100	Fires near Chernobyl make Kiev air most polluted in world	154
101	Air pollution in Kyiv not associated with fires in Chernobyl, - State Emergency Service	155
102	An Unintended Consequence of COVID-19 Shutdowns? Blue Skies and Cleaner Air	156
103	Researcher finds significant pollutant has dropped 30-40 per cent in major Ontario cities	158
104	Cleaner air due to coronavirus pandemic makes Earth Day 50th anniversary celebration bittersweet for environmentalists	160
105	Air pollution levels have fallen by more than a third in Manchester since the coronavirus pandemic lockdown, a study reveals	162
106	Coronavirus lockdown has 'dramatically improved' air quality in London, mayor says	164
107	Coronavirus detected on air pollution particles: report	165

Sr. No.	Title	Page No.
108	Falling visibility shows African cities suffering major air pollution increases	166
109	How the pandemic is changing air pollution levels	167
110	Air quality near busy Australian roads up to 10 times worse than official figures	168
▪	May 2020	171
111	France's plan to push pedal power to keep post-pandemic pollution levels low	171
112	Amid the coronavirus shutdown, some types of air pollution down by as much as 60 percent in Portland	172
113	Cleaner Air Because of Coronavirus Lockdowns Is Saving Thousands of Lives	174
114	Air Quality Awareness Week is May 4 - May 8, 2020	175
115	Air pollution on the rise in China as coronavirus lockdown ends	176
116	Air pollution blowing in from Europe causes a spike in harmful particles over London - just as nitrogen dioxide levels HALVE due to a fall in traffic during the coronavirus lockdown	178
117	Researchers report decrease in South African air pollution during lockdown	180
118	Florida's air is cleanest on record	181
119	El Paso lands itself at the top of most polluted cities in the U.S., can this affect the COVID-19 cases?	182
120	COVID-19 lockdowns significantly impacting global air quality	183
121	Urban air quality improves as coronavirus empties U.S. highways: NOAA	185
122	Air quality and prevents thousands of premature deaths	186
123	Oxford city centre has seen a historic 59% drop in toxic air pollution following the coronavirus lockdown – new data	188
124	China sees post-lockdown rise in air pollution: study	190
125	Carbon emissions dropped 17 percent globally amid coronavirus	192
126	Carbon pollution fell 17 percent during coronavirus lockdown peak	195
127	New Orleans air pollution plummeted during coronavirus shutdown, but how long will it last?	196
128	Why a 17% emissions drop does not mean we are addressing climate change	198
129	Pollution levels in Musselburgh dropped to zero as people stay at home during lockdown	200
130	As lockdown clears the air, Cairo looks to keep pollution low	202
131	Air Quality Improves Across the Province During the COVID-19 Crisis	204
132	Dhaka's air quality improves after rain	205
133	The Worst U.S. Cities for Air Pollution	206

Sr. No.	Title	Page No.
▪	June 2020	207
134	COVID-19 lockdown has a significant impact on air quality	207
135	Scientists From Colorado Say They Have Found The Cleanest Air On Earth	208
136	Air pollution in China back to pre-Covid levels and Europe may follow	209
137	Air pollution falls nearly 40% in some Canadian cities amid COVID-19 lockdowns	211
138	Significant Drop in Air Pollution During COVID-19 Pandemic	214
139	Sunny and warm today; Air Quality Advisory starts Sunday night	215
140	Blue-sky thinking: how cities can keep air clean after coronavirus	216
141	COVID-19 is bad. Dirty air makes it worse	221
142	Spain sees rise in air pollution as corona virus lockdown eases	222
143	Green recovery must focus on the local variations in air pollution	224
144	Air pollution remains low across Europe	225
145	Arctic pollution: Air quality monitoring at 40°C below zero	226
146	Review: Pakistan's feeble fight against filthy air	228
147	Lockdown: Hope Street sees biggest drop in air pollution in UK	230
148	Pandemic Aftermath: Worst Air Pollution and Extreme Traffic Congestion Expected After Lockdown as Private Cars Increase	231
149	Air pollution down by one third thanks to lockdown	233
150	Air quality improved in Southeast during height of Coronavirus	235
151	Half of the world's population exposed to increasing air pollution	236
152	Pollution watch: air quality benefits of lockdown continue	237
153	Air pollution reduced amid pandemic in Washington state	238
154	Pandemic has silver lining: Improved air quality	239
155	Emissions, natural gas use down at UMD amid COVID-19 shutdown	241
156	London pollution: How has lockdown affected the city's air quality?	243
157	The Streets Cleared; The Air Did Not	245
158	Breakdown: Why COVID-19 may have improved global air quality	247
159	Paris region imposes driving restrictions as pollution levels spike amid soaring temperatures	248
160	AQI: Dhaka's air quality 'satisfactory'	249
161	Reduced air quality and isolated storms on Saturday	249
162	Poor air quality on London's tube network could act as a warning sign for serious Covid-19 outbreak	250
163	Cause of mysterious air pollution in Eastern China identified	251
164	The paradox of air pollution in the Kathmandu valley	253
▪	July 2020	257
165	Towns and villages suffering from air pollution during Covid-19 pandemic	257
166	Ambient air quality impacts respiratory admissions	258

Sr. No.	Title	Page No.
167	Commuter hotspots in London recorded up to 50% drop in air pollution during lockdown	259
168	Air Quality Has Sharply Improved Around the World During COVID-19	260
169	Dhaka's air quality improves significantly	262
170	These are the best ways to tackle air pollution and climate change together	263
171	Our future air quality at a crossroads?	266
172	Coronavirus has reduced air pollution from aviation, automobile industries – Professor	268
173	Air pollution remains low in parts of the UK	269
174	Chicago air is dirtier in July than smog-choked Los Angeles. More bad air is forecast.	270
175	Free-flowing traffic is making it easier to breathe: Air pollution is at 30% of pre-lockdown levels in London and major UK cities because vehicles are spending less time stuck in queues	273
176	Chicago suffering from poor air quality	275
177	Air quality improves with less cars on the road amid COVID-19 pandemic	278
178	Air pollution is still 30% lower than pre-lockdown levels in major cities across the UK	279
179	"Convincing link" between air pollution, high covid-19 figures in n. brabant, limburg"	281
180	Air pollution in the Twin Cities dropped 20% during COVID-19 shutdown, U of M finds	282
181	Air pollution in China dropped by half during lockdown	283
182	Air Quality Advisory Extended Through Sunday	284
183	Coronavirus lockdown leads to less air pollution, more clean energy	284
184	China's covid drop in air pollution	285
185	Unbelievable! This place has worse air quality than Delhi	287
186	Deadly levels of air pollution come from unexpected sources, study finds	288
187	Near Downtown, Dirty Air On The Decline During COVID-19	289
188	Indoor air quality poses serious health risks	290
189	Here's how air pollution and regular exercise affect high blood pressure	292
190	Lockdown saw modest drop in China air pollution – study	294
191	The most harmful air pollutants hardly declined during lockdown	295
192	N. China's Tianjin reports improving air quality in H1	296
193	London breaching air pollution limits	297
194	Experts in SE Asia call for regional collaboration in fighting air pollution	298

Sr. No.	Title	Page No.
▪	August 2020	300
195	Residents of England's most polluted spot divided over solution	300
196	Judge upholds Colorado air quality rules for oil, gas sites	302
197	Safe air pollution limits are being breached in Wigan	303
198	Low air pollution in Tendring despite breaches across England	304
199	Drivers from poor cities can be exposed to 80% more air pollution	305
200	American air pollution laws: A history of constant amendments	306
201	Half of the world's population exposed to increasing air pollution, study shows	308
202	Windows-down driving dramatically increases exposure to air pollution	309
203	Air pollution is decreasing our average lifespan by two years	310
204	Smart Fire Use Encouraged To Reduce Air Pollution	312
205	Essex air pollution to rise to 'high' tomorrow - with storms in the evening	313
206	Air pollution in the winter linked to more hospitalizations for strokes	313
207	China's plan to boost railway freight falls behind target, knocking air pollution battle off track	314
208	Louisville Air Pollution Improving, But Ozone Problems Remain	315
209	Air pollution in China drops by 10% owing to coronavirus restrictions	318
210	Opinion/Commentary: Fine-particle air pollution has decreased — for some people	319
211	Drivers who keep their car windows open likely to be exposed to more air pollution: Study	321
212	Bay Area fires: Spare the Air alerts issued through Wednesday, smoke blankets the Peninsula	323
213	Government to introduce legally binding air pollution targets	324
214	Bristol City Council to backtrack on Clean Air Zone	325
215	Air quality alert issued in Fairfield, New Haven counties	326
216	Air Quality Alert in place for Treasure Valley; placed in 'orange' category	327
217	Wildfires bring smoke to the Central Valley	328
218	Despite lockdown, air pollution continues to rise. Here's why	329
219	Wildfire haze, record heat and pollution combine to make Front Range air quality dangerous for all	330
220	Air Pollution Forecast and Caution continues for Southeast Idaho	333
221	Air Monitors Disabled on Gulf Coast as Storm Unleashes Pollution	334
222	Wildfires Pollute Clark County Air	335
223	Opinion: After Feds' Failure, NYS Must Crack Down on Air Pollution	337
224	Environment Canada warns of air pollution as crews continue to battle fires in western Nova Scotia	339
225	Dhaka's air unhealthy for sensitive groups	340

Sr. No.	Title	Page No.
226	California Adopts Bill to Clean Air Inside and Out of School	341
▪	September 2020	343
227	UK citizens are taking air pollution monitoring into their own hands	343
228	Asphalt adds to air pollution, especially on hot, sunny days	345
229	It's not just cars that make pollution. It's the roads they drive on, too	346
230	Air pollution from busy traffic and its 'Grim Reaper' effect on Glasgow communities	348
231	The horror of the Australian bushfires and air pollution	352
232	Wildfire smoke makes air quality in Colorado Springs among worst in the world	354
233	Lockdown did not reduce "most harmful" type of air pollution in Scotland	355
234	It's not the end of the world, despite appearances to the contrary in Berkeley	357
235	Pollution watch: air pollution in China falling, study shows	358
236	Vancouver currently has some of the worst air quality out of the world's major cities	360
237	How climate change is fueling record-breaking California wildfires, heat and smog	363
238	West coast cities face the world's worst air quality as wildfires rage	368
239	Wildfire smoke causes record pollution in Oregon, wafts as far as Washington, D.C.	369
240	In Los Angeles, the smoke just hangs all day, every day. Residents say it's taking a toll	370
241	Western wildfire smoke causes East Coast haze, vivid sunsets	374
242	Vancouver again tops list Friday morning for worst air quality in the world	375
243	Expert recommends staying indoors as west coast wildfire smoke reaches Saskatchewan	377
244	In Shutdown, Less Traffic Doesn't Mean Cleaner Air	378
245	Unhealthy air conditions due to wildfires may cause long-term health effects	380
246	How can smoke from West Coast fires cause red sunsets in New York?	383
247	Some Cities See Air Pollution Surge After Covid Lockdowns	384
248	Emissions fell during lockdown. Let's keep it that way	386
249	The number of deaths attributable to air pollution has increased	388
250	Cooler air blamed for PM2.5 rise	390
251	Northern California faces more fires amid record-breaking heat, poor air	391
252	China's Success in Improving Air Quality by Cutting Polluting Emissions May Worsen Climate Change	391
253	Clean air campaign encourages Scottish motorists to give up driving	393

Sr. No.	Title	Page No.
▪	October 2020	395
254	2020 becomes another historic year for good air quality in Virginia	395
255	Wildfire Smoke Is Laced with Toxic Chemicals	396
256	Air quality still an issue through the weekend	399
257	Denver weather: Wildfires fuel poor air quality across much of the Front Range Sunday	400
258	Air Pollution Will Kill More People This Year Than Coronavirus. What's to Be Done?	401
259	Tiny air pollution particles linked to Alzheimer's and Parkinson's disease are found in the brain stems of young people	404
260	Clean air day: York on buses, pollution and banning cars	406
261	Covid-19 deaths exacerbated by urban air pollution	407
262	Hazy skies	409
263	Clean Air Day protest highlights air pollution in Wandsworth	410
264	African countries need more air quality data - and sharing it unlocks its benefits	411
265	North Charleston area will be tested for toxic air pollutant with new EPA grant	413
266	Soluble iron in skies over China's cities could create health risk – study	415
267	Global CO2 emissions dive 8.8% in first half of 2020	417
268	Clean Air Zones: Encouraging Sustainable Travel After Covid-19	418
269	EPA: New England experienced fewer unhealthy air quality days during summer 2020 compared to summer 2019	420
270	Unhealthy Air Forecast for Sunday in East San Fernando Valley	421
271	This city's AQI rating is worst in the world. No, it's not Delhi!	422
272	Heavy smoke from wildfires, expected to worsen as the climate changes, adds to public health concerns about air quality	423
273	Some air pollutants increased in Austin during the pandemic. The big question is why?	427
274	Air pollution 'costs the average London citizen £1,180 every year'	429
275	Chinese air pollution to blow into Taiwan on Friday	430
276	Tough air quality rules are making a difference, says London's mayor	431
277	Clouds of Concern Linger as Wildfires Drag into Flu Season and Covid-19 Numbers Swell	433
278	What's in Mount Isa's plume and how is the air quality monitored?	438
279	New UN report details environmental impacts of export of used vehicles to developing world	441
280	Air Pollution Linked With 15% COVID-19 Deaths Worldwide: Study	443
281	Tough air quality rules are making a difference in London	444
282	Smog Could Increase COVID-19 Deaths by 15% Worldwide	446
283	Air quality in Spokane moves to 'unhealthy' range as dust fills the sky	448

Sr. No.	Title	Page No.
▪	November 2020	450
284	Scotland consults on proposals to improve air quality	450
285	Study estimates the proportion of COVID-19 deaths due to air pollution	451
286	Can Air Pollution Make COVID Even Deadlier?	452
287	EU urged to correct transport decarbonisation 'anomaly' to reach climate targets	454
288	In Europe, air pollution fell while plastic use rose during the lockdown	457
289	Air pollution from China to cover north Taiwan before moving south: EPA	458
290	A Moment of Global Respiratory Failure	459
291	Air pollution harms most vulnerable	462
292	Qatar, Egypt most affected Arab countries by air pollution: HEI Report	464
293	Pakistan's Lahore Sees Peak Pollution as Coronavirus Surges	467
294	Exposure to air pollution during fetal period, early life linked with higher blood pressure	469
295	How Utah's air pollution affects homeless populations	470
296	The United States May Have Set Itself Up for the Spread of a Pandemic Without Even Knowing It	472
297	Study finds air pollution levels in Education City much lower	475
298	Health in dust belt cities and beyond—an essay by Nick Middleton	476
299	Reducing aerosol pollution without cutting carbon dioxide could make the planet hotter	480
300	The roads in Fulham where 56 new air pollution monitors will be installed	483
301	NASA: Global nitrogen dioxide emissions plummeted by 20% during Covid-19 lockdowns	485
302	Residents express health concerns as smog engulfs Pattaya	485
303	London weather: The story behind the capital's 'killer' fog that was so thick you could barely go outside	486
304	UK's Air Quality Expert Group seeks evidence on fine particulate matter	488
305	Improvement in Europe's Air Quality Over Past Decade	489
306	Used light-duty vehicles add to Africa's air pollution	491
307	Premature deaths due to air pollution in Europe remain too high despite improved air quality	493
308	Portland proposes new fees for air pollution and greenhouse gas emissions	494
309	Edinburgh locals warned to 'avoid' street in Leith due to poor air quality caused by fire	496
310	Poor air quality causes over 400,000 premature deaths in EU each year	497

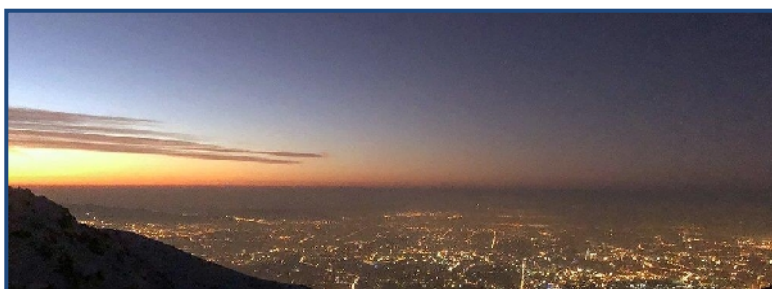
Sr. No.	Title	Page No.
▪	December 2020	499
311	Special Report: U.S. Air Monitors Routinely Miss Pollution - Even Refinery Explosions	499
312	Certification process to reduce methane emissions	506
313	Climate Change Most Significant Threat to World Heritage Sites: IUCN Report	507
314	Nairobi's air has been polluted for decades: new review suggests a path forward	508
315	Clean Air for All – How polluted air harms human health	511
316	Outdated bushfire smoke alerts 'put Australians in danger'	514
317	Exclusive: U.S. Air Pollution Monitoring Network Falling Into Disrepair - GAO Report	516
318	EPA declines to strengthen soot standard	518
319	Emissions from Cooking Stay Longer in Air and Add to Climate Change	519
320	Scottish species and habitats 'devastated' by pollution	520
321	Action plan to tackle region's air pollution as it rises to pre-pandemic levels	522
322	Woes for Thailand: Bangkok air pollution at unsafe levels; more cases of Covid-19 reported	523
323	UN climate summit registers new carbon-cutting pledges	524
324	Fine Particle Pollution is Down, But Still Killing People	528
325	The US saw cleaner air during COVID-19 lockdowns, but some pollutants persisted	529
326	Air pollution could make COVID-19 worse. That's put Elyria-Swansea on edge	530
327	Air Pollution Takes a Toll on Your Kidneys	533
328	Air Pollution Monitoring Using IoT Can Help Us Breathe Easier	534
329	Curbing climate change will be way forward to counter future pandemic across the globe	536
330	Air District Extends Winter Spare the Air Through Tuesday	537
331	A Breath Of Fresh Air: Pollution In China Drops	538
332	Major air pollution study will help put city 'ahead of the curve'	540
333	New Jersey, other states pass on climate-change plan for transportation	542
334	High Pollution Advisory extended through Saturday for Maricopa County	544
335	Editorial: Air pollution another life threat to Kabul residents	545
336	How CO2 can help the construction industry emit less CO2	546
337	New N.J. rules would crack down on pollution from power plants, trucks, industrial boilers	547
338	Climate change measures top California environmentalists' 2021 state priorities	549
339	New Year's Fireworks Could Degrade Southern California Air	551

Articles in Media - Global

January 2020

Tehran's Air Pollution Culprits: A Breakdown

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Tehran's Air Pollution Culprits: A Breakdown

Air pollution has long been an environmental and health nuisance both for the citizens and urban managers of Tehran.

Experts have repeatedly emphasized that burning fossil fuels, factories operating within city limits, the excessive

use of private cars and the growing number of low-quality motorcycles are the main culprits.

However, Tehran Air Quality Control Company recently conducted a study on the nature and sources of pollutants, which changes the long-presumed share of these culprits in the chronic air pollution.

The study names pollutants affecting air quality as carbon monoxide, carbon dioxide, nitrogen monoxide, nitrogen dioxide, sulfur dioxide, ground-level ozone and particulate matters (PM2.5 and PM10). These pollutants are classed as primary and secondary.

Pollutants directly emitted into atmosphere are considered primary, such as SO₂, NO₂, NO, CO and PMs. Through their exposure to atmospheric elements like sunlight and high temperature, these pollutants can be converted into other carcinogens like nitrate (NO₃) and sulfur trioxide (SO₃), which are called secondary pollutants.

However, the study shows that among all pollutants, particulate matters, especially PM2.5, are the most harmful due to their ability to penetrate deep into the lungs and blood streams unfiltered, causing heart attacks, respiratory disease and premature death.

Focusing on the primary origins of these microscopic killers, the study provides a new configuration of their contributing to PM2.5 emission.

Share of Pollution Sources

The sources are mainly divided into stationary and mobile modes. Stationary sources, which include industrial units, generate 24% of the total PM2.5 in Tehran's air.

Mobile sources are responsible for the remaining 76%, including private cars, taxis, motorcycles, minibuses, buses, heavy duty vehicles and airplanes.

Until now, almost all analyses are compatible with the previous data. But the interesting part is the share of each source in the category.

According to the new data, the highest level of emission is spewed by passenger buses, equal to 31%, even more than all the stationary sources of pollution in the city.

Heavy duty vehicles are the next most polluting source with 23.7%, followed by motorcycles with 10%, airplanes with 5% and minibuses with 4.3%.

The data illustrate that the least polluting groups are private vehicles and taxis with a respective contribution of 1.6% and 0.4%.

This is while not only have the capital's urban managers always censured passenger vehicles for their detrimental effects on air pollution, but they have also set several traffic regulations, schemes and fines to curb the use of private cars.

Weak efforts to relocate 300 industrial units in Tehran have been to no avail.

Over the past many years, city councilors and mayor have failed to address the issue effectively, blaming others for the worsening air pollution.

Smog in Tehran takes the lives of over 3,500 people every year, the Ministry of Health reported.

AQI on Highs

Charts published by TAQCC's website, Airnow.tehran.ir, show that in December, Tehran's residents were exposed to more polluted air, as clear blue skies were not to be seen at all, meaning that the air quality index did not fall under 50.

The index categorizes conditions dictated by a measure of polluting matters into good (0-50), moderate (51-100), unhealthy for sensitive groups (101-150), unhealthy (151-200), very unhealthy (201-300) and hazardous (301-500).

TAQCC data show that in December, "moderate" status was the prevailing air condition, as the index hovered between 51 and 100 on 13 days.

Besides, sensitive groups in the capital were warned to limit their outdoor activities on 14 days, as the index stood at the threshold of 101-150 that categorizes the condition as "unhealthy for sensitive groups".

Children, the elderly, pregnant women and those with respiratory and cardiovascular conditions fall in the above group.

The AQI crossed emergency levels in three days with the index showing "unhealthy" status for all and causing the closure of numerous kindergartens, schools and universities.

Analyses illustrate that the pollutant responsible for the toxic index recorded in the month was PM2.5 (atmospheric particulate matters that have a diameter of less than 2.5 and 10 micrometers respectively).

TAQCC data illustrate that air quality condition was significantly better during the same period of last year. In December 2018, AQI had three "good", 17 "moderate" and 10 "unhealthy" days.

Canberra air quality 'worst in world' as bushfire smoke chokes capital

Date: -2-Jan-2020, Source: 9news.com.au



Parliament House is seen through thick smoke haze in Canberra on New Year's Day in 2020. The 2pm air quality index reading at Monash was 4650 - more than 23 times the hazardous level of 200.

Canberra's air quality is the worst out of any major city in the world due to smoke from bushfires along the NSW South Coast.

Conditions have even affected some MRI machines at Canberra Hospital, but a health spokesman said the hospital was still meeting demand.

Australia Post has also suspended mail deliveries in Canberra until further notice, saying staff safety was a priority.

A global air quality index ranked Canberra's air worse than New Delhi, India or Lahore, Pakistan.

But conditions had been worse in the NSW coastal town of Bateman's Bay, which has been besieged by fires in recent days, rating nearly twice as bad as Canberra earlier on Wednesday.

Air quality in Canberra is more than 10 times hazardous levels according to local health authorities, having peaked at more than 20 times hazardous levels on Wednesday.

The smoke is expected to linger over the capital in the coming days, with the Bureau of Meteorology saying high temperatures were trapping the smog there.

There are out of control fires burning near Kosciuszko National Park to Canberra's west, and the fires along the coast to the east.

Bureau forecaster Abrar Shabren said this meant whatever the wind change, smoke would still be blown across the territory.

"It will persist over the next couple of days. We will see a change probably tomorrow," he said.

Hazardous levels are normally considered 200 or above, with air quality stations around Canberra recording levels between 2300 to 2800.

ACT Health has urged Canberrans to stay indoors and avoid physical activity outdoors.

Smog May Be Bad for Your Bones

Date: -3-Jan-2020, Source: usnews.com

FRIDAY, Jan. 3, 2020 (HealthDay News) -- Air pollution not only raises the risk of lung cancer, stroke and respiratory diseases, but it is also bad for your bones, a new study suggests.

The study, done in India, looked at more than 3,700 people from 28 villages outside the city of Hyderabad.

The researchers estimated exposure of fine particulate air pollution and asked participants what fuel they used for cooking. Fine particulate air pollution consists of tiny particles measuring 2.5 micrometers and also black carbon.

Particle levels in the area were far higher than the maximum recommended by the World Health Organization, researchers said.

They then compared this information with bone density in participants' lumbar spine and left hip.

The conclusion: Exposure to high levels of fine particulate matter was linked to lower bone mass.

"This study contributes to the limited and inconclusive literature on air pollution and bone health," researcher Otavio Ranzani said in a news release.

He's a postdoctoral fellow at the Barcelona Institute for Global Health (ISGlobal) in Spain.

"Inhalation of polluting particles could lead to bone mass loss through the oxidative stress and inflammation caused by air pollution," Ranzani added.

Beijing's air quality shows significant improvements as 'war on pollution' targets coal use

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



The drive to tackle pollution has helped clean up Beijing's atmosphere.

Beijing's air quality has improved significantly since the start of the "war on pollution" seven years ago, according to official figures.

In 2019, the capital's average concentration of PM2.5 – the most harmful small particles and a key indicator of air pollution – fell to their lowest levels since its integrated air quality monitoring network started operating in 2013.

The 2019 average concentration of 42 micrograms per cubic metre was 53 per cent lower than the 2013 figure of 89.5, according to the municipal ecology and environment bureau.

The average concentration of PM10 particles and nitrogen dioxide were 68 and 37 micrograms per cubic metre, both in line with national targets.

Although some pollution levels still far exceed international recommendations, the Chinese capital's rapid progress has been hailed by the United Nations as an example of how quickly things can be turned around.

Joyce Msuya, the deputy executive director of the UN's environment programme, wrote in a report in March last year that "no other city or region on the planet has achieved such a feat", which she said was the result of "an enormous investment of time, resources and political will".

The UN report, based on pollution data from 1998 to 2017, concluded that the controls on coal-fired boilers, the use of cleaner fuels in residential sectors and better controls on industry were the three most important measures.

Ma Jun, director of the Beijing-based non-governmental organisation, the Institute of Public and Environmental Affairs, said the improvement was the result of policies such as controls on coal combustion, vehicle emission controls, coordination with surrounding areas and better data transparency.

China started its “war on pollution” in 2013, with President Xi Jinping identifying it as one of the country’s three biggest challenges in 2017.

Since the start of the anti-pollution campaign, the Beijing municipal authorities have closed all coal-fired plants and encouraged residents to stop using coal-fired boilers in favour of natural gas and electricity in winter.

Although that policy faced a challenge in the winter of 2017-18 when gas shortages left residents across many cities in northern China without heating, the amount of coal burned in the capital itself has declined significantly from a peak of about 30 million tonnes in 2005 to 4 million in 2018, according to the environment bureau in Beijing.

This has also resulted in the concentration of sulphur dioxide in the atmosphere dropping by 85 per cent from 28 microgrammes per cubic metre in 2013 to 4 in 2019.

The campaign has also seen pollution levels falling across the country.

According to central government figures, in 2018, the national average concentration of PM2.5 was 39 micrograms per cubic meter, 9.3 per cent lower than the previous year.

Across 338 major cities, the air quality was classified as “good” for 79.3 per cent of the time, just short of the 2020 target of 80 per cent good air quality days.

But despite these successes, there is still a long way to go in tackling the problem.

Last year the concentration of PM2.5 in Beijing – 42 microgrammes per cubic metre – was still above the national air quality standard of 35, and far exceeded the World Health Organisation’s recommended figure of 10.

2020 is the final leg of a three-year plan to tackle Xi’s three biggest challenges, and Ma said the next step should be to aim to meet national air quality standards and improve the way industry operates.

“There’s been a rebound of emissions from energy-intensive companies after last autumn,” he said, adding that the trade war and slowing economy had seen officials loosening controls.

“So China needs to optimise its energy structure and industry structure to really achieve the green transformation,” he said.

However, he said the fight against air pollution had made much more progress than efforts to tackle soil and water pollution.

“The next question is how to set higher standards and improve the quality of the environment in an innovative way,” he said.

Shutdown of coal-fired plants in US saves lives and improves crop yields

Date: -6-Jan-2020, Source: sciencedaily.com

The decommissioning of coal-fired power plants in the continental United States has reduced nearby pollution and its negative impacts on human health and crop yields, according to a new University of California San Diego study.

The findings published this week in *Nature Sustainability* use the U.S. transition in recent years from coal towards natural gas for electric power generation to study the local impacts of coal-fired unit shutdowns. While the shift from coal to natural gas has reduced carbon dioxide emissions overall, it has also changed local pollution levels at hundreds of areas around the country. In particular, the burning of coal creates particulate matter and ozone in the lower atmosphere -- often experienced as "smog" -- which can affect humans, plants and regional climate. These pollutants (aerosols, ozone and other compounds) from coal burning can wreak havoc on human health when inhaled, and also have damaging effects on plant life. They also alter local climate by blocking incoming sunlight.

The author, Jennifer Burney, associate professor of environmental science at the UC San Diego School of Global Policy and Strategy, combined data from the Environmental Protection Agency (EPA) on electric power generation with satellite and surface measurements from the EPA as well as NASA to gauge changes in local pollution before and after coal-fired unit shut-downs. She also studied changes in county-level mortality rates and crop yields using data from the Centers for Disease Control and the U.S. Department of Agriculture.

Burney found that between 2005 and 2016, the shutdown of coal-fired units saved an estimated 26,610 lives and 570 million bushels of corn, soybeans and wheat in their immediate vicinities. The inverse calculation, estimating the damages caused by coal plants left in operation over that same time period, suggests they contributed to 329,417 premature deaths and the loss of 10.2 billion bushels of crops, roughly equivalent to half of year's typical production in the U.S.

"The unique contribution of this study is its scope and the ability to connect discrete technology changes -- like an electric power unit being shut down -- to local health, agriculture and regional climate impacts," Burney said. "We hear a lot about the overall greenhouse gas and economic impacts of the transition the U.S. has undergone in shifting from coal towards natural gas, but the smaller-scale decisions that make up this larger trend have really important local consequences. The analysis provides a framework for communities to more thoroughly and accurately assess the costs and benefits of local investments in energy infrastructure."

Burney added that although there are considerable benefits of decommissioning older coal-fired units, the newer natural gas units are not entirely benign. Natural gas units are

associated with increased pollution levels; although different than the pollutant mix from coal-fired units, and more research is required to fully understand their impacts.

Burney concludes that "policymakers often think about greenhouse gas emissions as a separate problem from air pollution, but the same processes that cause climate change also produce these aerosols, ozone, and other compounds that cause important damages. This study provides a more robust accounting for the full suite of emissions associated with electric power production. If we understand the real costs of things like coal better, and who is bearing those costs, it could potentially lead to more effective mitigation and formation of new coalitions of beneficiaries across sectors."

London's first permanent "City Trees" soak up pollution

Date: -6-Jan-2020, Source: ianvisits.co.uk



Two large artificial "trees" have been installed outside Leytonstone tube station and on the High Road to help improve air quality in the area. Looking less like trees than what they are, a large moss filled tower with seating, they compress the cleaning power of 275 trees into one park

bench sized space.

While planting trees both cleans the air and absorbs CO₂, the advantage of these moss towers is that they can deliver a concentrated burst of cleaning in a very small space. It would be difficult to plant 550 trees in this small patch of Leytonstone to deliver the same impact.

Unlike trees, they also work in the winter months.

This isn't the first City Tree for London, as there was a short trial of them in the West End back in mid 2018, although it was just for a few months. These new City Trees in Leyton are intended to be permanent.

Cllr Clyde Loakes, Waltham Forest Council's Deputy Leader and Cabinet Member for Environment said: "The two City Trees at Leytonstone tube station and another on Leytonstone High Road are permanent additions to the borough and London in our fight against poor air quality."

The locations of the City Trees experience significant air pollution. The Leytonstone Station site is at a bus station and sits on top of the A12 where there are the highest levels of

nitrogen dioxide in the borough. The Thatched House site is at the junction of two heavily trafficked roads – Leytonstone High Road / Leytonstone Road and Cann Hall Road / Crownfield Road.

The City Tree is a self-sustaining structure that contains a water tank, with automatic irrigation and plant sensors all powered by on board solar panels and batteries. The different types of moss bind environmental toxins such as particulate matter and nitrogen oxides while at the same time producing oxygen.

Graphene gas sensors for real-time monitoring of air pollution

Date: -6-Jan-2020, Source: envirotech-online.com

Scientists at the National Physical Laboratory (NPL), working with partners from the Graphene Flagship, Chalmers University of Technology, the Advanced Institute of Technology, Royal Holloway University and Linköping University, have created a low-cost, low-energy consuming NO₂ sensor that measures NO₂ levels in real-time.

The World Health Organisation reported that 4.2 million deaths every year are a direct result of exposure to ambient air pollution such as NO₂, SO₂, NH₃, CO₂ and CO. One of the most dangerous pollutants, NO₂ gas, is produced by burning fossil fuels e.g. in diesel engines. Significant portions of the population in large cities, specifically London, have been consistently exposed to NO₂ levels above the legislated limit. Even at very low concentrations NO₂ is toxic for humans, leading to breathing problems, asthma attacks and potentially causing childhood obesity and dementia.

NPL and partners have developed a graphene-based NO₂ detector that reports pollutant levels based on changes in its electrical resistance. The high sensitivity of graphene to the local environment has shown to be highly advantageous in sensing applications, where ultralow concentrations of absorbed molecules induce a significant response on the electronic properties of graphene. The unique electronic structure makes graphene the ‘ultimate’ sensing material for applications in environmental monitoring and air quality.

NPL has developed and demonstrated the novel type of NO₂ sensors based on different types of graphene. This low-cost and technologically simple solution uses simple chemiresistor approach and allows for measurements of the exceedingly low levels of NO₂ e.g. below 10 ppb. 1 ppb is a concentration equal to a droplet of ink in 2 Olympic size swimming pools. According to the World Health Organisation’s guidelines the targeted level of NO₂ pollution in cities is 21 ppb however, the typical average level in London is 30-40 ppb.

There is a well-demonstrated global need for high sensitivity, low-cost, low-energy consumption miniaturised NO₂ gas sensors to be deployed in a dense network and to be

used to pinpoint and avoid high pollution hot spots. Such sensors operating in real-time can help to visualise pollution in urban areas with unprecedentedly high local resolution.

Olga Kazakova, National Physical Laboratory (NPL) states: “Understanding the problem is the first step to solving the problem. If you only monitor certain junctions or roads for NO₂ pollution, you do not get an accurate picture of the environment. In order to do this, a dense network must be set up to show the dynamically changing level of pollution through different times of day and year, so you can get to know the real level of critical exposure.”

With the data provided by a dense network of graphene sensors, people could use an app to check how much NO₂ pollution they might be exposed to on their planned route, and city councils could use this information to dynamically restrict and divert cars near schools and hospitals. This would enable governing bodies to adopt smart and flexible restrictive measures in specific areas recognised as being highly pollutive.

California’s latest pollution push: Banning gas-powered mowers and blowers

Date: -6-Jan-2020, Source: sfchronicle.com



Pedro Lopez (left) and Omar Barajas from Vaca Landscaping use gas powered leaf blowers to clear a residential complex in Novato, Calif. on Friday, Jan. 3, 2020. Novato city leaders are considering a ban on gas powered landscaping equipment.

The next frontier in California’s battle against pollution: lawn equipment.

State air regulators are laying long-term plans to phase out gasoline-powered devices like leaf blowers and lawn mowers, saying they can produce more noxious emissions than cars.

Plenty of Bay Area cities are already acting: At least eight have banned gas-powered blowers, and more restrict their use during times of day

or up to a certain noise level. Novato may soon join the list.

“What I think we need to realize is that we have to do something different for climate change in the world,” said Novato Mayor Pro Tem Pat Eklund, who proposed a ban on gas lawn mowers and leaf blowers in December. “If not, we are going to see a different world than we do today. Every little bit is going to help.”

Such restrictions force people to use cleaner, quieter electric machinery instead. But they are not universally popular.

Jose Vaca, who owns Vaca Construction and Landscaping, which has locations in Novato and Petaluma, said he would have to buy up to five batteries — costing an average of \$100 to \$200 each — to finish jobs on large properties like homeowner associations or shopping centers. Electric leaf blowers would make tasks longer and more expensive, he said.

Vaca said he has already ended contracts in Mill Valley because of the city's ban on gas-powered leaf blowers. If Novato implements a similar restriction, he'll do the same.

"We would just start canceling more contracts and moving up north," he said.

While cars produce more carbon dioxide, small engines can emit more of other problematic gases. Running a lawn mower for an hour generates as much smog-forming pollution as driving a 2017 Toyota Camry from Los Angeles to Las Vegas, according to the California Air Resources Board, which works to keep the air clean. A leaf blower is worse — all the way to Denver. Daily exposure to the fumes also increases cancer risks, a 2018 air board study found.

"The reason that they're such high polluters, there's not anything fundamentally different about engines, they're not fundamentally dirtier, but we haven't put effort into cleaning them up like cars," said Dorothy Fibiger, an engineer with the air board's Monitoring and Laboratory Division. Because some machines such as leaf blowers are handheld, they can't take on added weight for equipment — like the catalytic converters carried by cars — that reduces emissions, she explained.

This year, the air board is reducing the emissions allowed for gasoline-powered lawn equipment sold in California. As early as 2022, it wants allowed emissions to drop to zero. (Companies can in the meantime earn credits for selling machines that are below the standard, allowing them to continue selling gasoline-powered devices even after 2022.) The ultimate goal is ending the sale of gas machines, but that will come much later, Fibiger said.

It's part of a push to tackle less-obvious sources of greenhouse gas emissions, like natural gas used in homes and businesses, which is also facing a growing wave of local bans in the state.

California has the small lawn devices in its sights in part because of looming federal standards for ozone, according to David Wooley, executive director of UC Berkeley's Center for Environmental Public Policy.

In the North Bay, Belvedere, Mill Valley and the city of Sonoma already bar gasoline-powered leaf blowers. Tiburon allows them only in nonresidential areas and at certain times of day.

Berkeley bans gas leaf blowers. Orinda restricts use to certain hours; the City Council voted down a measure to ban them entirely in 2010.

Palo Alto bans gas leaf blowers in residential zones. Los Gatos banned blowers in all areas, saying they “degrade the quality of life” with noise and pollution. The town replaced approximately 10 blowers — at the cost of \$1,370 each for a blower, charger and two batteries — when the ordinance was adopted in 2014. Electric leaf blowers can’t exceed a noise threshold and can operate only at certain times.

Los Altos was one of the first cities to prohibit gas-powered leaf blowers in 1991. Two decades later, the city reconsidered the ban, citing the adverse impact on the parks department, which needed extra battery packs to work on large properties without electric outlets. Ultimately the effort to repeal the ban fell short.

Poor air quality caused by bushfire smoke posing serious risk for healthy people too, health experts warn

Date: -7-Jan-2020, Source: abc.net.au

The Australian Medical Association (AMA) has warned prolonged exposure to toxic smoke could affect the health of many Australians.



Hazardous smoke has been shrouding Canberra for days.

In a statement released late last week, AMA president Tony Bartone described the length and density of smoke exposure as "a new, and possibly fatal, health risk" most of us have never faced before.

"With denser smoke haze and longer periods that people endure smoke inhalation, there is a much higher risk that previously healthy people

will face developing serious illness," Dr Bartone said.

Australia's bushfire crisis has killed at least 20 people, destroyed or damaged at least 2,000 homes, and led to emergency declarations in two states.

These bushfires are responsible for smoke haze that has been affecting the air quality for millions of people, including those living in some of our largest cities, including Sydney, Canberra, and Melbourne.

Air quality in Canberra recently reached more than 22 times the hazardous rating. While in December, some Sydney suburbs had air quality more than 10 times the hazardous amount.

And this bushfire season is far from over.

AMA vice president and respiratory physician Chris Zappala said the longer people were exposed to air pollution, the more likely they were to develop respiratory problems.

"Ordinarily, patients can handle a few days or a week of smoke particulates in the air ... but this exposure is going on at reasonably high levels for a lot longer," Dr Zappala said.

"We don't know whether that is going to cause an increased amount of respiratory disease, but we would presume a greater number of people are likely to get affected over time."

Concern for those with undiagnosed asthma

Bushfire smoke irritates the respiratory system, and contains fine particles that can travel deep into the lungs, causing damage.

While most healthy people can handle short-term exposure to air pollution (though it may cause itchy eyes and throat irritation), smoke particles can aggravate respiratory conditions (such as asthma), and even trigger a heart attack or stroke.

Some of us are more vulnerable — namely children under 14, older people, pregnant women, and those with pre-existing heart or lung problems.

But Dr Zappala said there was also a small group of people in the community who have respiratory disease they are not aware of.

"Being undiagnosed and unmedicated is a new risk for some people who, but for fire and smoke exposure, appear otherwise healthy," he said.

"The concern is that because this exposure is entering a duration that we don't really have any experience with, those patients that might have scooted under the radar ... are actually going to manifest disease."

He said anyone who develops breathlessness, wheeziness, chest tightness, or a persistent cough should see their GP. Borrowing someone else's inhaler or using over-the-counter Ventolin is not recommended.

Respiratory physician Matthew Peters said he was more worried about people who have asthma but think it's relatively mild.

"My greater concern is people who think it's mild, who take their reliever puffer ... and think everything is hunky-dory," said Professor Peters, head of respiratory medicine at Concord Hospital in Sydney.

"They are the ones who are probably at greatest risk of getting caught out the longer this goes on."

He said if people were in the habit of using a reliever (for example Ventolin) frequently, it was worth considering preventer medication while air quality remained poor.

While it is too early to say whether the bushfires have increased the incidence of respiratory illnesses, Professor Peters expects data to show an upswing in cases of asthma and pneumonia.

"The historical pattern of bushfires is two or three potentially horrific days and tragic consequences to people and property — but then it's all gone," he said.

"But now we've had six weeks ... this is unprecedented."

P2 masks and other ways to reduce your risk

The best way to reduce your risk of breathing in polluted air is to limit your exposure.

Where possible, try to stay indoors with the windows and doors shut, and avoid vigorous exercise outdoors when air quality is low.

When it comes to face masks, P2 masks can help protect against smoke, but will only do so if used properly.

People who are sensitive to smoke are advised to take extra care when air quality is poor.

That means if you have a heart or lung condition, it's important to follow your medical plan, and have access to your medication or inhaler.

Precautions for pregnant women

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) has also raised concern about the impacts of prolonged bushfire smoke on pregnant women and their unborn children.

"Exposure to air pollution in pregnancy has been linked to increased rates of preterm birth, decreased birth weight, hypertensive disorders of pregnancy and gestational diabetes," said RANZCOG president Vijay Roach.

He said it was important to note these risks increased with long-term exposure.

But Dr Roach said as cities and communities were enveloped in smoke, pregnant women were advised to take extra precautions and limit outdoor activities.

"For those unable to avoid prolonged exposure to inhaled air pollution, [face] masks may have a role," he said.

Long term impacts unclear

The health impacts of the current bushfires are not yet clear, and it will be a while before we know what they are.

Part of the challenge is that little research has been done on the health implications of bushfire smoke exposure over weeks or months, according to senior research fellow Christine Cowie.

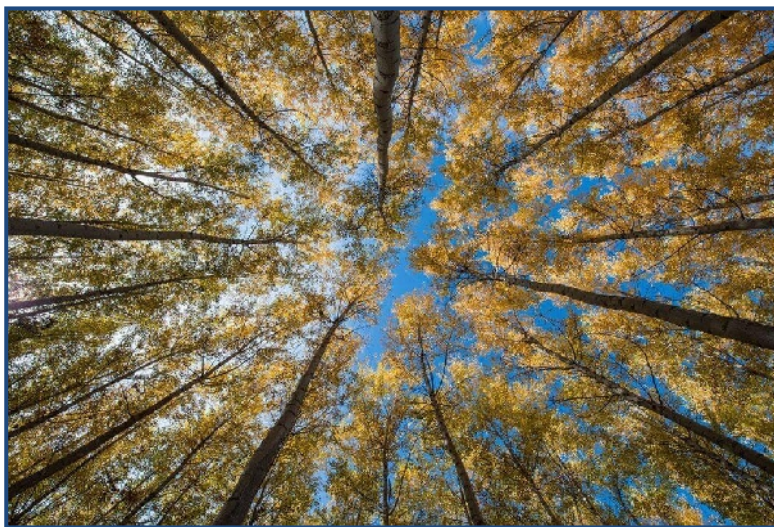
"It is uncertain how medium-term exposure to these sporadic bushfire pollutions events impact on long-term health," Dr Cowie from the University of New South Wales told the ABC.

In addition to smoke, Dr Bartone said the ongoing nature of the bushfires also brought health risks associated with heat, fatigue and stress.

"The mental health burden of this disaster on our communities will be considerable," he said.

Genetically engineered poplar trees slash air pollution in 3-year field trial

Date: -8-Jan-2020, Source: geneticliteracyproject.org



Field trials in the Northwest and Southwest show that poplar trees can be genetically modified to reduce negative impacts on air quality while leaving their growth potential virtually unchanged, says an Oregon State University researcher who collaborated on the study.

The findings, published in the Proceedings of the National Academy of Sciences, are important because poplar plantations cover 9.4 million hectares globally – more than double the land used 15 years ago. Poplars are fast-growing trees that are a source of biofuel and other products including paper, pallets, plywood and furniture frames.

A drawback of poplar plantations is that the trees are also a major producer of isoprene, the key component of natural rubber and a pre-pollutant.

Increases in isoprene negatively affect regional air quality and also unbalance the global energy budget by leading to higher levels of atmospheric aerosol production, more ozone in the air and longer methane life. Ozone and methane are greenhouse gases, and ozone is also a respiratory irritant.

Poplar and other trees including oak, eucalyptus and conifers produce isoprene in their leaves in response to climate stress such as high temperatures.

A research collaboration led by scientists at the University of Arizona, the Institute of Biochemical Plant Pathology in Germany, Portland State University and OSU genetically modified poplars not to produce isoprene, then tested them in three-year trials at plantations in Oregon and Arizona.

They found that trees whose isoprene production was genetically suppressed did not suffer any ill effects in terms of photosynthesis or “biomass production” – they were able to make fuel and grow as well as trees that were producing isoprene.

Steve Strauss, distinguished professor of forest biotechnology in the OSU College of Forestry, said there are a couple of possible explanations for the findings.

One is that, without the ability to produce isoprene, the modified poplars appear to be making “compensatory protective compounds.”

Another is that most of the trees’ growth takes place during cooler times of the year, so heat stress, which triggers isoprene production, likely has little effect on photosynthesis at that time.

“Our findings suggest that isoprene emissions can be diminished without affecting biomass production in temperate forest plantations,” Strauss said.

“That’s what we wanted to examine – can you turn down isoprene production, and does it matter to biomass productivity and general plant health? It looks like it doesn’t impair either significantly.

In Arizona, where it’s super hot, if isoprene mattered to productivity, it would show up in a striking way, but it did not. Plants are smart – they’ll compensate and do something different if they need to.”

In this study, scientists used a genetic engineering tool known as RNA interference. RNA, ribonucleic acid, transmits protein coding instructions from each cell’s DNA, deoxyribonucleic acid, which holds the organism’s genetic code.

“RNA interference is like a vaccination – it triggers a natural and highly specific mechanism whereby specific targets are suppressed, be they the RNA of viruses or endogenous genes,” Strauss said. “You can also do this with CRISPR at the DNA level, and it usually works even better.”

CRISPR, short for “clustered regularly interspaced short palindromic repeats,” targets specific stretches of genetic code for DNA editing at exact locations.

“You could also do the same thing through conventional breeding,” Strauss said. “It would be a lot less efficient and precise, and it might be a nightmare for breeders who may need to reassess all of their germplasm and possibly exclude their most productive cultivars as a result, but it could be done.”

Corresponding author Russ Monson of the University of Arizona said the study lays the groundwork for future isoprene research, including in different growing environments.

Sustainable forest management systems and their certifying bodies operate under the assumption that genetically modified equates to dangerous, Strauss said.

Bangkok has world's third worst air quality

Date: -9-Jan-2020, Source: bangkokpost.com



Pollution, recently

Bangkok on Wednesday recorded the world's third worst air quality on Air Visual, a popular app monitoring pollution, and PM2.5 levels are predicted to rise until the end of this week.

The level of PM2.5 at 9.30am on Wednesday rose to over 119 microgrammes per cubic metre ($\mu\text{g}/\text{m}^3$), placing the Thai capital third behind only

Australia's Canberra and India's New Delhi in terms of air pollution.

However, by 6pm the level of PM2.5 had dropped to $33.9\mu\text{g}/\text{m}^3$, placing the city 32nd on the app's real-time ranking of the world's air quality.

In a related development, the Bangkok Metropolitan Administration (BMA) has put its health officials on high alert following a rise of PM2.5 in 38 of 50 areas in the capital and adjacent provinces.

The PM2.5 levels have worsened since Monday. The government considers readings of 51 or more unsafe for health. Elsewhere in the world the safe level is usually much lower.

The director of the BMA's Health Department said officials at mobile units led by 68 health offices were instructed to step up an awareness campaign among city residents, with a

focus on vulnerable groups such as the elderly, children, pregnant women and people with heart and respiratory complaints.

The fine dust can cause severe respiratory disorders. People with underlying health problems were advised to wear face masks and avoid non-essential outdoor activities.

To help relieve the situation, Interior Minister Anupong Paojinda has ordered the police to strictly monitor emissions from vehicles and factories and enforce the ban on open-air burning

Dust from car BRAKES is as harmful as diesel fumes: Pollution 'damages the immune system and raises the risk of lung infections'

Date: -9-Jan-2020, Source: dailymail.co.uk



Brake dust is produced when a metal or ceramic brake pad grinds against the metallic disc and tiny parts of it break off because of the friction. King's College London researchers said it makes up around 20 per cent of PM2.5 traffic pollution

Pollution particles given off by car brake pads may be just as bad for the immune system as diesel fumes, scientists have found.

Exhaust gases are known to have health-damaging effects on the lungs, heart and brain but the dangers of brake dust are less well understood.

Scientists at King's College London, however, say the tiny particles can weaken the immune system and put people at risk of dangerous lung infections.

They tested the effects of metals found in brake dust on white blood cells in a lab and found they made the cells less able to fight off common infectious bacteria.

One of the researchers even said brake dust could be contributing to 'London throat', a name she has given to constant coughs, colds and 'froggy feeling' allegedly endured by people living in the city.

Pollution lowers the body's defences by carrying heavy metals into sensitive tissue and causing swelling and internal damage to white blood cells.

Another scientist added 'there is no such thing as a zero-emission vehicle' and said tackling exhaust fumes alone would not solve the pollution problem.

'At this time the focus on diesel exhaust emissions is completely justified,' said Dr Ian Mudway, a King's College lecturer who led the research.

'But we should not forget, or discount, the importance of other components, such as metals from mechanical abrasion, especially from brakes.

'And as regulations to reduce exhaust emissions kick in, the contribution from these sources is likely to become more significant.'

The KCL researchers said brake dust makes up around 20 per cent of PM2.5 traffic pollution.

It is produced when a metal or ceramic brake pad grinds against the metallic disc and tiny parts of it break off because of the friction.

PM2.5 is the smallest type of particulate matter and each particle is generally less than 2.5micrometres across – about 40 times thinner than a human hair.

These tiny grains, which may include soot and ash, can penetrate into the deepest, smallest areas of the lungs from where it may be hard to remove them.

In lab tests, the scientists exposed white blood cells, which the immune system uses to fight off bacteria and viruses, to the metals found in the pollution particles.

They saw that the metals made the cells less able to destroy a type of bacteria called *Staphylococcus aureus*, which are a common cause of lung infections.

They also produced chemicals which trigger internal swelling called inflammation in the body, which has been linked to heart diseases and dementia, among other illnesses.

A metal called vanadium shouldered most of the blame for the effects and was found in both exhaust fumes and brake dust.

Other metals found in both types of pollution included arsenic, tin and antimony, and brake dust also contained copper and iron which are known to be damaging.

The team found the effects of the metals in brake dust had the same effect on immune cells as ones previously observed to be caused by metals from fumes.

Dr Liza Selley, a Cambridge and Imperial College London scientist, said: 'Diesel fumes and brake dust appear to be as bad as each other in terms of toxicity in macrophages [a type of white blood cell].

'Macrophages protect the lung from microbes and infections and regulate inflammation, but we found that when they're exposed to brake dust they can no longer take up bacteria.

'Worryingly, this means that brake dust could be contributing to what I call "London throat" – the constant froggy feeling and string of coughs and colds that city dwellers endure – and

more serious infections like pneumonia or bronchitis which we already know to be influenced by diesel exhaust exposure.'

The team found that once the pollution disappeared the immune cells were able to work normally again.

Dr Selley added: 'We included some experiments that gave the cells a rest from the pollution, and were pleased to see that these rested cells quickly regained their ability to take up bacteria once the brake dust had been removed.

'Our research was conducted in cells in the lab, so further study is required to see whether the metal particulate traffic pollution influences susceptibility to infection in the lungs of real people.'

\$1.3M Air Pollution Fine Issued to Gorge Aluminum Recycler

Date: -9-Jan-2020, Source: usnews.com

PORTLAND, ORE. (AP) — The Oregon Department of Environmental Quality issued a \$1.3 million fine to an aluminum recycler in The Dalles for multiple violations of air pollution regulations, officials said Thursday.

The Oregonian/OregonLive reports the fine, issued to Hydro Extrusion USA, represents the largest ever issued by the agency for an air quality violation.

"DEQ found Hydro Extrusion operated with flagrant disregard for the rules and conditions of its air quality permit," said Kieran O'Donnell, a compliance and enforcement manager with the state.

The company did not immediately respond to a request for comment.

In April, inspectors found that the company, which is owned by Norway-based Norsk Hydro, had been improperly melting down coated aluminum for over a year. The facility in The Dalles was only allowed to melt down "clean charge" material, meaning it is free of grease, oil and other coatings.

Hydro Extrusion was ordered to stop processing unclean materials, upgrade its tracking programs and submit monthly reports to the state to verify it was in compliance with the law. Officials said its monitoring has improved, and the company has certified with the state that it no longer processes the prohibited material.

The vast majority of the fine is based on the estimated economic benefit the company gained through the violations.

Last year, Hydro Extrusion agreed to pay \$46 million to settle criminal charges and civil claims after it sold NASA defective aluminum, which allegedly caused two rockets to explode shortly after launch.

Installing air filters in schools to sieve out toxic pollutants 'can boost pupils' grades and improve learning as much as cutting class sizes by a third'

Date: -10-Jan-2020, Source: dailymail.co.uk



Fitting air filters in classrooms can be as effective at driving up pupils' grades as cutting class sizes, a new study suggests

Fitting air filters in classrooms can be as effective at driving up pupils' grades as cutting class sizes, research suggests.

The systems – which cost about £750 to install and maintain – had the same effect on maths and English exam results as slashing class sizes by a third.

Scientists behind the study said the improved scores were

equivalent to 'roughly two-and-a-half months of extra learning'.

Air filters improve the quality of air by working as a sieve to remove toxic particles, including pollutants emitted by cars and industry.

Research suggest these tiny pollutants seep into the bloodstream when inhaled and cause inflammation, affecting concentration and memory.

Experts say crowded classrooms result in poor exam results because students are not given one-on-one teaching.

Around 2,000 schools in England and Wales are near busy roads where children are exposed to illegal levels of damaging air pollution from diesel vehicles.

Only the most polluted in London are fitted with air purifiers and there are no laws forcing schools to have them. It means only a handful have had them installed.

The latest study, by New York University, looked at 18 schools in Los Angeles installed with filters in 2016 after the largest gas leak in US history.

SoCalGas, the firm responsible, paid to have air purifiers fitted in classrooms within five miles of the leak.

The schools which had the systems installed were never contaminated with gas, even during the leak.

This meant that improvements in air quality was a result of the systems filtering out common air pollution from car exhausts and industry.

It opened the door for researchers to compare performance of similar schools in the wider area.

The study found the air filters were linked to a 0.20 increase in maths scores and 0.18 in English results – results seen in other classes a third of their size. This improvement was kept up the following year.

The paper has yet to be peer reviewed, meaning other scientists have not had the chance to scrutinise it.

Mike Gilraine, author of the paper and assistant professor of economics at New York University, told The Times: 'The results indicate that air filter installation is a highly cost-effective policy to raise student achievement and, given that underprivileged students attend schools in highly polluted areas, one that can reduce the pervasive test score gaps that plague public education.'

'Given the large test score increases they generate, installing air filters substantially outperforms other education reforms such as class size reduction on a cost-benefit basis.'

Analysis has shown millions of schoolchildren in Britain are being poisoned by pollution every day.

About 6,500 nursery, primary and secondary schools with a total of 2.6million children are in areas where levels of toxic particles exceed the World Health Organisation's recommended limit.

The fine particles tested, known as PM2.5, are the most dangerous form of air pollution and can get into the lungs and into the blood stream.

Using data from the London Atmospheric Emissions Inventory, researchers have found that every school in the capital is over the WHO limit of 10mg per cubic metre, along with 234 in Birmingham.

Leicester and Nottingham each have dangerous levels affecting more than 100 schools.

Current estimates say that exposure to particulate air pollution contributes to around 29,000 deaths across the country every year in people with heart and lung problems.

Vehicles add tiny particles to the air through exhaust emissions, as well as wearing down tyres, brakes and road surfaces.

Particulates added to the air from non-exhaust emissions include nitrogen oxide, and PM10, which are less than 10 micrometres in size, and PM2.5, which are less than 2.5 micrometres across.

Because of their tiny size, PM10 and PM2.5 can penetrate deep into the lungs and throat, causing health issues.

Recent studies have suggested they can contribute to poorer memory and IQ among children, obesity, dementia, and lower sperm counts or erectile dysfunction.

Air pollution: your exposure and health risk could depend on your class, ethnicity or gender

Date: -11-Jan-2020, Source: theconversation.com



Particulates are microscopic solids that escape combustion, often through car exhausts.

Poor air quality is responsible for over half a million deaths in Europe every year, but not everyone is equally at risk. Our new review found that across Europe, the most deprived people have the worst air quality. This means that the people already experiencing multiple deprivations because of their social class, ethnicity or gender, also have the unhealthiest environments to live in.

In Wales, deprived areas have the highest levels of major pollutants, such as nitrogen dioxide and particulate matter, from traffic exhausts, industrial pollution and wood-burning stoves. Particulate matter forms a fine mist of toxic debris that affects more people than any other type of pollution. Inhaling it can contribute to heart attacks and respiratory diseases, including lung cancer.

For the very smallest particles, there's no safe threshold below which "no damage to health is observed", according to the World Health Organization (WHO). Nitrogen dioxide meanwhile is linked to reduced lung function and growth in children and exacerbates asthma.

In England and the Netherlands, areas where more people live on income support or where there is a larger non-white population experience poorer air quality. In France, deprivation

is clearly linked to higher pollution in nearly all areas, with small exceptions in some rural areas. In Italy, places with higher numbers of single mothers have more air pollution.

Ethnicity is also a factor when it comes to pollution. Asian and Latin American immigrants in Madrid are exposed to higher levels of pollution, but European immigrants aren't. Whereas in Barcelona, all immigrants regardless of ethnicity have poorer air quality than native-born people. In southern Sweden, higher levels of nitrogen oxides occur in areas with non-Nordic mothers. In Switzerland, foreign nationals and the unemployed are both likely to live nearer to main roads and so encounter higher levels of particulates in the air they breathe.

The EU has pressured national governments to deal with air pollution, but 19 countries still exceed the agreed nitrogen dioxide limits and 14 are breaching these limits for particulates smaller than 10 microns. But even air with pollutants at these supposedly safe limits may not be safe to breathe. The lower the level of air pollution, the lower the impact on health, and it's likely that the WHO's ongoing review will recommend even lower levels.

Poverty makes pollution worse

Not only does your exposure to air pollution mirror existing inequalities, but so does your vulnerability to the health consequences. The same level of air pollutant will affect different people differently. For example, children, whose bodies are still forming, will be more affected than fully grown adults.

Vulnerability also varies among adults. In deprived areas, more people are likely to have existing health conditions, making them more vulnerable to poor air quality. A UK study found that even a general improvement in air quality over time benefited the most deprived least, and the gap between rich and poor – in terms of the levels of particulates in the air – actually increased. Often poorer populations have lower levels of car ownership but are exposed to more motorists driving through their neighbourhoods.

Traffic is a major source of air pollution. Cities need to provide cheap, reliable mass transport systems, such as trams, buses and underground rail, but they also need to create separate infrastructure for cyclists and walkers to make it much easier for drivers to switch. More electric vehicle charging zones, pedestrianisation of city roads and more barriers to private cars entering the city will also help.

Efforts to improve air quality should target areas with vulnerable people first and should prioritise public health. Rather than seeking to beautify already affluent areas, action on pollution should address existing inequality by providing good quality public transport and investing in healthcare for deprived communities. Pollution is political – and so are its remedies.

How bushfires and air quality are putting pressure on the health system in communities away from the fire front

Date: -12-Jan-2020, Source: abc.net.au

Sydney was blanketed in thick smoke the morning I drove to the city's south west to meet GP Tim Senior.

Passing through the CBD, it was hard to make out buildings 200 metres ahead, and by midday, my aircon had conked it in the 35 degree heat.

Even back in early December, smoke from the nearby bushfires had begun to take a toll.

"Today is particularly bad," said Dr Senior, who works at the Tharawal Aboriginal Corporation medical clinic, just outside Campbelltown.

He told me he first started to notice the smoke in mid-November, when the fires began.

"The smoke has just hung around and there's not been any relief," he said

Like many GPs in parts of Australia, Dr Senior was noticing an increase in people with breathing problems as a result of bushfire smoke.

"We're seeing more people coming in with respiratory symptoms — mainly coughing and a bit more short of breath," he explained.

Even in early December, air quality in Sydney was three times worse than at any time in the previous five years.

Dr Senior, who specialises in Aboriginal and Torres Strait Islander health, told me then he was worried about what was to come.

"We've been lucky so far that the heat here hasn't been so prolonged ... but I'm really aware summer has only just started," he said.

"The fires are just so bad ... I don't see how this lets up."

Respiratory problems and heightened anxiety

Since then Australia's bushfire crisis has killed at least 20 people, destroyed or damaged at least 2,000 homes, and led to emergency declarations in two states.

These fires have caused prolonged and widespread smoke haze that has reduced air quality for millions of people across the country, including those living in some of our largest cities.

I caught up with Dr Senior again this week. It was another smoke-filled day and there had been little in the way of relief.

"People are feeling more wheezy, short of breath, and needing to use their inhalers to try and settle that down," he said.

It hasn't just been patients with pre-existing heart or lung conditions who have struggled with the smoke, either.

"Some people who don't have a history of asthma are feeling short of breath and actually having to try using inhalers for the first time," Dr Senior explained.

The psychological impacts of the bushfire crisis had become increasingly apparent too.

"I'm seeing people with more anxiety," Dr Senior said.

"That's created this heightened level of tension and anxiety, which we know has long-term health effects."

Pressure across Australia's health system

While Dr Senior and some his patients and colleagues have been affected by the smoke, he acknowledge other communities that had been hit much harder.

"I know it's much, much worse for people I've spoken to down on the [NSW] south coast, where the capacity for [health] services to see people and handle their health problems has been really limited," he said.

There are stories of regional doctors who have reported being sidelined or restricted when offering help at their local bushfire evacuation centres.

Or the doctors going to great lengths to keep working in their community, like the Cobargo doctor who set up his general practice out of a motorhome after he lost his surgery in the bushfires.

From the frontline of the fires to inner-city hospitals, Dr Senior said many healthcare workers had been feeling the effects.

"It feels really widespread ... particularly in bushfire-affected areas, but even outside those areas," he said.

"It's putting pressure on the health system across a really broad area of Australia."

Tackling climate and health

Earlier this week, Health Minister Greg Hunt deployed extra medical staff to provide support to bushfire-affected communities. The Government also put in place protocols to speed up the process of getting GPs to communities in need.

But Dr Senior said more needs be done to prepare Australia's health system for extreme weather events, including a long-term climate health strategy to help mitigate the effects of climate change.

"The climate emergencies that we're seeing have health consequences, and that's very real now," he said.

"In the same way our fire services are doing an amazing job, they're stretched and fatigued. I think we'll see health and emergency services in the same way."

In December, the Royal Australian College of General Practitioners joined other major medical colleges in declaring climate change a 'health emergency'.

Dr Senior said one of the challenges of delivering healthcare in a bushfire crisis was having to send people back outside, or into their homes, which often offered little protection from the negative effects of smoke.

Poor housing and infrastructure is a considerable challenge in many Indigenous communities — a problem Dr Senior said is exacerbated with warmer temperatures, and poor air quality.

"In smoke affected areas ... the advice is to stay indoors, and put your air-conditioner on if possible," he said.

"For many people, where they don't have good housing — and that's often Aboriginal and Torres Strait Islander people — that advice is meaningless.

"We have to have policy that creates environments that keep people well ... because it can't all be done by treatment."

Sarajevo and Belgrade among the most polluted world capitals

Date: -13-Jan-2020, Source: europeanwesternbalkans.com

BELGRADE – Over the past few weeks, Western Balkan capitals have appeared among the top-ranked cities when it comes to air pollution. Belgrade and Sarajevo topped the daily rankings of the most polluted cities in the world several times over the past few months.

According to the Real-time Air Quality Index (AQI) for January 13, Sarajevo holds the fourth place on the list of the most polluted cities in the world. The quality of air in Sarajevo has been marked “very unhealthy”, with PM10 and PM2.5 particles in concentrations above recommended.



Belgrade and Sarajevo among the most polluted world capitals

Due to an alarming air quality situation, the police in Sarajevo have started applying the ban on vehicles with the Euro 2 norm, from traffic today, advising citizens to wear pollution masks and banning the use of solid fuels and heavy oils. The local government in the Canton of Sarajevo has allowed “the suspension of school activities if needed.”

According to data from metering stations, the average air pollution index in Sarajevo, measured just after 10 hours, was 239, which puts it at the top of the most polluted cities in the world.

In Belgrade, which has topped the world rankings several times since last October, the air on January 13th has been stated “unhealthy”.

Serbia ranks first in Europe and ninth in the world for pollution-related deaths, according to a study recently released by the Global Alliance in Health and Pollution (GAHP), an international body made of experts and observers that advocates for resources and solutions to pollution problems, reports ANSA.

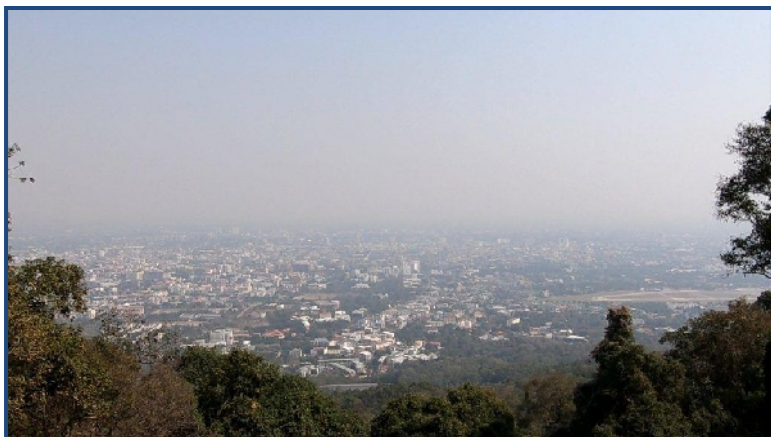
According to GAHP’s “2019 Pollution and Health Metrics: Global, Regional and Country Analysis,” Serbia made it to the top ten countries in the world in terms of premature deaths attributed to pollution, with around 12.300 deaths in 2017, which stands for the latest dataset.

Chad tops the list, followed by the Central African Republic, North Korea, Niger, Madagascar, Papua New Guinea, South Sudan, and Somalia.

Poor air quality in Bangkok and northern Thailand today

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

Poor air quality and persistent haze is plaguing much of Thailand’s north today, with the worst pollution in Lampang province, just south of Chiang Mai in northern Thailand. Meanwhile, a bit further south, Bangkok residents had more of the fine-dust particles, aka. 2.5 microns, in eight of the city’s districts yesterday.



Chiang Mai residents are bracing for months of poor air quality -
Chiang Mai Citylife

The Pollution Control Department in the north has reported unsafe levels of pollution in 11 of the 15 air quality measurement stations – including Mae Sai district in Chiang Rai; City area of Chiang Mai; City and Mae Mo districts of Lampang; City area of Lamphun; City area of Phrae; and City area of Phayao.

A business owner in Chiang Mai told The Thaiger today that the haze and smoke is at its worst for months. ‘Neo’ runs a flower and giftware shop in central Chiang Mai.

“We are seeing a lot of customers come in today with face-masks and everyone is talking about the problem. Most of us think it is coming from sugar cane plantation burn-offs.”

The readings, in excess of 150mg in many locations around the north, are up to three times the Thai government’s nominal upper-limit of 50 mg of 2.5 micron particulate per cubic metre, and over six times the upper safe limit from the World Health Organisation.

In the capital, the Bangkok Metropolitan Administration reported high PM2.5 levels in eight suburbs – Klong San, Bang Khlaem, Wang Thonglang, Phra Nakhon, Klong Toey, Laksi, Bang Khen and Bung Kum. The capital’s most polluted air was in Bang Khen, according to the Bangkok Post.

Allegheny County issues another fine to US Steel for air pollution violation

Date: -17-Jan-2020, Source: pghcitypaper.com



The Allegheny County Health Department (ACHD) has announced that U.S. Steel will be issued fines for Article XXI Air Pollution Control violations and permit violations. According to ACHD, U.S. Steel had more than 400 air pollution violations between April and September of 2019.

Last year at Clairton Coke

Works, a series of fires damaged multiple control rooms, equipment, and desulfurization units, releasing dangerous pollutants — namely sulfur dioxide — into the region's air. This spurred air quality concerns throughout the Mon Valley and Allegheny County.

According to the press release, ACHD has assessed \$743,625 in stipulated penalties, and 90% will be paid to the Community Benefit Trust for impacted communities, while 10% will be paid to the Clean Air Fund. These figures were calculated following an agreement reached between U.S. Steel and ACHD last summer.

Pittsburgh has a long and troubled relationship with pollution. Between the city's famed steel industry and the mining of coal along the banks of the Monongahela River, Pittsburgh's air was once so polluted it stained the sides of buildings black. The air pollution has improved dramatically since then, but in the wake of fires at the Coke Works plant, many feared the city once dubbed "Hell with the lid off" was reliving some of those darker days.

Last year, the American Thoracic Society and New York University's Marron Institute for Urban Management issued a collaborative report detailing the dangers of Pittsburgh's pollution. The region ranked fourth in the country in terms of deaths relating to poor air quality, and another recent report by the American Lung Association named the city's air the eighth-worst in the U.S.

Pittsburgh also has one of the highest rates of childhood asthma, with nearly 22% of school-aged children in some Pittsburgh-area schools showing symptoms, as opposed to the national average of about 10%.

A rally on Jan. 10 saw more than 50 Pittsburghers gather at the City-County building to advocate for cleaner air and stricter regulations. At the rally, U.S. Steel, which owns Clairton Coke Works, was cited as the largest single producer of carbon emissions in the region.

PennFuture estimates that a great deal of Pittsburgh's air pollution has come from the plant, which still uses equipment from the 1950s. Advocacy groups have called for the retiring of the Coke Works' old and faulty batteries, and the upgrading of vital equipment to ensure cleaner air and safer jobs in the Mon Valley.

Smoke haze from Australian bushfires pose serious public health threat

Date: -18-Jan-2020, Source: wsws.org

Australia's intense and prolonged bushfire crisis poses a significant public health threat, with major cities still experiencing unprecedented elevation in pollution.

Health experts continue to issue warnings about the negative effects of the high levels of air pollution. Australian Medical Association (AMA) president Dr Tony Bartone warned in a press release early this month that the duration and intensity of smoke exposure presents "a new, and possibly fatal health risk that most of us have never faced before."

The denser smoke haze and longer periods that people inhale it, Bartone said, means “there is a much higher risk that previously healthy people will face developing serious illness.” The AMA also stressed that respiratory health may not be the only health issue, predicting the mental health burden from the disaster on the community will be considerable.

The high level of smoke haze is unprecedented. Over the New Year period, air quality in Canberra, the national capital, reached 23 times the level considered hazardous and the worst rating to date in the city.

Canberra was registered as the worst polluted city in the world, beating Sarajevo in Bosnia Herzegovina, Lahore, Pakistan and New Delhi, India. The highest rating recorded was 5,185 on New Year’s Day, more than 25 times above the minimum hazard level of 200.

A few days before these high levels were reached, an elderly woman died after going into respiratory distress as she disembarked from a plane onto the tarmac at Canberra airport.

At its peak the poor air quality forced most of Canberra to shut down, including many businesses, shopping centres, the city’s museums and public galleries. Postal deliveries were cancelled. Canberra Hospital closed some medical and diagnostic procedures due to smoke impacting on the facility and equipment, such as medical resonance imaging (MRI) machines.

At Batemans Bay, 150 kms from Canberra, where hundreds of houses were incinerated on the New South Wales south coast, the concentration of smoke particles was nearly double that of Canberra.

In Sydney, Dr Tim Senior a General Practitioner who works at a medical clinic in the western suburb of Campbelltown, located not far from serious fires to the city’s south west, told the ABC: “The smoke has hung around and there’s not been any relief.” We’re seeing more people coming in with respiratory symptoms—mainly coughing and a bit short of breath”

He also described how many people attending his clinic were suffering chest pain, sore eyes, runny noses and sore throats. However, it is not only patients with pre-existing conditions that have been affected. Dr Senior stated: “Some people who don’t have a history of asthma are feeling short of breath and [are] actually having to try using inhalers for the first time.”

When asked about how other communities are coping with the effects of poor air quality the doctor said: “I know it’s much, much worse for people I have spoken to down on the [NSW] south coast, where the capacity for [health] services to see people and handle their health problems has been really limited.” He continued: “It’s putting pressure on the healthcare system across a really broad area of Australia”

The fine particulates from smoke from wildfires has been known to contain a mix of chemicals that are a concern to public health, such as carbon monoxide, nitrogen dioxide,

ozone, fine particulate matter, polycyclic aromatic hydrocarbons and volatile organic compounds.

While some facemasks—such as P2 or N95—have been recommended as possibly helpful for those with existing lung disease, they have significant limitations in being able to provide complete protection and can make breathing more difficult.

A study published last year in the journal *Occupational and Environmental Medicine* revealed that inexpensive facemasks provided only limited protection against air pollution in Beijing, one of the world's most polluted cities, due to poor facial fit. Masks that provide more comprehensive protection are bulky and more expensive.

Sotiris Vardoulakis, a professor of global health at the Australian National University, told the Australian Broadcasting Corporation (ABC): “[T]he general message is we need to minimise exposure and there are different ways of doing that. On days with high air pollution, it’s better to spend more time indoors.”

Dr David Caldicott, a consultant emergency physician at the Calvary hospital in Canberra, told the media that there have been increased emergency admissions by elderly patients, asthmatics and those with other respiratory problems.

“The psychiatric element associated with the potential threat of fire,” Caldicott added, “is something that’s often forgotten when people are focusing on respiratory disease.” He also warned that staying indoors for extended periods can have a negative impact on mental health.

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists has raised concerns about the high levels of air pollution on mothers and their unborn children. College president Dr Vijay Roach told the ABC: “Exposure to air pollution in pregnancy has been linked to increased rates of preterm birth, decreased birth weight, hypertensive disorders of pregnancy and gestational diabetes.”

Health experts are uncertain when the real extent of the effect of smoke exposure will present in the population.

Professor Bin Jalaludin from the Centre of Air Pollution, Energy and Health Policy research at the University of New South Wales told the *Sydney Morning Herald*: “What we’re finding now is that air pollution tends to affect all parts of the body... There is increasing evidence around air pollution and neurological conditions, for example Parkinson’s disease and Alzheimer’s.”

In September last year, the AMA, in line with similar positions taken by both the American and the British Medical Associations, declared climate change a “health emergency.” It pointed to the “clear scientific evidence indicating severe impacts for our patients and communities now and into the future.” In 2015, the World Health Organisation stated that

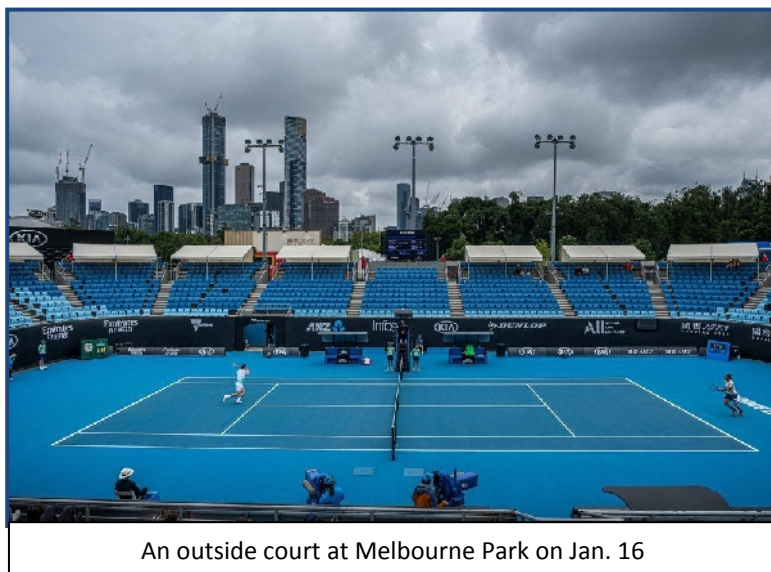
the evidence is “overwhelming” that climate change is the greatest threat to global health in the 21st century.

Dr Allison Hempenenstall of the Australian College of Rural and Remote Medicine recently told the Guardian newspaper that there was “a united strong voice” demanding government action. “[W]e need to push for governmental change, prioritising climate change policy which is something that the government isn’t doing at present... the health implications of climate change are only going to be fixed by addressing climate changes itself.”

Consecutive Liberal and Labor governments have done little to address climate change and deliberately disregarded the warnings of more severe weather events. The parties of big business will continue to ignore the scientific evidence and demands by health experts to address climate change, for the same political reasons in order to defend the profit system.

Australian Open May Halt Play in Elevated Air Pollution

Date: -19-Jan-2020, Source: bloomberg.com



Australian organizers of tennis’s first Grand Slam of the year said games may be suspended when air pollution is elevated, after practice and qualification matches were delayed during the week and some players collapsed because of choking smoke from wildfires.

Under a new air-quality policy, assessments will take place continually throughout the day

during the two-week Australian Open tournament due to start Monday, organizers Tennis Australia said. The AO Air Quality Policy is based on a scaled rating from 1-5, determined by analyzing concentrations of air pollutants at Melbourne Park.

Matches may be halted if the level reaches 4, signifying “elevated air pollution” of 97-200 PM2.5 matter. If pollution reaches 5, which is above 200 PM2.5 matter, the policy is activated and matches on outdoor courts will be suspended, while on arena courts the roof will be closed and play can only recommence once the rating in the arena drops below 5.

“I don’t think it’s going to be throughout the entire tournament, bad air quality and all that,” ATP third-ranked Roger Federer told a press conference at the weekend. “I think we should be fine.”

Catastrophic blazes in Australia have claimed 28 lives, killed an estimated 1 billion animals and have destroyed more than 2,700 homes as an area almost the size of England burned.

The start of the tournament is more likely to be soggy than smoky, with the Bureau of Meteorology forecasting heavy rainfall and severe thunderstorms for most of Victoria state.

“Generally, we’re going to see a very wet 24 to 48 hours,” meteorologist Dean Narramore said Sunday.

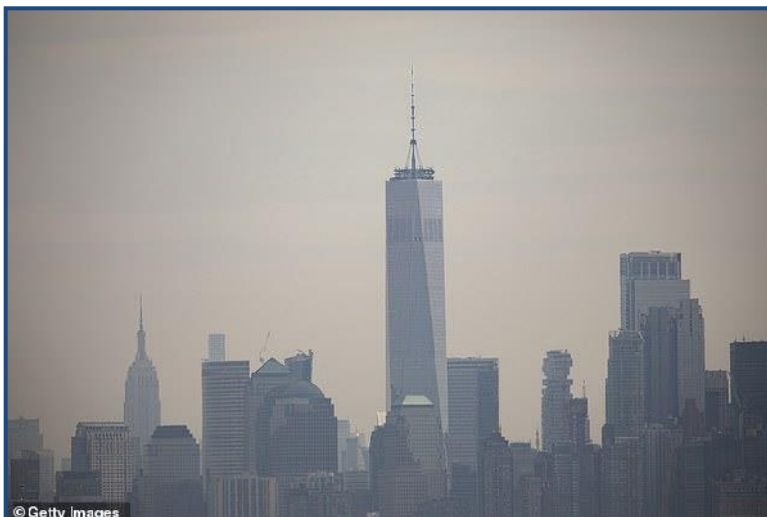
“Any decision on suspension or resumption of play will take into account advice from onsite medical experts, visibility, changes to weather forecast, and any other factors deemed relevant,” Tennis Australia said in a statement.

Choking Haze Is Turning Sydney Into the World’s Laboratory

The tournament, one of Australia’s key overseas tourism draw cards, brought in an estimated A\$290 million (\$200 million) last year with a record 780,000 people through the turnstiles, according to the Victoria state government.

Breathing in fine particles from air pollution on a smoggy day for just six hours could trigger a heart attack, study finds

Date: -20-Jan-2020, Source: dailymail.co.uk



A new study, led by Yale University, found that every time the number of ultrafine particles in the air increased, the risk of a non-fatal heart attack six hours later rose by 3.27 %. Pictured: A layer of smog above New York City, May 2019

Just a few hours of exposure to air pollution could increase your risk of a heart attack, a new study warns.

Researchers say that being exposed to high levels of particles mostly made from car emissions can drive up by at least 10 percent.

While heart disease deaths have been decreasing, the number of heart attacks have been rising in several countries, including the US.

Although known risk factors include a poor diet and a lack of exercise, the team, led by Yale University, says rising levels of air pollution and tiny particles that can penetrate deep into the bloodstream are also to blame.

For the study, published in the journal *Environmental Health Perspectives*, the team analyzed data from a registry of all nonfatal heart attacks in Augsburg, Germany.

There were nearly 6,000 patient cases between 2005 and 2015.

The cases were then compared against pollution from ultrafine air particles (UFP), which mostly comes from car exhaust systems, during the hour of the heart attack.

Because they are so small - narrower than a human hair - these particles stay in the air longer than heavy particles, increasing the risk of us inhaling them.

The tiny bits of matter can reach the deep recesses of the lungs, lodge themselves there, and potentially enter the circulatory system and bloodstream.

Studies have shown that exposure to fine particles can increase the risk of lung disease and heart disease as well as worsen chronic conditions including asthma and bronchitis.

Currently, the World Health Organization, estimates that, worldwide, seven million people die every year from exposure to such pollution with most deaths occurring in low- and middle-income countries, chiefly in Africa and Asia.

Researchers found that every time the number of ultrafine particles in the air increased, the risk of a non-fatal heart attack six hours later rose by 3.27 percent.

This was in the population that was experiencing this level of air pollution

They found this risk increased to 10 percent.

'This study confirms something that has long been suspected - air pollution's tiny particles can play a role in serious heart disease,' said first author Dr Kai Chen, an assistant professor at Yale School of Public Health.

'This is particularly true within the first few hours of exposure. Elevated levels of UFP are a serious public health concern.'

For future research, the team plans to look at the risk to vulnerable populations such as those with pre-existing conditions or who are taking medication.

The findings add to a growing body of evidence on the adverse effects of tiny particles from air pollution on human health.

In August 2018, a study from the University of Texas at Austin found that air pollution was shaving years off of the global life expectancy from an average of four months in the US and UK to two years in Egypt.

And in October 2018, another study found that living in smog-filled cities could raise the risk of mouth cancer by up to 40 percent.

Govt blames public for PM2.5 levels

Date: -21-Jan-2020, Source: bangkokpost.com



The Chao Phraya River is blanketed with thick haze on Monday as hazardous ultra-fine dust levels in the air exceeded so-called safe levels in many parts of Bangkok. Residents were warned to wear masks outdoors.

Prime Minister Prayut Chan-o-cha on Monday said how hard it is to enforce laws to reduce PM2.5, and blamed the public for the poor air quality.

"The public is responsible and a culprit in the PM2.5 problem. Yet we cannot simply put the blame on people and penalise all the polluters because the outcome of penalty measures will create other serious problems for society. We need to rely on asking for cooperation," Gen

Prayut told the media during a mobile cabinet event in Narathiwat.

The government is being attacked for failing to tackle air pollution, in particular PM2.5.

On Monday, smog levels remained at unhealthy levels in Bangkok with high pollution readings in 34 out of Bangkok's 50 districts. The amount of PM2.5 in the air ranged from 50 to 89 microgrammes per cubic metre ($\mu\text{g}/\text{m}^3$) in the 24 hours to 7am. The government-set "safe" limit is 50 $\mu\text{g}/\text{m}^3$.

Meanwhile, the cabinet today will be asked to approve short-term measures to improve air quality proposed by the Ministry of Natural Resources and Environment.

The measures include a ban on lorries entering inner-city areas on odd-number dates, cutting the sulphur content of premium-grade petrol, promoting carpooling and public transportation, and a crackdown on open burning.

They will take effect immediately after cabinet approval and last until the end of February.

However, experts on air pollution and environmental campaigners complained that these measures do not go far enough.

Brazilian wildfire pollution worsens air quality in distant cities

Date: -21-Jan-2020, Source: sciencedaily.com

Wildfires in south eastern Brazil produce airborne pollution that worsens air quality in major cities such as Sao Paulo -- cancelling out efforts to improve the urban environment and posing health risks to citizens, according to a new study.

The planet is frequently affected by smoke from fires caused by humans and natural processes. Australia, California and other regions are prone to seasonal wildfires and smoke from wildfires and agricultural burns worsening air quality in places up to 2,000?km away.

Most wildfires in Brazil occur in the dry season between July and September in the areas of Amazon and Cerrado -- mostly agriculture-related fires -- and the Pampas. Depending on the weather, long-range transport of smoke affects the air quality of small and large cities downwind of the fire spots, including the 'megacity' of Sao Paulo.

Burning biomass produces increased quantities of low-lying ozone due, in part, to the South Atlantic subtropical high pressure system. Transported considerable distances from the fire, this pollution further contribute to poor air quality and smog in cities such as Sao Paulo.

Researchers from the University of Birmingham, the Federal University of Technology, Londrina, Brazil, and the University of Stockholm published their findings in the Journal of Environmental Management.

Professor Roy Harrison, from the University of Birmingham, commented: "The state of Sao Paulo has led with progressive measures to curb air pollution, such as controlling sulphur dioxide from industrial sources and enforcing standards for cleaner vehicles and fuels.

"However, present results indicate that policies targeting the reduction of biomass burning are of utmost importance to improve urban air quality, particularly in densely populated areas where high pollutant concentrations are frequently observed."

Besides affecting air quality and increasing the risk of death from respiratory causes, ozone is a short-lived climate forcer -- an atmospheric compound with a warming effect but with a shorter lifetime than carbon dioxide. Reducing ozone levels has two main benefits: reducing impact on air quality and climate.

Atmospheric emission data suggests that emissions from biomass burning make up a substantial part of the precursors for O₃ formation.

Dr. Admir Créo Targino, from the Federal University of Technology, commented: "We need enhanced governance at regional, national and international levels to combat biomass burning practices in Brazil and its neighbouring countries.

"Not only would the population health benefit from such a measure, but also the regional climate, as ozone and particulate matter generated by the fires are short-lived climate forcers. Such an approach would be well-aligned with the Paris Agreement that aims to limit global warming to below 2°C compared to the pre-industrial period -- a critical measure in the fight against climate change."

Researchers combined in situ ozone data, measured in the states of Sao Paulo and Parana from 2014 to 2017, with information about a range of co-pollutants such as NO_x, PM_{2.5} and PM₁₀ to identify sources, transport and geographical patterns in the air pollution data.

Ozone concentrations peaked in September and October -- linked to biomass burning and enhanced photochemistry. Long-range transport of smoke contributed to between 23 and 41 per cent of the total ozone during the pollution events.

New Hampshire Warns of Poor Air Quality Until Saturday

Date: -22-Jan-2020, Source: usnews.com

CONCORD, N.H (AP) — New Hampshire could see poor air quality through Saturday due to colder temperatures, calm conditions and pollution, state environmental officials said Wednesday.

The New Hampshire Department of Environmental Services is advising that children, older adults and others with health problems in the southwest parts of the state to take precautions to protect themselves from the air pollution that is expected to reach unhealthy levels. Healthy individuals should also consider limiting strenuous activities.

Symptoms of particle pollution exposure may include chest pain, palpitations, shortness of breath, and difficulty breathing.

Much of this particle pollution is coming from heating devices, especially wood-burning stoves and boilers. Pollution is the worst in communities located in valleys or other low-lying areas. The state is encouraging residents in these areas to consider postponing wood burning and seeking out alternative heating sources.

The air quality is expected to improve on Saturday when winds are forecast to increase.

Air pollution in New York City linked to wildfires hundreds of miles away

Date: -22-Jan-2020, Source: sciencedaily.com

For the study, published 21 January in the European Geosciences Union (EGU) journal Atmospheric Chemistry and Physics, researchers in the lab of Drew Gentner, associate professor of chemical & environmental engineering, monitored the air quality at the Yale Coastal Field Station in Guilford, CT and four other sites in the New York metropolitan area. In August of 2018, they observed two spikes in the presence of air pollutants -- both coinciding with New York-area air quality advisories for ozone. The pollutants were the kind found in the smoke of wildfires and controlled agricultural burning. Using three types of evidence -- data from the observation sites, smoke maps from satellite imagery, and backtracking 3-D models of air parcels (both the maps and models were produced by the National Oceanic and Atmospheric Administration) -- the researchers traced the pollutants' origin in the first event to fires on the western coast of Canada, and in the second event to the southeastern U.S.

Biomass burning, which occurs on a large scale during wildfires and some controlled burns, is a major source of air pollutants that impact air quality, human health, and climate. These events release numerous gases into the atmosphere and produce particulate matter (PM), including black carbon (BC) and other primary organic aerosols (POA) with a diameter of less than 2.5 micrometers. Known as PM_{2.5}, it has been shown to have particularly serious health effects when inhaled.

While more reactive components are often chemically transformed closer to their place of origin, PM_{2.5} tends to last longer. In the case of this study, that allowed much of it to travel from the fires to the monitoring sites -- a period ranging from a few days to about a week.

"Given the sensitivity of people to the health effects emerging from exposure to PM_{2.5}, this is certainly something that needs to be considered as policy-makers put together long-term air quality management plans," Gentner said.

The impacts of wildfire smoke will likely become increasingly important in the coming years.

"When people are making predictions about climate change, they're predicting increases in wildfires, so this sort of pollution is likely going to become more common," said lead author Haley Rogers, who was an undergraduate student when the study was conducted. "So when people are planning for air pollution and health impacts, you can't just address local sources."

Although the levels of the PM_{2.5} decreased over time and distance, co-author Jenna Ditto, a graduate student in Gentner's lab, noted that awareness of its presence in the atmosphere is critical to public health.

"Studies indicate that there are no safe levels of PM2.5, so typically any level of it is worth taking a look at," she said.

Thai Protesters Demand Action as Air Pollution Clouds Bangkok

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



A woman wears a mask during an environmental activists' rally to demand rights to clean air, near the Thai Government House in Bangkok, Thailand, as the country struggles to contain worsening air pollution January 23, 2020.

BANGKOK (Reuters) - Dozens of activists held a rare protest on Thursday over air pollution in Bangkok, a day after Thai officials closed schools due to concern over the impact.

Levels of air pollution in the capital, the world's most visited city, have hovered at unhealthy levels over the past month - over 100 on the air quality index.

The index breached the 151 threshold seen as dangerously

unhealthy for the general public late last week, and continued to climb until it hit 163 on Monday, according to monitor AirVisual.

Schools were closed for the day on Wednesday, and by Thursday the index dropped back to 121.

The activists, wearing pollution masks, said they were marching to the Government House because of authorities' inaction.

"Air pollution affects everyone ... it is life and death for all of us," said Tara Buakamsri, Thailand director for environmental group Greenpeace, as cars and motorcycles sped by emitting smoke.

Particles found in dust, soot and smoke and small enough to lodge deep in the lungs and enter the bloodstream, known as PM 2.5, were measured at unhealthy levels for 23 of the past 30 days in Bangkok, data from AirVisual showed.

Earlier this week, Prime Minister Prayuth Chan-ocha said healthy people such as himself could manage and those in risky groups should be aware of their tolerance levels and wear masks.

His comment angered some of the activists.

"Pushing the burden on the people like this is not something an efficient government would do," said Chonlatorn Wongrussamee, one of the protesters.

Tara said protecting the environment and health did not damage economic development but went hand in hand with it at the demonstration, which the activists said was the first such protest in two years.

When they reached the government headquarters, a senior official in the Natural Resources and Environment Ministry, Nopadol Phonsen, came out to speak to them, telling them officials were meeting to discuss measures to tackle the issue.

"We're all under the same sky. We want the air we breathe to be clean and healthy," he said.

The city's last moderate air quality day, when the index was between 51 and 100, was Jan 4., and there has been no "good" air reading in the past 30 days, according to AirVisual data.

Air-filtering buses to be deployed in English towns and cities

Date: -24-Jan-2020, Source: eandt.theiet.org

Each single-decker bus has three fans on its roof; as they drive, these fans suck ultra-fine particles and dirt into filters. It then allows the bus to release purer air. The technology was tested in a trial in Southampton last year using Bluestar buses and saw 65g of pollutants (equivalent to the weight of a tennis ball) extracted over a 100-day period.

Following the trial, a further five buses will be deployed in Southampton by early February. Further air-filtering vehicles will be introduced to Brighton, Manchester, Newcastle, Oxford, Plymouth, and Crawley in summer.

The buses will be operated by the Go-Ahead Group: one of the UK's largest public transport providers.

"We want to play our part in tackling the crisis in urban air quality and show that buses can be integral to cleaning up our cities," said Go-Ahead CEO David Brown. "Our air-filtering system has exceeded all expectations in how it can benefit the environment, and it builds on our track record as operator of the UK's greenest bus fleet."

"We believe the Air Filtering Bus provides a quick win for councils as they explore initiatives such as Clean Air Zones to tackle toxic pollution."

In recent years, pressure has mounted on governments and the transport sector to reduce urban air pollution and save lives. According to a report by the European Environment Agency, 400,000 premature deaths in 2016 alone could be traced back to air pollution, and almost all Europeans living in cities are exposed to levels of air pollution exceeding WHO guidelines. Exposure to air pollution such as PM2.5 (fine particulate matter with diameter

less than 2.5 micrometres) is associated with increased mortality from lung cancer and heart disease, but more recent studies have linked exposure to a smorgasbord of conditions, including depression, septicaemia, kidney failure, pneumonia, Parkinson's disease, UTIs, and many others.

Most efforts and proposals involve discouraging use of private, highly-polluting vehicles – such as London's congestion charges – although some technological solutions to capture emissions have also been proposed. In December, Swiss researchers proposed a method for reducing the carbon emissions of trucks by 90 per cent with a small system which can be retrofitted to existing vehicles.

Wildfires in Western Canada Created Air Pollution Spikes as Far Away as New York City

Date: -24-Jan-2020, Source: ecowatch.com

New York City isn't known for having the cleanest air, but researchers traced recent air pollution spikes there to two surprising sources — fires hundreds of miles away in Canada and the southeastern U.S.

According to a study published this week in the European Geosciences Union's journal Atmospheric Chemistry and Physics, researchers at Yale University monitored air quality at several locations in the New York City metropolitan area and at the Yale Coastal Field Station in Guilford, CT, and found two spikes in air pollutants during August 2018 resulting in ozone advisories in both New York City and Connecticut.

The researchers, from associate professor Drew Gentner's research group, then compared the data from the five observation sites to satellite imagery and backtracking 3D air parcel models developed by the National Oceanic and Atmospheric Administration, New Scientist reported.

They traced the first pollution spike between August 16-17 to historic wildfires on Canada's west coast. By August, British Columbia had declared 2018 its worst wildfire season on record, with 534 fires burning more than 8,000 square miles, according to The CBC.

A second spike from August 27-29 was connected with controlled burns in the southeastern U.S., The Daily Mail reported.

The pollutants they detected included black carbon and particulate matter with a diameter under 2.5 micrometers, called PM2.5, which are common components of smoke from biomass burning and harmful when inhaled.

Previous research has shown that PM2.5 exposure is associated with a number of diseases — including lung and brain cancer, cardiovascular disease and dementia — and even levels

allowed by the U.S. Environmental Protection Agency could be responsible for 200,000 deaths per year in the U.S.

A 2019 study found that short-term spikes in PM2.5 pollution resulted in increased hospital psychiatric unit visits for children with anxiety, suicidal thoughts and schizophrenia.

The reason why the PM2.5 pollution traveled hundreds of miles from its sources to the northeast over the course of up to a week, the researchers explained, is that it lasts longer than more reactive components of the smoke which are chemically transformed nearer to the source.

A report from The American Lung Association last year found that New York City was already the tenth worst U.S. city for ozone pollution, but the Yale researchers believe the effects of smoke from faraway wildfires will increasingly pose a threat to residents there and across the northeast due to climate change.

"When people are making predictions about climate change, they're predicting increases in wildfires, so this sort of pollution is likely going to become more common," lead author Haley Rogers, an undergraduate student when the study was conducted, said in a press release. "So when people are planning for air pollution and health impacts, you can't just address local sources."

Living Near Major Roads And Their Polluted Air Tied to Parkinson's, Dementia

Date: -26-Jan-2020, Source: psychcentral.com



People living near major roads or highways may be at greater risk of developing neurological disorders, such as dementia or Parkinson's disease, but green spaces may help reduce this risk, according to a new Canadian study published in the journal *Environmental Health*.

A research team from the University of British Columbia (UBC) evaluated data for 678,000 adults (ages 45 to 84) in Metro Vancouver. They found that living less than 50 meters (164 feet) from a major road or less than 150 meters (492 feet) from a highway is linked to a greater risk of developing dementia, Parkinson's, Alzheimer's and MS — likely due to increased exposure to air pollution.

The team also discovered that living near green spaces, like parks, has protective effects against developing these neurological disorders.

“For the first time, we have confirmed a link between air pollution and traffic proximity with a higher risk of dementia, Parkinson’s, Alzheimer’s and MS at the population level,” says Weiran Yuchi, the study’s lead author and a PhD candidate in the UBC school of population and public health.

“The good news is that green spaces appear to have some protective effects in reducing the risk of developing one or more of these disorders. More research is needed, but our findings do suggest that urban planning efforts to increase accessibility to green spaces and to reduce motor vehicle traffic would be beneficial for neurological health.”

For the study, the researchers estimated individual exposures to road proximity, air pollution, noise and greenness at each person’s residence using postal code data. During the follow-up period, they identified 13,170 cases of non-Alzheimer’s dementia, 4,201 cases of Parkinson’s disease, 1,277 cases of Alzheimer’s disease and 658 cases of MS.

For non-Alzheimer’s dementia and Parkinson’s disease specifically, living near major roads or a highway was associated with 14 percent and 7 percent increased risk of both conditions, respectively.

Due to relatively low numbers of Alzheimer’s and MS cases in Metro Vancouver compared to non-Alzheimer’s dementia and Parkinson’s disease, the researchers did not identify associations between air pollution and increased risk of these two disorders. However, they are now analyzing Canada-wide data and are hopeful the larger dataset will provide more information on the effects of air pollution on Alzheimer’s disease and MS.

When the researchers accounted for green space, they found the effect of air pollution on the neurological disorders was mitigated. The researchers suggest that this protective effect could be due to several factors.

“For people who are exposed to a higher level of green space, they are more likely to be physically active and may also have more social interactions,” said Michael Brauer, the study’s senior author and professor in the UBC school of population and public health. “There may even be benefits from just the visual aspects of vegetation.”

Brauer added that the study emphasizes the importance for city planners to incorporate greenery and parks when planning and developing residential neighborhoods.

Red Sea is potent source of hydrocarbon emissions

Date: -28-Jan-2020, Source: natureasia.com



The AQABA study employed a specially outfitted research vessel to track atmospheric emissions around the Arabian Peninsula.

The environmental and public health threat posed by industrial pollution is well established. Now, a team led by Efstratios Bourtsoukidis at the Max Planck Institute for Chemistry in Mainz, Germany has identified an unexpected natural source of hydrocarbons deep in the Red Sea, which is comparable with the total anthropogenic

emissions from the entire Middle East region. These natural hydrocarbon emissions have the potential to greatly exacerbate the toxic effects of maritime emissions on the Arabian Peninsula.

Intensive fossil fuel production in the Middle East is a major source of non-methane hydrocarbons (NMHCs) such as propane and ethane. These gases linger in the atmosphere and can interact with other emissions to produce smog and other harmful compounds. "However, air chemistry measurements in this region are scarce," notes Bourtsoukidis. To address this problem, his team embarked on the Air Quality and Climate Change in the Arabian Basin (AQABA) study in 2017. They transformed a research vessel into a seagoing laboratory, outfitted with a host of instruments for detecting NMHCs and other emissions.

Most of their findings mirrored initial predictions, with high NMHCs in areas of strong industrial activity. But there was one big surprise: a spike in NMHC emissions in the northern Red Sea. "We initially assumed that these high ethane and propane concentrations were due to sources located along the Suez Canal, such as fossil fuel exploitation, biomass burning, and marine traffic," says Bourtsoukidis. But careful mathematical and statistical analysis showed this was not the case.

Instead, this surge in ethane and propane levels originates deep beneath the sea, arising from sources that include leaky underwater reservoirs of hydrocarbons as well as biological activity. "We spent almost two years working on this dataset to confidently prove that these emissions were coming from some two kilometres beneath the sea's surface," says Bourtsoukidis. These gases are subsequently relayed to the surface by undersea currents.

In the past, such NMHC release would have a negligible impact on human health. But today, these gases interact with nitrogen oxide produced by ship traffic, which has been steadily

increasing in the Red Sea. "This results in the production of ozone and peroxyacetyl nitrates, which are very harmful to human health," says Bourtsoukidis. "This pollution is spreading to remote, unpolluted areas." He and his team are continuing to work with the AQABA data to understand its environmental implications for the Arabian Peninsula, including the potentially strong contribution of deep-water sources to methane release.

Eric Apel of the US National Center for Atmospheric Research in Boulder, Colorado, who was not involved in the study, says "the authors did a good job of showing that the Red Sea is a large and unexpected source of methane and light hydrocarbons that can have some significant implications for air quality in the region, now and into the future".

7,000 trees will be planted in London to improve air quality

Date: -29-Jan-2020, Source: environmentjournal.online



The Mayor of London, Sadiq Khan has announced that in order to help reduce air pollution and carbon dioxide (CO₂), thousands of trees will be planted across 20 boroughs in London.

London has secured over £2m of funding from the Forestry Commission, and Sadiq Khan

has then matched this with over £1m from the Mayor's Greener City Fund along with £1m from participating boroughs.

Thanks to this funding, nearly 3,000 trees will be planted in London before March 2020, and a following 4,000 will be planted next winter.

It is estimated that these 7,000 trees will provide at least £133m worth of benefits to Londoners each year by removing an estimated 2,241 tonnes of air pollution.

The trees will also provide many environmental benefits by helping to reduce flood risk, absorbing CO₂ and providing a habitat for wildlife.

In connection with this project, Sadiq Khan has also awarded £1.1m to 54 community projects in order to improve and create green spaces across the city.

The community projects, which will all be delivered this year and will work to install new community gardens, make school playgrounds green, and clean London's canals and rivers.

Sadiq Khan said: “I’m doing everything in my power to make London zero-carbon and one of the greenest, most sustainable cities in the world.

‘Simple steps like planting trees helps us address the climate and ecological crisis.

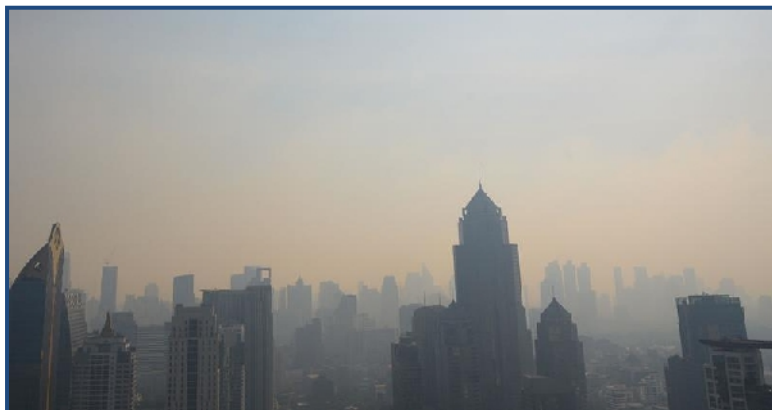
‘These additional street trees and improvements to green spaces are targeted in areas where they’re most needed.

‘As the world’s first National Park City we will continue our bold action to preserve and increase tree coverage across London.’

Barbara Milne, chair of the London Tree Officers Association, said: ‘This joint funding arrangement helps to make the most of resources for tree planting in London, and will support local authorities with limited budgets to meet aspirations for more tree planting in our capital.’

Suffocating in Thailand

Date: -30-Jan-2020, Source: theaseanpost.com



This file photo shows a view of the Bangkok skyline where haze can clearly be seen over the city on 8 January 2020

Recently, The ASEAN Post published an article which focused on the perception in Thailand that crime was on the rise. This was based on a survey conducted by the Suan Dusit Rajabhat University which, among other questions, had asked Thais which security threats they most feared. In answering that question, the smallest – yet still significant –

percentage of respondents (15.17 percent) had answered “toxic smog”.

Toxic smog is common in Thailand, especially in cities like Bangkok. In Bangkok, the most serious pollutant is PM2.5, particles 2.5 micrometres or smaller. They can lodge deep in the lungs and cause respiratory and heart ailments.

Recently, on 23 January, protesters wearing surgical masks marched to Thailand’s Government House to demand that the country’s prime minister, Prayut Chan-o-cha and his government tackle the air pollution problem more seriously. Signs were held up reading, “Right to clean air is a human right” and “People before polluters.”

Levels of air pollution in the capital city have hovered at unhealthy levels over the past month - over 100 on the air quality index. According to monitor AirVisual, the index

breached the 151-threshold seen as dangerously unhealthy for the general public the week prior to the protests and continued to climb until it hit 163 on 20 January.

On the same day, the cabinet was asked to approve short-term measures to improve air quality proposed by the country's Ministry of Natural Resources and Environment. The measures include a ban on lorries entering inner-city areas on odd-number dates, cutting the sulphur content of premium-grade petrol, promoting car-pooling and public transportation, and a crackdown on open burning. These measures are to last until the end of this month.

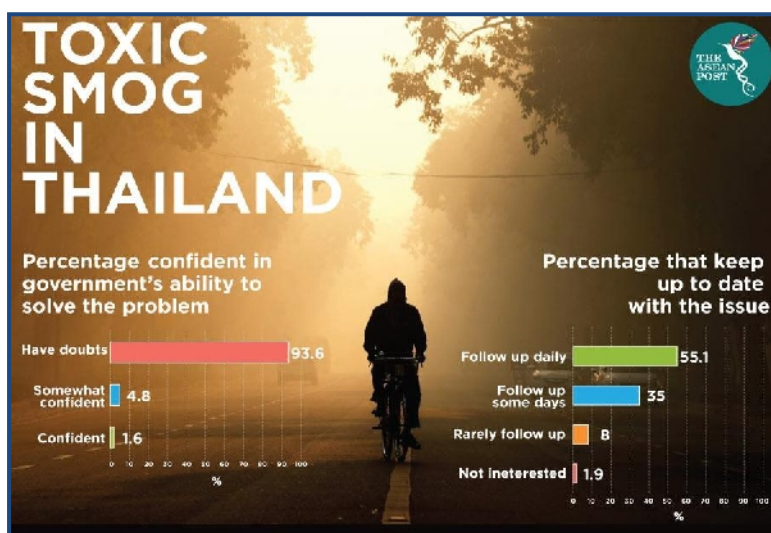
Experts on air pollution and environmental campaigners, however, have complained that these measures do not go far enough. Tara Buakamsri, country director of Greenpeace Southeast Asia, said more must be done to tackle the causes of excessive PM2.5 levels.

"People have already lost confidence in the government's response because they don't think it is enough to deal with the problem," the Bangkok Post quoted Tara as saying.

Lost confidence

Tara may have a point in saying that Thais have lost confidence in their government's ability to solve the country's pollution crisis.

A recent study by Suan Dusit Rajabhat University found that a whopping 93.6 percent of respondents say the government has failed so far to come up with measures to deal with the PM2.5 problem. Of that percentage, 52.9 percent are not sure whether the government will ever be able to solve the problem, and 40.7 percent have little confidence in the government's ability.



In fact, only 1.6 percent of the respondents say they have every confidence in the government's ability to solve the problem, while 4.8 percent say they are only "somewhat" confident in the government's ability.

Meanwhile, highlighting that the majority of respondents were aware of the pollution crisis, 55.1 percent say they

follow up on the fine-dust situation daily; 35 percent say they do so on some days only; eight percent rarely do so because they do not want to get stressed; and 1.9 percent say they are not interested as they have to concentrate on their work.

Taka has said that the government should look for long-term solutions such as improving public transport and implementing policies to discourage private vehicle use.

Proactive steps

Some have decided to take more proactive steps towards addressing the issue instead of just waiting and banking on the government to act satisfactorily.

It was recently reported that the private sector, academia, NGOs and community leaders in Chiang Mai have come together to form the "Chiang Mai Breathe Council", an independent body focusing on improving Chiang Mai's air quality, to mitigate air pollution.

Nalee Intaranan, a member of the council, said the group had a two-pronged approach to the issue: The first is to get the government on board in terms of funding and changes in law and policy. The second is to create a social movement to raise awareness and educate people about the impact of PM2.5 on their health.

She said the main focus of the group will be to reduce smoke from all sources, from vehicles, factories, construction, garden burning to agricultural and forest fires. It is estimated that between 80 percent to 90 percent of fires in the north are from the latter two causes, which differs from Bangkok and the central region.

"While air pollution is becoming a national-level emergency, each region has its own set of problems and solutions which must be looked at separately," she was quoted as saying, adding that the council will work full-time all year, unlike regional government efforts in the past which would only focus on the problem for a few months per year.

The call is clear, Thailand wants its government to figure out a more long-term solution instead of its alleged ad hoc responses thus far. But will the government heed the call and ensure that toxic smog becomes a thing of the past for Thailand? Time will tell.

Australia's bushfires are approaching its capital Canberra

Date: -31-Jan-2020, Source: vox.com

The ongoing bushfires that have devastated Australia closed in on the country's capital, Canberra, on Friday as it declared its first state of emergency since 2003.

The Rural Fire Service of New South Wales, the state surrounding the capital, warned of severe fire danger for the Australian Capital Territory, with flames and embers projected to spread well inside the region on Saturday. The territory is home to more than 400,000 residents, and nearly half of it is at risk of "ember attack" and flames.

The fires are ramping up amid yet another heat wave in the region, with temperatures topping 104 degrees Fahrenheit.



The Australian Capital Territory declared a state of emergency as bushfires encroach on Canberra amid high winds and heat.

“Under these conditions, a number of fires will spread and may threaten properties. Embers may be blown ahead of fires and could start spot fires,” according to the NSW Rural Fire Service. “If you’re in one of these areas, you may be impacted by fire. If your plan is to leave, leave early and avoid being in these areas during the heat of the day.

Forecasters also expect some rain in the region this weekend, but not enough to quench the blazes. In fact, the storms could make fire risks worse. “On Sunday, showers and storms will affect eastern New South Wales and the ACT, but as moisture dissipates, the risk of dry lightning and erratic fire behavior increases, which will be a real concern for major fires in the Canberra region,” said Jonathan How, a meteorologist with the Australian Bureau of Meteorology, during a Friday weather bulletin.

Dry lightning has already been blamed for igniting the majority of blazes in Australia’s current bushfire season, which has been unprecedented in its severity.

The fires have claimed 33 lives, including three US firefighters killed in a plane crash. The blazes have torched more than 27 million acres, an area larger than Kentucky, and destroyed more than 2,000 homes. Researchers estimate that more than a billion animals may have also perished in the fires.

Beyond the flames, the bushfires have also shrouded major Australian cities in dangerous air pollution. Earlier this month, pollution from fires made breathing the air in Sydney as bad as smoking 37 cigarettes. Tennis player Dalila Jakupovic quit the Australian Open in Melbourne after collapsing in a coughing fit, which she blamed on the dirty air.

The smoke from these blazes is visible from space and has circumnavigated the planet. Health officials are now warning that the capital territory will face heavy smoke this weekend.

The conditions behind the hellish heat and fires across Australia have been building for years. Last year, Australia saw several ocean and atmospheric circulation patterns in an unusual alignment that drove moisture away from the continent and trapped heat. That searing hot weather came atop Australia’s third winter in a row with almost no rainfall, leaving much of the landmass in a severe drought. And climate change is forcing average

temperatures in Australia to rise and is causing some of its most densely populated regions to dry out.

Together, these factors left much of Australia covered in dry vegetation that was ripe to burn. The stunning length of the fire season is now stretching resources thin. Volunteers are fighting most of the blazes and many are now several months away from their last paycheck. In December, Australia's government authorized payments to firefighters, \$209 US per day, up to a total of \$4,190 per person. Earlier this month, Australian Prime Minister Scott Morrison formed a National Bushfire Recovery Agency funded with \$1.4 billion.

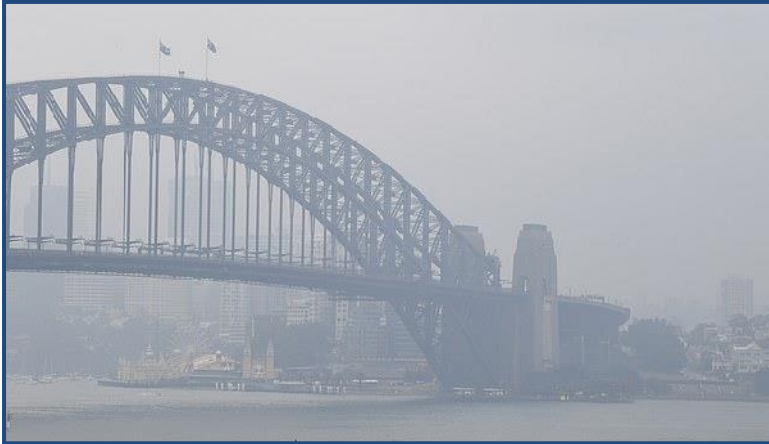
But many Australians remain frustrated with their government's response to the bushfire crisis and ongoing risks stemming from climate change. Morrison in particular was criticized for taking a vacation to Hawaii during the fires and for failing to heed warnings that a devastating fire season was looming. His government has also been reluctant to acknowledge Australia's contributions to climate change, particularly the country's role as the largest coal exporter in the world.

Now with flames encroaching on the capital, Australia's leaders may have a harder time ignoring the massive disaster and the factors behind it.

February 2020

Suffocating smoke is BACK: Choking smog from raging bushfires is expected to blanket Sydney - and it's not leaving any time soon

Date: -1-Feb-2020, Source: dailymail.co.uk



Sydney (pictured last month) is expected to be blanketed in a smoky haze on Sunday

The hazy days of Sydney being smothered in smoke could be about to return.

A poor air quality alert has been forecast for the harbour city to be blanketed in smoke on Sunday as raging bushfires in the nation's capital and south-eastern New South Wales continue to burn out of control.

'Areas of smoke haze developing during the day. Dust haze possible in the afternoon and evening,' a forecast from the Bureau of Meteorology forecast stated.

The hazy conditions will be the result of a southerly change after parts of western Sydney sweltered in 45C plus temperatures on Saturday.

'There's a possibly the southerly change will carry the smoke from active fires up the coast to have some impact on Sydney,' BOM senior forecaster Rosemary Barr told Daily Mail Australia.

'Another southerly change forecast for Monday could also bring another burst of haze from the fires and stick around for the early parts of the week. '

The NSW Department of Planning, Industry and Environment has issued a health warning that Sunday's poor air quality will be 'unhealthy for sensitive people, and could cause symptoms, especially in people with heart or lung disease.'

To lower the risk of being affected by bushfire smoke, people are advised to reduce or avoid vigorous outdoor activity, keep doors and windows shut to keep the smoke out, spend time in air-conditioned venues like cinemas, libraries and shopping centres and to avoid indoor sources of air pollution.

Sydney is expected to reach a top of 32 on Sunday with afternoon thunderstorm activity likely.

As the city's CBD reached a high of 34.8C on Saturday, the heat was more unbearable out west as Richmond reached 46.8C, followed closely by Penrith with 46.4C.

Of the 12 major fires burning across NSW on Saturday night, three were at emergency levels in the Bega Valley region.

The Clear Range fire in Snowy Monaro region is also at emergency levels and closed the Monaro Highway.

In the ACT, the Orroral Valley fire has been downgraded to a watch and act level after it flared to emergency levels for a second consecutive day on Saturday.

'Fire activity has eased across the fire ground. Conditions can still change and get worse,' the latest ACT Emergency Services Agency alert read.

A state of emergency has been declared for the nation's capital for the first time since the deadly 2003 bushfires, which claimed four lives and destroyed almost 500 homes.

Canberra sweltered through its hottest back-to-back days since records began after reached 41.9C on Friday followed by a scorching 42.7C on Saturday, according to Weatherzone.

AIR POLLUTION Hazy days and Sundays – Bangkok has fifth highest air pollution in the world

Date: -2-Feb-2020, Source: thethaiger.com



“Unhealthy”. That about sums up the air Bangkokians are breathing this morning, a situation almost completely avoidable but allowed to continue by the Thai Government. Bangkok is in bad company today with other polluted cities in Asia – Lahore, Hanoi, Delhi and Dhaka – as the fifth most

polluted city in the world, a headline the Thai Government would prefer to avoid.

Right around the capital this morning, a day of the quietest traffic, and stretching around the central Thailand region and down to Pattaya, the smoke and haze caused by the plantation burn-offs is palpable as people try and find some respite from the poor air quality.

The northern airflows are blowing all the smoke from the field fires lit by farmers back into the city today. The city, already in a mild panic over the Coronavirus cases in Thailand, is

short on masks and probably even shorted on patience as the Thai Government continues to put lives at risk by doing little about solving the smog crisis.

Let's be clear, this has almost nothing to do with old buses and factories, and burning incense sticks (all which have been blamed in the past), and EVERYTHING to do with the annual burn-off season, mostly sugar cane, corn and rice fields.

Even the sugar industry, the source of much of the pollution, has been pro-active enough to offer solutions to encourage, or force, farmers into harvesting the crops and using machinery to prepare the paddocks for the next crops, instead of resorting to the cheap solution of burning.

Sugar factories are campaigning to cut and harvest raw sugarcane, instead of boring it first, for processing. The conglomerates are recommending that the government offer funding at low interest rates to farmers to buy harvesters as the prices of the equipment are quite high (6-12 million baht).

The Thaiger has published countless articles over the past few years about the pollution problem [HERE](#), [HERE](#) and [HERE](#). There's even been a 'crackdown' on the plantation fires with police being given the power to prosecute farmers who continue to light the fires.

"National Police chief Pol General Chakthip Chaijinda has ordered deputy chief Pol General Suwat Jaengyodsuk to be the central administrator of these measures. They are to be enforced at traffic routes, industrial factories, construction sites and burnt crop fields where the PM2.5 comes from nationwide."

But here we are, on a Sunday, in one of the world's most visited cities by tourists from around the world, enveloped in choking pollution that measures up to 4 times the Thai Government's own classification of a safe upper limit. And up to 8 times what the World Health Organisation deems as 'safe'.

If the map readings of Unhealthy and Very Unhealthy aren't enough to scare a Thai Government public servant into action this morning, perhaps they should just look out of their windows at the pall of smoke descending on the city. Or perhaps they should go and greet some arriving visitors at the country's largest international port, Suvarnabhumi Airport, where this morning's reading is 205 microns (of 2.5 micron particulate per cubic metre of air).

Welcome to Bangkok.

PS. If the police need any help to find where the fires are burning, 1) look for the smoke or 2) log onto the NASA satellite fire map [HERE](#) (screenshot below) for some live data about fires burning around Thailand. Hundreds and hundreds of fires.

Thai govt combats PM2.5 air pollution

Date: -3-Feb-2020, Source: nst.com



The Thai government has banned the burning of candles and incense at the Erawan Shrine in Bangkok.

BANGKOK: Thai authorities have been forced to take stern action to tackle the fine particulate matter (PM2.5) air pollution crisis in the country.

However, while they crack down on motorists, farmers and factories, religious worshippers who burn incense and joss paper will likely be left off the hook.

According to the Bangkok Post, smoke from incense sticks can

be as toxic as cigarette smoke.

The Public Health Ministry said incense sticks were made of charcoal wood and their burning resulted in the emission of harmful volatile organic compounds and particulate matter, including PM2.5 dust, as well as gases.

These gases include sulphur dioxide, formaldehyde, carbon monoxide and nitrogen oxide.

However, despite the evidence of their health impact, forcing worshippers to give up religious rituals is something governments have tried and failed.

An example, according to the Bangkok Post, was when the Taiwanese government tried to ban incense sticks and joss papers.

During the nine-day Taoist pilgrimage in Taiwan in 2016, government monitors had found the level of PM2.5 dust was more than 60 times greater than the World Health Organisation safe threshold of 25 microgrammes per cubic metre.

When the Taiwanese government attempted to ban the ritual in August 2017, thousands of Buddhists and Taoists came out to protest. It was forced to postpone the ban indefinitely and had instead mounted a campaign to raise public awareness of the pollutant, as well as seek voluntary cooperation.

Its most successful campaign advertisement involved highlighting the dangers of incense burning to children.

In Thailand, although the Public Health Ministry's initiatives have made little headway, it did manage to ban the burning of candles and incense sticks at the Erawan Shrine here in 2018.

Several worshippers welcomed the initiative, saying that it could save trees and improve air quality.

S. Korea unveils 5-year plan to take big bite out of PM2.5 smog

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



People wear face masks in Seoul on Dec. 28. (Takuya Suzuki)

SEOUL--South Korea is launching a major offensive against smog-causing PM2.5, with about half the amount of the pollutant in its atmosphere originating from inside the country.

The government will invest 20 trillion won (about 1.85 trillion yen, or \$17 billion) under the plan, seeking to reduce the average concentration of PM2.5 by more than 35 percent over the next five years.

The plan was drawn up based on a joint study spearheaded by South Korea from 2013 that looked into the spread of the pollutant across borders.

As about 30 percent of PM2.5 in the country blows in from China, it also plans to ask its neighbor to cooperate on such measures.

Under the plan, the government will help equip small businesses to curb harmful emissions; promote the purchase of eco-friendly alternatives to old-type diesel vehicles; install air cleaning equipment in subways and inspect air-conditioning systems at child- and elderly care facilities.

Air pollution in South Korea worsens between winter and early spring when it is buffeted by winds from China.

Since December 2019, South Korea's Ministry of Environment has issued five warnings when PM2.5 levels exceeded 50 micrograms per cubic meter per day on average. The

environmental standard in Japan for PM2.5 is 35 micrograms or less per cubic meter per day on average.

The results of the 2013-2017 joint study with Japan and China showed that in major South Korean cities, 51 percent of the pollutant originated from the country itself, while 32 percent came from China in 2017.

Kim Cheol-hee, a professor of Busan National University who led the study, said: "The reported figures are the average of the entire year, as summer was included at China's request. If the period was only from winter to spring, the influence from China's would be shown to be much greater."

During his New Year's address on Jan. 7, South Korean President Moon Jae-in said, "I will ensure that the air in the atmosphere is greatly improved."

In 2016, the annual average level of PM2.5 in the country was 26 micrograms per cubic meter, about twice that of Japan. Under the plan, the government seeks to reduce it by more than 35 percent by 2024. A source in South Korea's Ministry of Foreign Affairs said: "Air pollution is a common concern in this part of the world. We need to move forward on cooperating with China and Japan."

Quality of air in Bucharest-Romania: is it fog or is it smog?

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



Mr Klaus IOHANNIS, President of Romania

It's a cold, foggy winter morning in Bucharest, unlike the ones I've seen in the past 3 years since moving here. Today wasn't the first day I asked myself "is it fog or is it smog?", but it was the first day I was afraid the answer to my joking question could be "it's actually smog"

The quality of air in Bucharest has become a rapidly increasing concern in the

population, air pollution exceeding "very high" levels as reported by the "aerlive.ro" NGO, currently ranking higher than Beijing on this subject. The European Commission opened an infringement procedure against Romania.

Air pollution is defined by the presence of harmful gases and particulate matter (PM) in the air. The principal pollutants are carbon monoxide (CO), nitrogenous dioxide (NO₂) – also

known as NOX, ozone (O₃), sulphur dioxide (SO₂), hydrocarbon and last, but not least PM₁₀ and PM_{2,5}.

PM is a complex mixture of very small liquid and solid particles, a group of pollutants that vary in size, composition and origin. PM₁₀ and PM_{2,5} the 10 micrometre and 2,5 nanometre particles, are capable of infiltrating deep into the respiratory tract and cause serious health problems. They originate from traffic: CO₂ emission, exhaust fumes and burnt car tire.

The chemical composition doesn't suffice, completing the big picture of air pollution comes the meteorological data: temperature, humidity, atmospheric pressure and wind speed, necessary for understanding the concentrations and distributions of these harmful particles.

According to the W.H.O., air pollution is responsible for 29% of pulmonary cancer-related deaths, 24% of stroke and 43% of COPD-related deaths. Even more concerning is that children under 15 are more vulnerable to air pollution, since they inhale 37% more NOX. It is medically proven that a low quality of air lead to aggravation of cardiac and pulmonary illness.

In spite of traffic being the major known source of pollution, something doesn't fit the picture. During the winter break, the car usage was at 10% of its regular level, but the pollution levels didn't drop proportionally. Unregulated, polluting construction sites in the middle of the city and lax regulations of burning waste, including plastic, oil and rubber are just 2 of the other major players.

Right now, air pollution in Bucharest is a sensitive, much debated problem. We are stuck in the middle of the run-for-mayor campaign and indifference. Even more so, it's time for action: starting from education campaigns to concrete measures taken by the administration, like health policies regarding traffic: reducing the number of cars, promoting common transportation and encouraging greener alternatives. There's no need to look outside the borders for examples, Turda being the first city of Romania with a fully electric public transportation system, Cluj following their lead.

Impactful measures should be taken by the capital's citizens – demanding and protecting their most fundamental right- the Right to Live. We're past asking questions, it's time to demand the state's institutions, the Environmental Guard and the Local Administration to answer our call for immediate action.

Bangkok Stopped Construction Activities for 3 Days because of the Poor Air Quality

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

Construction activities at major infrastructure sites in Bangkok have been halted due to air pollution, according to the Nation newspaper.



Construction of skyscrapers, new road junctions and new subway lines has been halted for 72 hours, the release said.

Air pollution levels in the Thai capital exceeded health-safe limits once again on Monday. In many areas of Bangkok this morning, pollution levels exceeded 70 micrograms per cubic meter of air.

Bangkok's major air pollutants are construction sites, diesel cars and city buses with old engines.

City officials say construction work will be resumed in three days if the air quality improves. Otherwise, the construction ban will be extended.

Report: Half The Texas Refineries Spewing Benzene Above Federal Threshold Are Near Houston

Date: -6-Feb-2020, Source: houstonpublicmedia.org



An oil refinery along the Houston Ship Channel.

Eight years ago, two environmental nonprofits sued the U.S. Environmental Protection Agency. The agency was a decade overdue in updating limits on how much hazardous air pollution the country's oil refineries could emit; the groups hoped a lawsuit would force it to act.

The result was a regulation that required more than 100 refineries to monitor — and

report — levels of cancer-causing benzene along the perimeters of their facilities and to make fixes when concentrations exceed a certain threshold.

On Thursday, the Washington, D.C.-based Environmental Integrity Project — one of the two nonprofits that sued the EPA in 2012 — released an analysis of the publicly available monitoring data refineries began sending to the EPA in January 2018. It found that 10 of

them had reported benzene levels above the established threshold over a one-year period that ended in September. Six of those refineries are in Texas, including three in the Houston metro area.

The Texas refinery that reported the highest concentrations of the hazardous pollutant at its fence line was Total Port Arthur Refinery in Port Arthur, with levels 148% greater than limit, according to the report.

“These results highlight refineries that need to do a better job of installing pollution controls and implementing safer workplace practices to reduce the leakage of this cancer-causing pollutant into local communities,” Eric Schaeffer, executive director of the Environmental Integrity Project, said in a statement. “EPA in 2015 imposed regulations to better monitor benzene and protect people living near refineries, often in working-class neighborhoods. Now, EPA needs to enforce these rules.”

The EPA didn’t immediately respond to a request for comment.

The Environmental Integrity Project stressed that the 10 refineries are not necessarily in violation of the law.

Houston’s place on the list is another data point for environmentalists who say more needs to be done locally by Gov. Greg Abbott and the Texas Commission on Environmental Quality.

Some of those environmental advocates argue that the TCEQ is used to “defend the interests of industry,” according to Bakeyah Nelson, executive director of Air Alliance Houston. Instead, Nelson said, the governor should direct the agency to better regulate such refineries.

“People are dying, communities are being destroyed,” Nelson said. “And a lot of it has to do with the fact that we have allowed industry to operate so freely in this state, in this region, that these companies are not taking the necessary precautions to prevent these accidents from happening.”

Under the rule, facilities must collect air samples at their fence lines every two weeks, and if the average of the highest concentrations of benzene exceeds 9 micrograms per cubic meter of air over a one-year period, they are required to investigate the cause and take action to reduce emissions.

The other Texas refineries that reported benzene levels above the federal action limit are:

Pasadena Refining (100% above the limit)

Flint Hills Resources Corpus Christi East (79% above limit)

Valero Corpus Christi East (44% above limit)

Shell Deer Park (23% above limit)

Marathon Galveston Bay Texas City (11% above limit)

In written statements, all the companies said they have worked hard to reduce emissions of benzene and other hazardous air pollutants. Some stressed that the fence line monitoring data isn't necessarily indicative of public health risks and described the report as misleading.

"The Total Port Arthur Refinery has a robust monitoring system in place to assist us in identifying the source of an emission, investigating its cause and implementing corrective actions," the French oil giant said in its statement. "We are committed to comply with EPA rules. We take seriously our responsibility to reduce our environmental footprint."

California-based Chevron, which purchased Pasadena Refining from Brazil's state-owned oil company Petrobras last year, said in a statement that it "regularly analyzes the fence line monitoring data to identify and address potential sources of benzene emissions at its newly acquired Pasadena refinery."

"Chevron has taken steps, including testing and piloting new monitoring technology to identify potential sources, which would drive a reduction in levels at our refineries' fence lines," the statement said.

It noted that the facility, which had a long history of problems with air pollution and worker safety, has submitted a corrective action plan to Texas' environmental regulatory agency that called for monitoring improvements, which it said are "currently underway."

Kansas-based Flint Hills Resources said that the fence-line monitoring data it reported to the EPA isn't necessarily indicative of benzene levels in communities near its facility.

"Corpus Christi maintains an extensive network of ambient air monitors that indicate benzene levels are much lower than this report would suggest and well within public health standards," the company said in a statement. "Even so, we constantly strive to minimize our emissions."

Shell said that it had used the monitoring data at its Deer Park refinery to "identify a single operational activity near the fence line that drove the outcome, conduct an investigation on the cause and apply corrective measures."

The company added that as of the fourth quarter of 2019, the facility's rolling annual average is 6.99 micrograms per cubic meter, which is below the EPA threshold of 9.

Ohio-based Marathon Petroleum said in a statement it had traced its high emissions to a relief valve, fixed the issue and gone even further: "In addition to correcting the one-time relief valve situation, we have installed additional emissions controls on several of our storage tanks and deployed mobile monitoring sensors that provide real-time emissions data, so we can identify potential sources and address them."

In a one-sentence statement, Valero pointed out that its current benzene monitoring averages are below the threshold.

Benzene, a highly flammable gas with a sweet odor, has been classified as a known human carcinogen by EPA “for all routes of exposure,” according to the agency. Short-term exposure to the chemical may cause drowsiness, dizziness and headaches, as well eye, skin and respiratory irritation and even unconsciousness. Long-term exposure among workers has been linked to increased incidence of leukemia and blood disorders. Women who have inhaled benzene at high levels have reported adverse impacts to their reproductive systems, and adverse impacts to fetal development have been observed in animal testing.

The Environmental Integrity Project noted that the 9 micrograms limit is not tied to any official health-based standards, but it said that the 10 refineries “have long-term benzene concentrations that are more than three times higher than California’s long-term exposure limit for increased risk of blood disorders and other disease.”

“When compared to other benchmarks established by EPA, some of the highest emitting refineries on the list of 10 could represent an additional cancer risk of 4 in 10,000, when considering lifetime exposure,” the report says.

The report notes that “EPA’s Integrated Risk Information System indicates that inhaling benzene concentrations as low as 13 micrograms per cubic meter over a lifetime is likely to cause one additional cancer case for every 10,000 people exposed.”

While the Trump administration has unwound dozens of other Obama-era environmental regulations on the fossil fuel industry, a final rule it proposed this week keeps in place the benzene monitoring requirement for refineries.

Call for action on ‘deadly impact’ of air pollution in Islington

Date: -7-Feb-2020, Source: islingtontribune.com



GREEN activists have rounded on the council after a Town Hall report showed that legal limits on air pollution are exceeded in more than 60 per cent of the borough.

Islington Council’s actions following its declaration of a climate emergency last year were again called into question this week with the

publication of a report on air pollution in the borough.

Extinction Rebellion activists said the council is failing to “appropriately inform its residents of the deadly impact” air pollution has while a spokeswoman for Islington Clean Air Parents (ICAP) said they cannot see a “clear commitment” from the council to take action.

Both groups urged the council to undertake a dramatic overhaul of its policy on traffic to cut the journeys taken by cars and heavy goods vehicles by “at least half”.

The data shows that a majority of illegal levels of nitrogen dioxide (NO₂) is found in the south of the borough and on the main roads.

Helena Farstad, who co-founded ICAP, said: “Every year up to 9,000 people die prematurely in London as a result of air pollution.

“Over 60 per cent of Islington borough exceeds legal air pollution limits. Reducing traffic by at least half is the only way to significantly reduce the impact this has on children’s health and well-being.

“It is disappointing that we still can’t see a clear commitment from the council to take meaningful action on this critical issue [air pollution].”

The legal limit set by EU law is that at any given moment there should not be more than 40 micrograms per cubic metre of NO₂ in the air.

In areas of Clerkenwell and Finsbury that figure reaches about 50 micrograms, according to the council figures.

Diesel cars are a primary cause of nitrogen dioxide and the figures show a steep rise in NO₂ in Islington after the government in 2001 introduced a tax that encouraged people to buy diesel cars.

This spiked in 2008 and the levels of NO₂ has fallen since.

A spokesman for the Islington branch of Extinction Rebellion said: “Islington Council is not telling the truth as it fails to appropriately inform its residents of the deadly impact air pollution has on our health.

“The council is also not acting with the required urgency, as the proposed strategy does not include measures that will actively reduce the main sources of air pollution – transport, construction and commercial cooking.

“Sadly we do not breath the same air.

“Our toxic air disproportionately affects the poorest – who tend to live on busier roads – and the most vulnerable in our borough.

“It is now time for the borough’s elected councillors to take a stand, address this huge issue head-on and listen to the people on how to go about it.”

As the Tribune previously reported, Islington's sole Green councillor Cllr Caroline Russell called on the council to reduce its fleet of vehicles that circle the borough.

Cllr Rowena Champion, the Town Hall's environment chief, said: "Although air quality has steadily improved in Islington over the last decade, it remains a serious public health issue and the council is working extremely hard to address it in our borough with the tools that are available to us.

"Our ambitious Air Quality Strategy sets out targets and a raft of bold actions for the coming years to tackle air pollution, which goes hand-in-hand with many other council activities to improve air quality.

"For example, Islington was the first borough to install air quality monitoring tubes at all local schools.

"We've implemented 13 'School Streets' – more than anywhere else in the country."

Starting (and Stopping) a Fire to Study It

Date: -10-Feb-2020, Source: eos.org



Smoldering peat fires like this one in Indonesia can burn for months and even years

Fire experiments on peatlands in Southeast Asia have identified previously unknown emissions patterns and could point to ways to detect these smoldering fires before they become too big to fight.

Setting fire to a tropical peatland, it turns out, can be tough.

"After burning peat in the lab for 15 years, we were really confident. We actually claim

we are the world experts in igniting peat," said Guillermo Rein, a professor of fire science at Imperial College London. Rein and his team were in South Sumatra, Indonesia, setting alight a peatland for their European Union-funded HAZE project, which aims to analyze the emissions of smoldering peatland fires.

"And then we actually struggled to ignite it," Rein said. "We got a fright because if you don't ignite the peat, then you don't have an experiment. It took us a week and a half."

In the end, the researchers used one of the most common methods of ignition for peatland fires in Southeast Asia: slash and burn. They cut down vegetation, piled it on their peatland site, and set it on fire.

Studying a Fire from the Ground Up

Rein's team is the first to ignite a peatland in the name of research. Scientists already knew that peatland fires emit a huge amount of particulate matter smaller than 2.5 micrometers (PM2.5). But the amount released in the first few days of burning hadn't been measured previously because the fires often remain undetected early on. To effectively measure early emissions, scientists needed to be there when the fire started.

The researchers divided their plot into sections to create separate fires and then dug sand-filled trenches for firebreaks. Once the fires were alight, the scientists observed them for a month, using thermal cameras, temperature probes in the soil, and equipment to measure emissions.

Researchers discovered that peatland fires emit around 3 times more PM2.5 particles than previously thought. These data may help inform air quality forecasts and community health measures because PM2.5 particles can penetrate deep into the lungs and have been linked to cardiovascular issues, respiratory diseases, and cancers.

Not all atmospheric scientists are convinced by the new emissions data. Robert Yokelson, an atmospheric chemist and expert in global fire emissions at the University of Montana, said the research should be put in a larger context.

"I think it's possible the particulate matter emissions are higher or lower than what is in the literature now based on a limited amount of sampling," he said, "but I don't believe that factor of 3. Nor has it been proven the current estimates are even biased low. The fires can burn a long time, so a brief enhancement at the beginning may not have a big effect on the overall emissions."

Other Observations

Scientists also observed that "different stages of the smoldering fire have different smoke signatures. Earlier on, when it has just ignited, there are a lot of hydrocarbons, for example, and very little carbon monoxide and carbon dioxide," Rein said. As the fire accelerates, emissions of hydrocarbons such as methane and benzene fall, but emissions of carbon monoxide and carbon dioxide increase.

As well as being hard to ignite, peatland fires are difficult to suppress. During the experiment, there were three massive rainstorms that broke the team's tents. It was more rain than Rein had ever seen, yet to his surprise, the fires continued to burn. "We were like, 'Okay, that's it, the experiment is over,'" he said. "And the morning after, the fire is still there—this thing just doesn't want to stop."

At the end of the experiment, it took 3 days to put the fires out.

No Positive Outcomes

Peatland fires are “the largest and longest-burning fires on Earth,” Rein said. These slow, smoldering fires can burn for weeks and months and consume phenomenal amounts of fuel. Peatland fires are thought to be responsible for 15% of global greenhouse gas emissions every year—the same percentage as the European Union.

Peatland fires also produce a low-lying haze that can choke towns and cities for weeks. A recent study found that if current trends continue, air pollution from Indonesian fires will cause 36,000 excess deaths per year across Indonesia, Malaysia, and Singapore over the next decade.

Unlike forest fires, which can clean out dead brush, “these fires are not known to have any positive outcomes—to nature or to humans,” said Rein.

Air pollution has major impact on children in sport, study warns

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



Children at Manorfield primary in London at the launch of a Breathe GB study.

Britain’s future sporting performance could be hampered by air pollution because some training grounds are in areas with dangerously high pollution levels, a report has revealed.

The Breathe GB study analysed pollution levels at 94 sporting sites, with one of the highest recorded levels at Birmingham’s Perry Park, host

of the 2022 Commonwealth Games.

Other important training grounds, such as the running track where Sir Mo Farah and Christine Ohuruogu trained, have pollution levels that breach World Health Organization (WHO) recommended limits.

The study suggests children exercising in areas of high pollution will experience stunted lung function that will limit their future sporting performance.

Dr Ian Mudway, a senior lecturer in respiratory toxicology at King’s College London, said: “A child growing up with asthma in a polluted city will have worse symptoms that will limit

their potential to train ... which is likely to have an impact on their optimal level of performance.”

Jonathan Grigg, a professor of paediatric respiratory and environmental medicine at Queen Mary University, said: “There is very strong evidence that exposure to air pollution stunts children’s lung function. Children with clinically low lung function will have reduced exercise capacity.”

At the launch of the report on Tuesday morning, Mark Bergin, a PE teacher from Manorfield primary school in Poplar, east London, said: “There are elements that we can see now because there is such an increase in the number of children who have asthma pumps; I’ve noticed that over the last 10 years or so of working in education.”

To produce the report, campaign group The Air Team spoke with senior respiratory consultants, as well as leaders in physical education, to assess the effects of air pollution on children’s lung function and sporting ability.

They also assessed air pollution at 94 sports sites in England and found that 25 broke WHO recommended limits, while 52 came close to the threshold.

Perry Park was the third most polluted of the sites across London, Birmingham, Nottingham, Salford and Sheffield, with an annual mean level of 50 micrograms of nitrogen dioxide (NO₂) a cubic metre of air (µg/m³) – the WHO recommends a safe level of 40µg/m³.

The training grounds of Ridgeway Rovers, where David Beckham and Harry Kane formerly played, and Alpha & Omega FC, Raheem Sterling’s former youth team, have fine particulate matter levels (PM_{2.5}) of 11, above WHO recommended limits.

St Augustine’s Hall, home of the Victoria Park Harriers and Tower Hamlets athletics club, had the highest air pollution levels out of those assessed, with 67 NO₂ µg/m³.

Ben Paul, an Air Team campaigner who lives in Bloomsbury, central London with his 10-year-old son, said: “It’s like how it took time for the full health impacts of smoking to be understood. I think this could be a ticking time bomb for our children.

“Kids’ lung capacity can reduce by up to 14% if they live in a high pollution area. Wouldn’t it be great if we could get 14% more medals at the next Olympics?”

The Air Team is calling on sports organisations, MPs, schools and athletes to back their Breathe GB campaign. Its spokeswoman, Anella Wickenden, said: “If you care about British sport, you need to care about air pollution.”

Stricter Clean Air Laws Could Save Thousands of Lives a Year: Study

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

Ground level ozone -- commonly found in cities and suburbs -- forms when pollutants react in sunlight.

New study findings suggest that thousands of ozone-related deaths "could be potentially reduced under stricter air quality standards," according to study co-author Ana Vicedo-Cabrera and her colleagues. She is with the Institute of Social and Preventive Medicine in Bern, Switzerland.

For the study, the researchers analyzed data gathered between 1985 and 2015 from 406 cities in 20 countries. They concluded that thousands of deaths could have been avoided each year in those cities if their countries had stronger air pollution laws.

The investigators determined daily average ozone levels (above a maximum background level of 70 $\mu\text{g}/\text{m}^3$), particulate matter, temperature, and relative humidity at each location to estimate the daily number of deaths attributable to ozone.

More than 45 million deaths were analyzed. On average, a 10 $\mu\text{g}/\text{m}^3$ increase in ozone during the current and previous day was associated with a 0.18% increased risk of death, suggesting evidence of a potential direct association, according to the researchers.

Current air quality thresholds (in micrograms per cubic meter of ambient air) are: 100 $\mu\text{g}/\text{m}^3$ -- World Health Organization (WHO); 120 $\mu\text{g}/\text{m}^3$ -- European Union directive; 140 $\mu\text{g}/\text{m}^3$ -- U.S. National Ambient Air Quality Standard; and 160 $\mu\text{g}/\text{m}^3$ -- Chinese Ambient Air Quality Standard.

The findings suggest that more than 6,260 deaths each year (or 0.2% of all deaths) in the 406 cities may have been prevented if countries had air quality standards in line with WHO guidelines, according to the authors. The study was published online Feb. 10 in the BMJ.

Data suggest that 80% of the world's population in urban areas are exposed to air pollution levels above the WHO threshold, the study authors noted in a journal news release.

The study can't prove a direct cause-and-effect relationship. Still, reducing ozone pollution "would provide additional health benefits, even in regions that meet current regulatory standards and guidelines," the researchers noted.

"These findings have important implications for the design of future public health actions," particularly in relation to strategies to reduce the impacts of climate change, the study authors concluded.

Air Pollution from Fossil Fuels Costs \$8 Billion Per Day, New Research Finds

Date: -12-Feb-2020, Source: e360.yale.edu



Children play near the Suralaya coal power plant in the city of Cilegon, Indonesia

The economic and health costs of air pollution from burning fossil fuels totaled \$2.9 trillion in 2018, calculated in the form of work absences, years of life lost, and premature deaths, according to a new report by the Center for Research on Energy and Clean Air (CREA). The cost represents 3.3 percent of global GDP, or about \$8 billion per day.

“Air pollution is a threat to our health and our economies,” Minwoo Son, a clean air campaigner for Greenpeace Southeast Asia, which commissioned the report, said in a statement. “Every year, air pollution from fossil fuels takes millions of lives, increases our risk of stroke, lung cancer, and asthma, and costs us trillions of dollars.”

The study, the first of its kind to quantify the global impacts of air pollution caused by burning fossil fuels, focused on the health impacts of three specific types of pollutants: Nitrogen dioxide, ozone, and fine particulate matter, which has the greater impact, causing about 1.8 billion days of missed work due to disease and \$2.2 trillion in air pollution costs every year. Nitrogen dioxide and ozone pollution cost \$351 billion and \$380 billion, respectively. Together, air pollution from these three pollutants is responsible for 4.5 million premature deaths around the world each year, the study said.

The analysis also included a regional breakdown of air pollution impacts. The researchers found that the most premature deaths from fossil fuel-related air pollution in 2018 were in mainland China (1.8 million), India (1 million), and the United States (230,000). As a result, those three countries also faced the highest annual costs: \$900 billion in China, \$600 billion in the U.S., and \$150 billion in India.

The report also highlights several key solutions to reduce air pollution, improve public health, and mitigate climate change. “This is a problem that we know how to solve by transitioning to renewable energy sources, phasing out diesel and petrol cars, and building public transport,” Son said. “We need to take into account the real cost of fossil fuels, not just for our rapidly heating planet, but also for our health.”

'Clearing the Air' author brings hope for the future of air pollution

Date: -13-Feb-2020, Source: belfastlive.co.uk



Nine out of 10 people round the world now breathe air containing high levels of pollutants

It's the unavoidable truth, air pollution is something that everyone experiences. Whether living in the country near fields and trees or up in the Mourne Mountains, it takes one plume of exhaust fumes from a tractor or a car to inhale enough particle matter (PM) to enter the blood stream to alter it.

Tim Smedley, sustainability journalist and author of *Clearing The Air* states – “motor vehicles, in particular

those powered by diesel engines, are now pumping out nitrogen dioxide (NO) and tiny particles, known as PM2.5s, in increasing volumes, damaging our lungs and even entering our bloodstream.”

Tim adds: “When we breathe in PM2.5 and NO, the health effects are felt at every stage of life – from reduced birth weights (much as with smoking) to permanently stunted lungs in children, various cancers in adults, strokes, reduced cognitive ability, and dementia in the elderly.”

Nine out of 10 people round the world now breathe air containing high levels of pollutants.

Tim has travelled the world to try and find the answer to reducing air pollution, visiting cities at the forefront of the fight against it, including Delhi, Beijing, London and Paris. He gains insights from the scientists and politicians leading the battle against it, and people whose lives have been affected.

Air pollution has become the world's greatest environmental health risk, and science is only beginning to reveal its wide-ranging effects. Globally, 19,000 people die each day from air pollution, killing more than HIV/AIDS, tuberculosis, malaria and car accidents combined.

The world is in a state of anxiety for the inevitable effects of climate change, it's overwhelming and a great concern, but if we take a breath and all act together as activists and conscientious consumers; we can help to keep Northern Ireland green.

According to Tim, the good news is that unlike climate change, air pollution is largely local and can be solved locally: “unlike climate change there is no ‘2 degrees’ scenario, no knowledge that things are going to get worse whatever we do. Urban air pollution is local, short-lived, and can be stopped at the source.

“While the focus on air pollution is more on PM2.5 and NO than greenhouse gases such as CO and methane, the actions to reduce one almost always reduce the other. We need to rapidly replace vehicles that burn fossil fuels with electric vehicles, walking and cycling.

"In so doing, we can also halt the release of CO trapped within petrol and diesel. Particles from coal and wood smoke are also bad news, so we need to shift our heating and electricity generation to renewable sources.” Shortlisted for the Royal Society Insight Investment Science Book Prize 2019 *Clearing the Air* is essential reading for anyone who cares about the air they breathe. Tim tells the full story of air pollution for the first time: what it is, which pollutants are harmful, where they come from and – most importantly – what we can do about them. Tim shares the simple things we can all do to improve the air around us – “There are a lot of actions that individuals can take. I literally spell them out in my book in what I call my blueprint for action. Before you burn anything – whether it’s fuel in a car or logs on a fire – ask yourself if you really need to, or if there is a viable zero-emissions alternative. "Try to walk, cycle or use public transport rather than using cars for short journeys – and take the back streets rather than main roads, to reduce your exposure to traffic fumes. Then get in touch with your local politicians and ask them what they are doing to invest in walking and cycling infrastructure, and electric buses. Only people power and political pressure is going speed up these changes!"

China’s capital shrouded in air pollution despite reduced emissions from coronavirus economic slowdown

Date: -14-Feb-2020, Source: scmp.com



A man wearing a face mask rides his bicycle along an empty street in Beijing, which has been shrouded in heavy smog this week

A pall of heavy pollution returned to shroud the skies of Beijing this week, even though environmentally damaging emissions from factories and vehicles were below normal due to the effects of the coronavirus outbreak.

The poor air quality has prompted some experts to say China needs to step up its war on pollution, including

strengthening regulation of coal-fired power generation.

Beijing's air quality index (AQI) was pegged at 222 on Thursday afternoon, 22 points above the threshold for very unhealthy pollution, according to data from the Ministry of Ecology and Environment.

Readings showed that it was largely made up of harmful microscopic particulates known as PM2.5, which are most damaging to human lungs.

The United States Embassy said Beijing's PM2.5 levels were as high as 240 micrograms per cubic metre on Thursday, more than 10 times the World Health Organisation's recommended level of 25.

Smog blanketed skies are not uncommon in Beijing over winter, but this week's air pollution came when emissions from industry and traffic – the two major contributors – were subdued.

The capital, which is home to 22 million people, has not resumed full economic activity following the Lunar New Year holiday due to the coronavirus.

Workers are only gradually returning to their jobs because of travel restrictions and new requirements that businesses provide adequate virus protection, such as masks and body temperature screenings, before restarting operations.

"Even without car emissions, these industrial and coal-fired emissions are enough to plunge Beijing into consecutive days of severe pollution amid unfavourable weather," said Ma Jun, former chief economist of China's central bank and current director of the Institute of Public and Environmental Affairs, an NGO.

"The priority now is to continue strengthening the regulation of industry and the burning of coal."

Car and truck traffic is still light in Beijing as many residents and tourists were staying home to avoid contracting the virus, which causes the deadly Covid-19 disease.

The volume of truck traffic dropped by 77 per cent and bus traffic by 39 per cent compared to normal levels in Beijing, neighbouring Tianjin and Hebei province surrounding the capital, according to the environment ministry.

Public discontent has surfaced both online and offline, with many asking why the city has failed to prevent toxic smog during an unprecedented pause in economic activity.

"There are few cars on Beijing's streets, there are shutdowns everywhere and everyone stays at home, why is there still such a severe haze for the last couple of days?" Wang Lifen, CEO of Umiwi Technology, wrote on Weibo, China's Twitter-like social network.

“This weather really gives a feeling of The Wandering Earth ,” said a Beijing resident surnamed Zhao, referring to the Chinese sci-fi movie where the earth’s atmosphere is no longer suitable for living.

Experts have blamed the poor air quality on pollutants from industry – including steel mills and thermal power plants that continued to operate over the holiday period – and local weather.

Weak wind, high humidity and strong thermal inversion had trapped bad air in the city, even though emissions had dropped by 20 to 30 per cent compared to average, said Wang Zifa, a researcher with the Institute of Atmospheric Physics of the Chinese Academy of Sciences.

“Due to a lower level of social activities, the amount of emitted air pollutants still exceeds the environment’s capacity by more than two times, which is the main reason for the frequent smog during the recent period,” he was quoted as saying in an article published on the environmental ministry’s website.

He Kebin, dean of Tsinghua University’s School of Environment and a member of the Chinese Academy of Engineering, said unfavourable atmospheric conditions had brought pollutants from nearby regions to Beijing where they had been stuck.

China’s leadership has long sought to tackle air pollution that has accompanied its rapid economic growth, but as its economy has slowed to the lowest level in almost 30 years, the government eased up on winter smog controls.

The current bout of air pollution was expected to dissipate on Friday with the arrival of colder air and rain, according to Gui Hailin, chief forecaster at the National Meteorological Centre of the China Meteorological Administration.

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Dublin council official calls for ban on parents driving children to school

Date: -17-Feb-2020, Source: irishtimes.com

Parents should be legally prohibited from driving their children to school, a senior Dublin City Council official has told a clean air conference.

The Climate Brave event drew a panel of experts to discuss how the capital might reach ambitious air quality targets by 2030, often by way of “difficult and potentially unpopular decisions”.



What I would do in the morning is actually make it illegal for anybody to drive their kids to school' a Dublin City Council official has said

Brendan O'Brien, head of technical services for traffic, said that if given the power "what I would do in the morning is actually make it illegal for anybody to drive their kids to school".

"That's the most critical thing we could do because it would then force us, I suppose, to provide public transport and walking and cycling

[facilities]," he said in response to a hypothetical policy question.

"It would also eliminate the reason a lot of people say they need to drive: they're dropping their kids off. It's not that we don't understand that people have to do this, it's just that in order of us sometimes to provide all the alternatives quickly enough we have to have this massive pressure."

Tax break

Addressing various areas of traffic management, Mr O'Brien also said that 30km/h residential speed zones would be complete by next month and officials "will then go back and look at the arterial routes which still have 50kms or 60kms and see what can be done about those".

He suggested a tax break for environmentally friendly delivery vehicles within the city centre, similar to the "Bike to Work" scheme.

And he said something could be done to give local authorities the power to introduce low-emission traffic zones.

Monday's exchange on public behaviour and policy revolved around a pledge by the city's four local authorities to reach World Health Organisation (WHO) targets on clean air, levels far in advance of EU legal requirements.

Dublin now joins 76 cities, regions, and countries in the commitment to bring air quality to safe levels by 2030 with the allocation of extra road space to walking, cycling and public transport at the heart of its approach.

Biggest offender

Anne Graham, chief executive of the National Transport Authority (NTA), said transport had the fastest rising level of green house gas emissions, with the private car the biggest offender.

The NTA is due to order three trial hydrogen buses and is also investing in hybrid technology.

As regards the notion of banning school runs, Ms Graham told The Irish Times that the NTA already funds programmes to encourage children to walk or use bikes but that they often travel significant distances.

“Maybe parents should think about trying to ensure that their children go to school locally . . . and then it’s more accessible by walking and cycling,” she said.

Air pollution is currently linked to 7 per cent of lung cancer deaths, 18 per cent of fatal pulmonary disease cases and 34 per cent of heart disease deaths.

Dr Maria Neira, director of the WHO department of environment, climate change and health, told the conference 7 million people die every year.

She said 90 per cent of the world’s population are breathing sub-quality air. In places like Beijing, she said, “they are convinced that the sky is grey, they don’t realise that it can be blue”.

Cyprus’ struggle with air pollution

Date: -20-Feb-2020, Source: themayor.eu



citizens are using their usually old fireplaces to provide heating for their homes.

Air pollution in Cyprus has become a serious health hazard to its population. Throughout the winter months, between November and February, the amount of air pollutants measured in urban areas across the country has skyrocketed – especially during the mornings when people are taking their cars and are leaving for work and during the evenings when

Central Cypriot authorities have issued a call to citizens to seriously reconsider their habits – or to at least adapt with the times and make use of newer, less-polluting heating alternatives.

For example, people in Cyprus should first look to their fireplaces and what they burn. Older, open fireplaces tend to be far more polluting than the modern, closed ones. Not only that but the newer ones are also better at actually providing heat to the houses than the old ones. Furthermore, citizens should try to burn untreated wood, as the alternative is full of all kinds of chemicals that once burned spread throughout the urban areas, severely impacting the quality of air.

Problems in Nicosia

To see the adverse effects of air pollution in Cyprus, one should only look towards Nicosia – where according to studies air pollution is costing locals an average of a year of their lives.

Some 2/3 of air pollutants in the Cypriot capital are emitted locally – and most of them come from the burning of various materials – especially during the winter months. Last December, for example, air pollution in Nicosia reached abnormally high levels – for the most part attributed to the burning of wood in old fireplaces – over 60% of pollution in the capital was generated by this single source. With air quality moving higher and higher up the agenda, citizens and authorities across Europe are on the lookout for viable solutions and alternatives – making use of more modern fireplaces and less-polluting wood is certainly one of the ways to go about resolving the problem.

Opening your windows doesn't help reduce indoor air pollution

Date: -20-Feb-2020, Source: newscientist.com



Indoor air pollution can be harmful

Airing out our homes might not be as effective as we think. Chemicals released by cleaning or cooking can stick to walls, furnishings and other surfaces instead of wafting out when we open a window.

“It’s quite a surprise,” says Chen Wang at the University of Toronto, Canada. “We thought that when we diluted the volume of the air in the house [these] may just get

removed and mix with the outside air.”

She and her colleagues studied the persistence of 18 common indoor chemicals inside a mock house. Some of these, such as carboxylic acids, appear to be released by cooking. We don't know yet if they are harmful to human health when they accumulate in the home.

These chemicals are all volatile, meaning they can evaporate into air, but the researchers wanted to see if they can linger on surfaces too. The team asked volunteers to mimic real-life activities in the house, such as cooking and cleaning, and then measured the levels of these 18 chemicals in the air.

The researchers then ventilated the home by opening its windows and doors and then measured the airborne levels of the 18 chemicals again after they were closed. The team found that ventilation for 15 or even 30 minutes made little difference – the chemicals soon reached similar levels in the air as before.

Wang says the airborne levels of these chemicals in our homes aren't high enough to be concerning, but that they are likely to be higher after cooking or cleaning.

"Modern houses are becoming more air-tight as we try to conserve energy," says Frank Kelly at King's College London. This may be bad for our air quality unless homes are built with mechanical ventilation systems, he says.

Sale of coal and most polluting wood burned at home will be phased out to combat air pollution

Date: -21-Feb-2020, Source: independent.co.uk



The government is phasing out the sale of some of the more harmful fuels used in open fires and stoves

The sale of the most polluting fuels burned in household stoves and open fires will be phased out from next year to clean up the air, the government has said.

Plans to phase out the sale of house coal and wet wood have been confirmed, as part of efforts to tackle tiny particle pollutants known as PM2.5, which can penetrate deep into lungs and the blood and cause serious health problems.

Wood burning stoves and coal fires are the single largest source of PM2.5, contributing three times as much of the pollution as road transport, the Department for Environment, Food and Rural Affairs (Defra) said.

Sales of two of the most polluting fuels, wet wood and house coal, will be phased out from 2021 to 2023, to give householders and suppliers time to move to cleaner alternatives such as dry wood and manufactured solid fuels. These produce less smoke and pollution, and are cheaper and more efficient to burn, officials said.

“Cosy open fires and wood-burning stoves are at the heart of many homes up and down the country, but the use of certain fuels means that they are also the biggest source of the most harmful pollutant that is affecting people in the UK,” said environment secretary George Eustice.

“By moving towards the use of cleaner fuels such as dry wood we can all play a part in improving the health of millions of people. This is the latest step in delivering on the challenge we set ourselves in our world-leading clean air strategy.

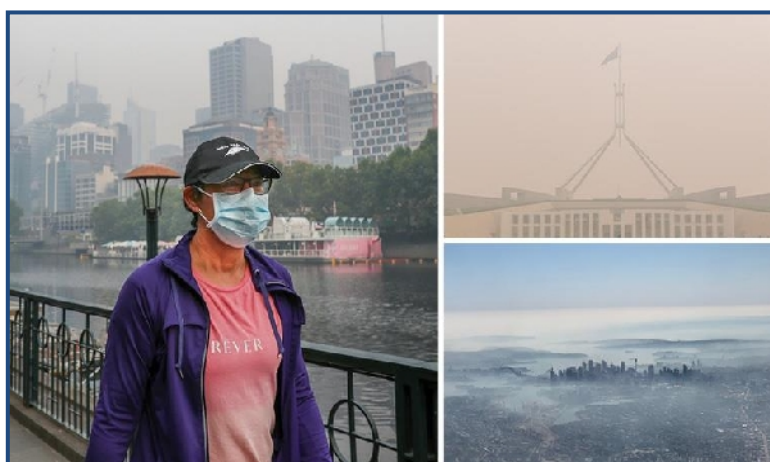
“We will continue to be ambitious and innovative in tackling air pollution from all sources as we work towards our goal to halve the harm to human health from air pollution by 2030.”

Sales of all bagged traditional house coal will be phased out by February 2021, and the sale of loose coal direct to customers via approved coal merchants will end by February 2023.

Sales of wet wood in units of under two cubic metres will be restricted from sale from February 2021, to allow for existing stocks to be used up. Wet wood sold in larger volumes will need to be sold with advice on how to dry it before burning from this date, the government said. Manufacturers of solid fuels will also need to show they have a very low sulphur content and only emit a small amount of smoke.

Calls for national action on bushfire smoke health impact

Date: -24-Feb-2020, Source: racgp.org.au



Melbourne, Sydney and Canberra all experienced compromised air quality through the bushfires.

The calls in a Medical Journal of Australia article come after major cities like Sydney, Canberra and Melbourne endured long periods of the worst air quality in the world caused by this summer's bushfire smoke.

‘It is time for an independent national expert committee on air pollution and health protection to be established to

support environmental health decision-making in Australia,' the Australian National University researchers write.

'Existing health protection advice ... mainly focuses on shorter and more localised smoke episodes.

'It is important that health professionals and patients, as well as healthy individuals and those at higher risk, develop a good understanding of the available health protection measures and their effectiveness and potential trade-offs.'

The researchers note the advice for short-term smoke exposure, such as staying indoors with windows closed and reducing strenuous activity, becomes impractical during the months of smoke over summer.

The researchers call for better air quality monitoring to enable location-specific ratings of PM2.5 levels published close to real time. That, they argue, would allow people to base their activities on the current local air quality.

'We strongly recommend that all Australian jurisdictions present actual hourly PM2.5 data rather than an index,' they write. 'Real time, hourly averaged PM2.5 concentrations are the most appropriate metric to guide personal behaviour that minimises exposure to bushfire smoke.

'More nuanced advice would encourage individuals to be guided by location-specific air quality forecasts and the pattern of hourly PM2.5 concentrations at nearby air quality monitoring locations, and to plan their daily activities in ways that minimise exposure to pollution.

'Advice to stay indoors may be ineffective over longer periods. Older houses in Australia are often quite "leaky", allowing bushfire smoke to penetrate indoors over time and creating unhealthy indoor air quality conditions.

'Well sealed and air conditioned indoor environments (typically, modern apartments and offices, libraries and shopping centres) can provide respite from smoke pollution, particularly if effective air filtration systems are in place.'

More research into the long-term effects of smoke pollution is needed, as are climate mitigation strategies to tackle a key underlying cause of increased bushfire risk, the researchers argue.

Lead author and Professor of Global Environmental Health Sotiris Vardoulakis told newsGP the article makes a strong case for national policy.

'Information was presented inconsistently across jurisdictions. We are advocating for consistent health messaging and a national strategy for bushfire smoke and air pollution,' he said.

Professor Vardoulakis said the unprecedented fires posed challenges for researchers, because there are no parallel experiences with long-term bushfire smoke.

‘This situation was unique because we had bushfires over longer periods of time with PM2.5 pollution much higher than in the past. We’re in uncharted territory,’ he said.

‘There is very limited evidence for this type of exposure over long periods of time. It’s difficult to say there won’t be health effects eventually.’

Professor Vardoulakis and his colleagues note that a major public health concern is population exposure to PM2.5 particles able to ‘penetrate deep into the respiratory system, inducing oxidative stress and inflammation, and even translocate into the bloodstream’.

‘Mortality rates have been found to increase in Sydney on days with high bushfire smoke pollution,’ they write. ‘Hospital admissions, emergency department attendances, ambulance call-outs and GP consultations, particularly for respiratory conditions, all increase during periods of severe PM2.5 from bushfires.’

If Australia suffers from consecutive summers of intense bushfire smoke under worsening climate change conditions, Professor Vardoulakis said, health outcomes are likely to be much worse.

During the worst of the smoke, Professor Vardoulakis and his colleagues put out widely shared fact sheets about ways to reduce exposure, and stressed the importance of action for at-risk groups such as people with lung and heart disease, young children, pregnant women and older people

‘We realised there was limited information for sensitive groups. Most bushfire smoke advice was for the general public,’ he said. ‘There was a level of anxiety, especially from pregnant women or parents of young children.’

While much research has been done regarding urban air pollution caused by industry and the burning of fossil fuels in cars, bushfire smoke is less studied.

‘There is some concern that children are more exposed more than adults. They play outside, breathe more air per bodyweight, and their lungs are growing,’ Professor Vardoulakis said. ‘There is evidence that children exposed to high levels of urban pollution over years have compromised lung growth.’

Government moves to ban old-style wood and coal-fueled burners to improve air quality

Date: -26-Feb-2020, Source: nzherald.co.nz

The Government is cracking down on old-fashioned wood and coal-powered heating as it looks to improve New Zealand's overall air quality.



Some areas saw spikes in air pollution, mainly from burning wood and coal

Although New Zealand's air quality is already fairly high, Associate Environment Minister Nanaia Mahuta said there were still areas of the country where there were issues, particularly during winter.

"Certain places have spikes in air pollution, mainly from

She said this could lead to severe health impacts, including shortness of breath, chest pain, heart and disease and even premature death.

To tackle the issue, the Government is looking at getting rid of all solid-fuel fires – such as older style wood and coal-fueled fireplaces.

Mahuta said people using these heating appliances would be allowed to keep them until they reach the end of their life.

But after that, they will be required to replace them with new, lower-emitting burners, unless a household or property is larger than 2ha.

"We are not proposing the removal of existing burners because we need to balance air quality improvements with the ability of households to maintain warm and dry homes," Mahuta said.

The changes won't affect most New Zealanders – some 90 per cent of the burners on the market already meet the proposed standard.

And large retail chains, such as Bunnings and The Warehouse, already include cheap low-emitting fuel-burner options.

Mahuta added that the proposals would bring New Zealand's air quality standards in line with those at an international level.

She said improved air quality as a result of this proposal would amount to a saving of roughly \$820 million of health care costs over the next 10 years.

A two-month consultation on the proposal begins today and will run until April 24.

Climate change causes disease and pollution

Date: -27-Feb-2020, Source: jhunewsletter.com



Farming and agricultural practices are affected by climate change

People are always concerned about health. Climate change has many noted health effects, but this is rarely the focus of discussions of climate change.

According to the Centers for Disease Control and Prevention, some of the main health concerns related to climate change include air pollution, declining water quality, diseases, food security and mental health issues.

These don't even encompass all of the ways that climate change affects our health. In this week's column, I will be looking specifically at how climate change impacts air pollution, diseases and food security.

As I discussed in my last article, air pollution is a big area of concern for many health officials. According to the World Health Organization (WHO), health effects due to polluted air kill seven million people every year. In addition to this, the WHO reports that around one-third of the deaths caused by strokes, lung cancer and heart disease can be attributed to air pollution. Different pollutants include particulate matter, which is a result of fuel combustion and road traffic, nitrogen dioxide, sulphur dioxide and ozone.

Particulate matter is particularly concerning. The effect that particulate matter has on our health is dependent on the size of the particles. Finer and smaller particles are more dangerous than larger particles, because they can more easily enter into a person's lungs and bloodstream. The lodging of such particles can lead to serious health issues such as asthma, bronchitis and cardiac arrhythmias.

The means of transmissions of disease, also known as vector ecology, is affected by climate change. Vectors are essentially vehicles that carry disease-causing agents to a host, which they infect, including insects that transmit diseases. For example, the vector for malaria is the anopheline mosquito. There are certain vector-borne diseases that are climate-sensitive, so changes in climate will affect the way that the diseases are transmitted.

One of the many effects that climate change can have on weather patterns is increased precipitation. Because some vectors have aquatic developmental stages, higher

precipitation and wetter weather in general can lead to a higher number of vectors, which increases the risk of disease transmission through vectors.

Two such diseases include malaria and dengue, both of which are deadly diseases that kill millions of people per year and whose vectors are supported by greater precipitation. Climate change will likely aggravate these concerns if not addressed.

One other way in which climate change affects human health is through food security. Food security refers to an individual's ability to access quality food. According to the U.S. Department of Agriculture, there are four main levels of food security: They range from high, which is an absence of any limitations to food access, to low, which is characterized by disrupted eating patterns and reduced food intake.

Climate change can impact food security by affecting factors like food production, food quality, food prices and crop yields. For example, food production and quality is affected by the changing weather.

Variations in weather patterns such as temperature, atmospheric carbon dioxide and extreme weather affect crop production. Lower crop production also may lead to higher crop prices, which makes food less accessible to those living on a limited income.

The nutritional value of crops is also affected by climate change. Increased carbon dioxide levels and decreased plant nitrogen lead to decreased protein in barley, soy and other plants. Crop yields are also affected by an increased level of pests, as discussed in vector-related diseases, which may lead to farmers using more pesticides. Pesticides can contain toxic chemicals which can harm farmworkers and could eventually get into the food that we buy.

These are just some of the health factors that are affected by climate change. We need to be aware of the health effects because if we don't combat climate change now, these issues could get even worse.

Kathmandu slightly up in global air quality ranking

Date: -28-Feb-2020, Source: myrepublica.nagariknetwork.com

KATHMANDU, Feb 28: Kathmandu has shown a slight improvement in average air quality, with its position sliding to 137th most polluted city in the world in 2019 from 100th position in 2018.

According to IQAir Airvisuals's 2019 World Air Quality Report, released early this week, the average PM2.5 in 2019 was 48 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) in Kathmandu which was 54.4 $\mu\text{g}/\text{m}^3$ in 2018. This is an improvement of 11 percent.



IQ Air is a global air quality information and tech company, which collect data for the annual report from on the ground monitoring stations across the globe, measuring the levels of fine particulate matter, known as PM 2.5, per cubic meter.

However, environmentalists cautioned not to celebrate the news as 2019 pollution level is still higher than in 2017, when the PM_{2.5} was recorded at 45.9 $\mu\text{g}/\text{m}^3$. Also, Kathmandu is still one of the most polluted cities in the world.

“It is not a big achievement to be celebrated, however, the good news is that the pollution level has remained stable,” said Bhusan Tuladhar, an environmentalist.

Among the countries, Nepal is ranked as the 8th most polluted country with the average PM_{2.5} concentration at 44.5 $\mu\text{g}/\text{m}^3$, according to the same report. Bangladesh was ranked as 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 $\mu\text{g}/\text{m}^3$.

“A lot needs to be done to improve the air quality of Kathmandu Valley and Nepal, our response is not up to the mark,” said Bhusan Tuladhar, an environmentalist.

To curb the air pollution in Kathmandu Valley, the ministry of Forest and Environment (MoFE) had forwarded an Air Quality Management Action Plan for the Valley to the Council of Ministers for its endorsement in December last year. The cabinet endorsed the action plan only this week. The plan proposes a comprehensive framework to curb Valley’s air pollution, which is caused mainly by vehicular emissions, open trash-burning, industrial pollution, forest fires, dust re-suspension, and emissions released during road construction.

“There is no justification for the government to just sit on such an important action plan for three months,” retorted Amrit Man Nakarmi, a professor at the Institute of Engineering, Tribhuvan University, who specializes on energy sector and climate change. “Also, the implementation status of various legal measures to curb pollution is pathetic.”

According to World Air Quality Report 2019, 21 of the world’s 30 cities with worst air pollution are in India, with Ghaziabad near New Delhi, ranked as the world’s most polluted city. Ghaziabad recorded average PM_{2.5} concentration of 110 $\mu\text{g}/\text{m}^3$ in 2019.

The majority of the most polluted cities and countries included in the World Air Quality Report are located in South Asia. This region includes 30 of the top 40 most polluted cities and four of the five most polluted countries.

PM 2.5 are considered particularly harmful as they are small enough to enter deep into the lungs and cardiovascular system. PM 2.5 includes pollutants such as sulfates, nitrates and black carbon. Exposure to such particles can cause lung and heart disorders and impair cognitive and immune functions.

Though there is a lack of updated and comprehensive studies on the impact of air pollution on public health in Nepal, the World Health Organization (WHO) in 2016 reported that 9,943 people die every year due to ambient air pollution in Kathmandu Valley. Another report compiled by Breathlife, a partnership campaign of WHO, UN Environment, World Bank and Climate and Clean Air Coalition, estimated that a total of 37,399 deaths occur per year in Nepal, due to air pollution -- including both outdoor and household air pollution.

“It is a public health disaster, yet the government’s response has been very disappointing,” added Tuladhar.

On a brighter side, the World Air Quality Report has listed Pokhara as the 13th cleanest city in South and Central Asia, with its PM2.5 level at 17.1 µg/m³. Sanandaj, an Iranian city was the most cleanest in the region with its PM2.5 level at 6.5 µg/m³. The report says that India, Iran and Nepal are the only countries within the South and Central Asia region which have live public, national PM2.5 monitoring networks.

According to Department of Environment, MoFE there are seven pollution monitoring stations in Kathmandu another 13 stations are operational in urban areas across the country. These stations provide real-time data on pollution levels, offering rich information to study potential health effects of air pollution.

Coronavirus: Space images reveal drastic fall in pollution over China as factories closed

Date: -29-Feb-2020, Source: independent.co.uk

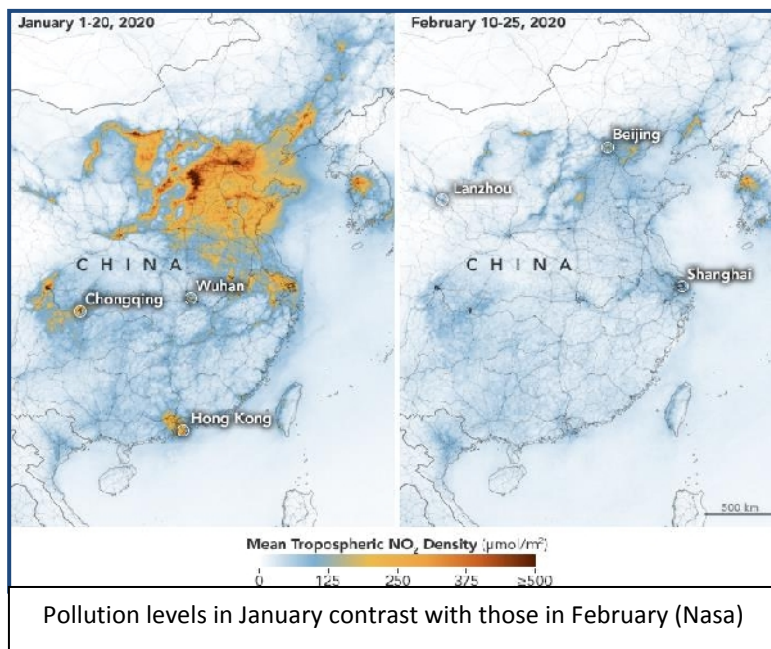
Satellite images show a dramatic drop in pollution over China after the coronavirus outbreak shut down swathes of the country’s industry and travel.

US space agency Nasa said the change was at least partly related to the economic slowdown caused by efforts to contain the virus.

Nasa maps show how levels of nitrogen dioxide, a toxic gas from vehicles, power plants and factories, plummeted after the mass quarantine, compared with before.

Scientists have previously found the coronavirus wiped out at least a quarter of China’s emissions of damaging greenhouse gases in just two weeks in mid-February.

Closing industrial plants and asking people to stop at home has led to sharp drops in the burning of fossil fuels — a key cause of the climate crisis — in the world’s largest greenhouse gas producer.



China, where the outbreak began, has nearly 80,000 cases of coronavirus, by far the largest number of any country, with nearly 2,900 deaths.

Nasa's maps compare pollution levels between the first three weeks of the year and 10-25 February.

The space agency's scientists said the fall in pollution was first apparent near Wuhan, the source of the outbreak, but eventually spread across

the country.

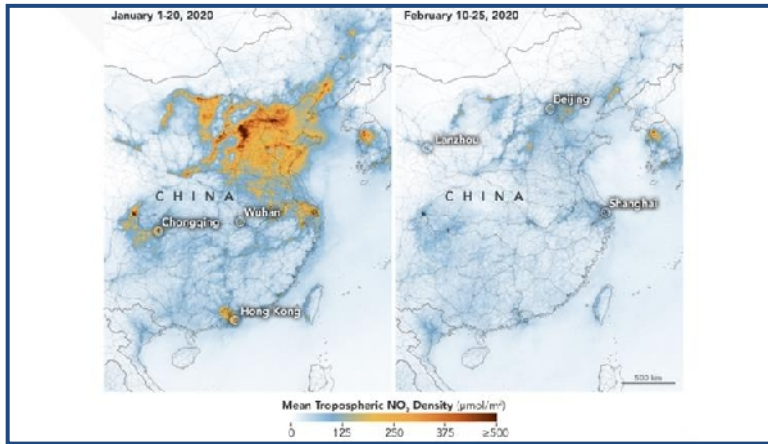
"This is the first time I have seen such a dramatic drop-off over such a wide area for a specific event," said Fei Liu, an air quality researcher at Nasa's Goddard Space Flight Centre.

She said she had seen a decline in nitrogen dioxide levels during the economic recession of 2008 but said that decrease was more gradual.

March 2020

NASA images show 'dramatic' drop in air pollution amid coronavirus

Date: -1-Mar-2020, Source: wzzm13.com



The NASA and European Space Agency's pollution monitoring satellites found there was a "significant decrease" in air pollution over China, according to an update on the Earth Observatory.

Satellite images showing the levels of nitrogen dioxide (NO₂), a gas emitted by cars,

power plants and industrial facilities, compare the month of January before the quarantine to Feb. 10-25 during nationwide quarantines.

The reduction in NO₂, was first observed in Wuhan, China where the novel coronavirus broke out at the end of 2019. Since then, the Chinese government has quarantined millions of people to curb the spread of the virus.

"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 said in a statement.

The novel coronavirus, COVID-19, has been reported in more than 60 countries and the death toll worldwide has reached 3,000.

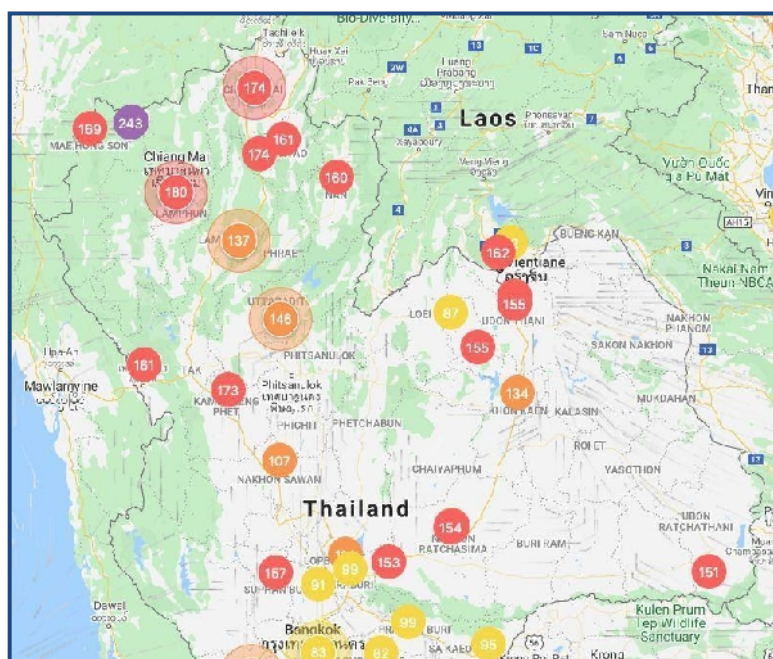
NASA said the drop in air pollution also coincided with the Lunar New Year Celebrations, during which businesses and factories close across China.

"There is always this general slowdown around this time of the year," said Barry Lefer, an air quality scientist at NASA said on the Earth Observatory. "Our long-term OMI data allows us to see if these amounts are abnormal and why."

Scientists believe the Lunar New Year may have played a role in the dropoff, but they also think the decrease has more factors than just the holiday. Additionally, researchers have not seen the air pollution rebound after the holiday.

Chiang Mai has the world's worst air quality for second straight day

Date: -1-Mar-2020, Source: thethaiger.com



Virus or no, you may want to wear a mask if you're in Chiang Mai today; as of 1:36pm, Airvisual.com has rated air quality there the worst in the world for a second day. Yangon, Kathmandu and Mumbai were close behind.

The website showed Chiang Mai's average pollution at 181, (down from 193 yesterday) meaning particulate matter less than 2.5 microns in diameter

(PM2.5) was at 181 micrograms per cubic metre. Some locations north of the city have readings up to 230.

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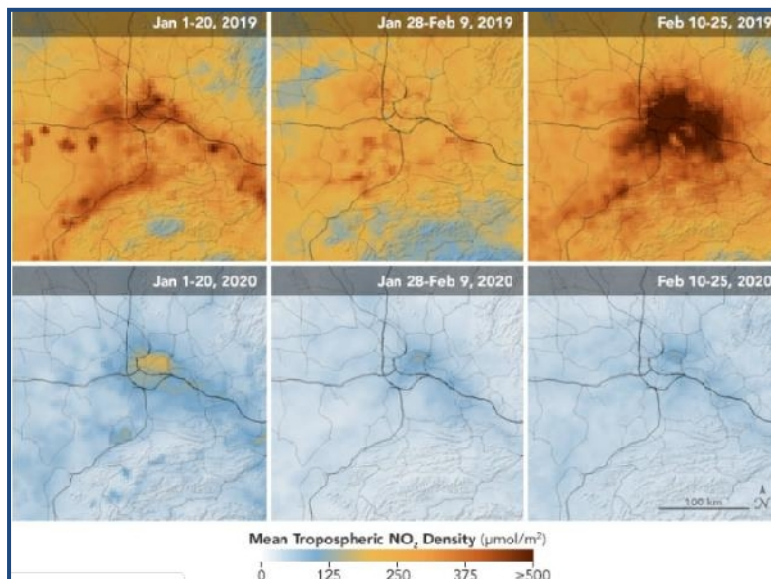
Light easterly winds are blowing forest and plantation fires, almost all deliberately lit, into main residential areas across the north of Thailand. There is also a concentration of fires in parts of northern Myanmar and Cambodia contributing to the poor air quality.

According to the Thailand's Air Quality Index, air quality between 0 to 50 is healthy, 51 to 100 is moderate, 101 to 150 is unhealthy for sensitive groups, 151 to 200 is unhealthy, 201 to 300 is very unhealthy, and 301 to 500 is dangerous. The World Health Organisation sets the maximum safe level at 25.

Meanwhile, the Pollution Control Department (PCD) said via its website that the air quality (as of 7am) in Bangkok and nearby provinces was at healthy levels, and would continue to improve.

NASA maps show the effect of a quarantine on air pollution

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



"This is the first time I have seen such a dramatic drop-off over such a wide area for a specific event," said NASA air quality researcher Fei Liu. She made that statement after NASA's Earth Observatory released maps showing a dramatic drop in air pollution in the Wuhan region. Industrial output in the region would have already been down significantly due to the

Lunar New Year. However, a government quarantine designed to stop the spread of the coronavirus disease COVID-19 made pollution drop much more significantly and for a longer period.

Maps of the Wuhan region from January 1st to February 25th, 2019 show a noticeable drop in air pollution during the Lunar New Year. However, pollution levels quickly rebounded, as seen in the dark red images from the same time last year.

This year has been another story, however. The virus story started to explode early in the New Year, after Chinese authorities had confirmed that the illness was caused by a new coronavirus similar to those that caused the SARS and MERS outbreaks. By January 23rd, the government had shut down all transportation into and out of Wuhan, while closing local businesses and factories in an effort to slow the spread of the virus.

As a result, NASA's NO₂ maps of the region during the same period in 2020 show very light levels of pollution (as blue, rather than yellow and red) on the maps. Another key indicator of pollution, ozone, shows a similar result, according to NASA. Liu said that the agency has mapped pollution drops around Beijing during the 2008 Olympics, and in other nations around the 2007-2009 economic recession, but never to that level.

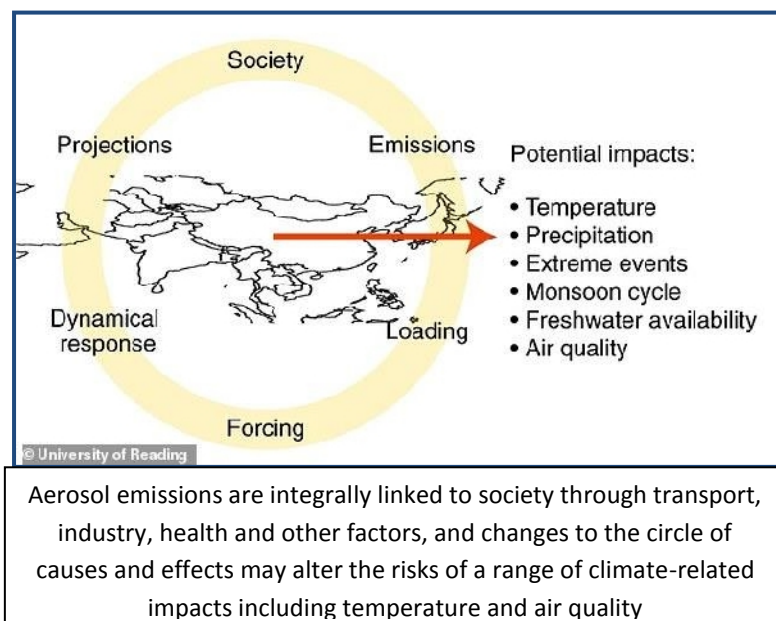
One of the great values of an airborne observatory is that scientists can assess pollution events and compare them to past periods. "There is always this general slowdown around this time of the year," said NASA air quality scientist Barry Lefer, an air quality scientist at NASA. "Our long-term OMI data allows us to see if these amounts are abnormal and why."

This time, the decrease is more than a holiday-related dropoff compared to past events going back to 2005. Overall, NO₂ values during the COVID-19 outbreak were from 10 to 30 percent lower than what is normally seen at this time of year.

While that provides some breathing relief for residents, the coronavirus has devastated the region, causing nearly 3,000 deaths so far in China. "I am not surprised [about the pollution drop] because many cities nationwide have taken measures to minimize spread of the virus," said Liu.

Dramatic cuts to air pollution in Europe and Asia could SPEED UP climate change in the short term and lead to heatwaves and heavier rainfall - but 'doing nothing would be worse'

Date: -5-Mar-2020, Source: dailymail.co.uk



Dramatic cuts to air pollution in Europe and Asia could make climate change worse in the short term, but 'doing nothing would be worse' say scientists.

Experts from the University of Reading found that cutting pollution in areas with heavy industry would lead to short term temperature spikes and heavier rainfall.

This is down to polluting particles currently reflecting a

certain amount of sunlight and stopping it from reaching the ground, according to Professor Richard Allan.

He says we should still 'take the hit' and clean the atmosphere as not doing so would have devastating consequences in the long term as well as impact people's health.

To combat the increase in temperatures from cutting pollution it is 'more important than ever we reduce greenhouse gas emissions,' Allan said.

In a series of studies scientists predict a rapid increase in European and Asian heatwaves by 2050 as air pollution is cut sharply in Asia.

The worst-case-scenario prediction indicated that the hottest day of the year may be up to 7.2 degree Fahrenheit hotter by 2050, compared to the present day.

Researchers say 30-40 per cent of this increase would be due to air pollution cuts.

'The immediate health benefits of reducing air pollution are clear, but tackling air pollution can initially accelerate climate change,' said researcher Dr Laura Wilcox.

'This warming side effect underlines the importance of reducing greenhouse gas emissions quickly to limit damaging climate change in the long term and give us a chance of meeting the Paris Agreement targets.'

Researchers say it is important that we don't become complacent - that while there will be a short term hit to the climate, we must reduce greenhouse gas emissions.

'This is a case of short-term climate pain for long-term gain,' Wilcox said.

'It might seem counterproductive to prompt temperature rises by reducing pollution, but this research also shows this effect will disappear in a few decades.

'If we carry on emitting greenhouse gases into the atmosphere at the current rate, we will see bigger temperature rises that are far longer lasting.

'This would be incredibly difficult for society to adapt to, and would cause devastating environmental damage.'

Albuminuria, CKD Linked to Air Pollution

Date: -5-Mar-2020, Source: renalandurologynews.com



People living in areas with higher levels of air pollution may be at higher risk of developing kidney disease.

Exposure to high levels of air pollution containing fine particulate matter may increase an individual's risks for albuminuria and chronic kidney disease (CKD), new study findings suggest.

A growing body of evidence has linked particulate matter less than 2.5 μm in diameter (PM_{2.5}) with a variety of health problems, such as

cardiovascular and respiratory diseases, diabetes mellitus, and early death. Recent studies have also linked PM_{2.5} with CKD death and increased hospitalization of hemodialysis patients.

In the current study, published in the Clinical Journal of the American Society of Nephrology, Matthew F. Blum, MD, of Johns Hopkins University School of Medicine in Baltimore, Maryland, and colleagues estimated monthly mean PM_{2.5} concentrations ($\mu\text{g}/\text{m}^3$) for 10,997

participants in the Atherosclerosis Risk in Communities (ARIC) cohort who resided in 4 US localities: Forsyth County, North Carolina; Jackson, Mississippi; suburbs of Minneapolis, Minnesota; and Washington County, Maryland. ARIC participants (mean age 63 years) were initially free of CKD (mean estimated glomerular filtration rate [eGFR] 86 mL/min/1.73 m²) and were followed from 1996–1998 through 2016.

Each 1-μ/m³ increment in mean annual PM_{2.5} concentration was significantly associated with a 6.6% increase in urinary albumin to creatinine ratio (UACR) and a 5% increase in the risk for stage 3 or higher CKD (or 17.8 excess events per 1000 person-years), Dr Blum's team reported. The investigators found no relationship between PM_{2.5} and baseline eGFR or conditions (such as cellulitis) serving as controls.

The current findings generally agree with some previous studies on the topic conducted in various countries.

“It is estimated that 17%–20% of the global toll of CKD burden may be attributable to PM_{2.5} pollution, and that the burden is unevenly distributed geographically and is more heavily tilted toward low and low-middle income countries, which might be least equipped to deal with the adverse health consequences of air pollution,” Ziyad Al-Aly, MD, and Benjamin Bowe, MPH, of Veterans Affairs St. Louis Health Care System, stated in an accompanying editorial.

PM_{2.5} are small enough to reach distal airways and alveoli. The timing, duration, and specific components of exposure are likely important.

“The classic view that air pollution is a risk factor for upper and lower respiratory airways is now challenged by evidence that air pollution may also impact other organs such as heart, vessels, and kidneys,” Baris Afsar, MD, of Konya Numune State Hospital and colleagues stated in a 2018 review on air pollution and kidney disease published in *Clinical Kidney Journal*. “The inflammatory mediators induced by PM and other pollutants in the lungs could spill over into the circulation, resulting in systemic inflammation, oxidative stress and damage to distant organs including kidneys. However, there is also evidence of direct harm to the kidneys. The pathogenesis is still not fully understood.”

Fine particulate matter arises from many sources, including fossil fuel combustion, industrial processes, and natural sources such as wildfires or volcanic eruptions. Indoor sources of fine particles include smoke and fumes from tobacco, cooking, lit candles or oil lamps, fireplaces, and fuel-burning space heaters.

According to Dr Blum's team, “These findings support the role of PM_{2.5} exposure as a potential risk factor for CKD and suggest PM_{2.5} mitigation efforts as a potential avenue for reducing CKD burden.

Electric cars may not stop air pollution as experts find this car part is most dangerous

Date: -8-Mar-2020, Source: [express.co.uk](https://www.express.co.uk)



Exhaust emissions are regulated unlike other car parts

ELECTRIC cars may not completely fix vehicle pollution rates after new research found exhaust emissions were not the most polluting car part.

Electric car sale increases have turned experts attention to non-engine pollutants with new data revealing a car's tyres could be the most

dangerous. Data from Emissions Analytics has shown tyre pollution can be up to 1,000 times worse than a car exhaust in a shocking find.

Experts found brand new tyres emitted 5.8 grams of emissions for every kilometre travelled compared to just 4.5 milligrams per kilometre from a regulated exhaust.

Non-exhaust emissions (NEE) generate the most particle matter from road transport with the UK Government's Air Quality Expert Group recommending NEE is recognised as a source of emissions problems.

Experts at Emissions Analytics even claim emissions could be increased if the car had under-inflated tyres or a vehicle was travelling on a rough road surface.

Budget tyres could also unleash higher emissions meaning many cars were producing over 1,000 times the emissions of an exhaust just from their road rubber alone.

The findings are set to be a concern for the motoring industry who has relied upon electric vehicles as their solution to tackling emissions problems.

Emissions Analytics says tyre wear and non-exhaust pollutants have been unregulated meaning manufacturers have not needed to apply strict guidelines.

Richard Lofthouse, Senior Researcher at Emissions Analytics said: "It's time to consider not just what comes out of a car's exhaust pipe but particle pollution from tyre and brake wear.

"Our initial tests reveal that there can be a shocking amount of particle pollution from tyres – 1,000 times worse than emissions from a car's exhaust.

“What is even more frightening is that while exhaust emissions have been tightly regulated for many years, tyre wear is totally unregulated.

“With the increasing growth in sales of heavier SUVs and battery-powered electric cars, non-exhaust emissions (NEE) are a very serious problem.”

Other non-exhaust pollutants which could cause issues for manufacturers include particles released from brakes or through road surface wear.

There is currently no legislation in place to reduce the amount of NEE despite potentially causing an issue for air quality on the roads.

According to the Department for Environment, efforts are ongoing to develop testing real-world conditions.

The government report also says the most effective strategy to reduce NEE reducing the volume of traffic on the road and lowering speed limits.

Nick Molden, CEO of Emissions Analytics said: “The challenge to the industry and regulators is an almost complete black hole of consumer information, undone by frankly out of date regulations still preoccupied with exhaust emissions.

“In the short term, fitting higher quality tyres is one way to reduce these NEE's and to always have tyres inflated to the correct level.

“Ultimately, though, the car industry may have to find ways to reduce vehicle weight too. What is without doubt, on the horizon is much-needed regulation to combat this problem.

“Whether that leads to specific types of low emission, harder wearing tyres is not for us to say – but change has to come.”

However, the findings have been attacked by experts in the UK car market who have branded the comments as sensationalist and not credible.

Mike Hawes, Chief Executive of the Society of Motor Manufacturers and Traders (SMMT) said the comments were irresponsible as emissions from vehicles were hard to measure.

In a statement, he said: “Making sensationalist claims based on testing of a single vehicle is not credible and, quite frankly, irresponsible.”

‘Ghost Flights’ Still Polluting the Skies as Coronavirus Keeps Passengers Grounded

Date: -9-Mar-2020, Source: ecowatch.com



The demand for flights has plummeted due to the new coronavirus, but some British airlines are still sending empty planes into the skies

The demand for flights has plummeted as the new coronavirus spreads around the globe, but some British airlines are still sending empty planes into the skies, burning thousands of gallons of fossil fuels that contribute needlessly to the climate crisis.

These so-called "ghost flights" are taking off because of European rules saying airlines must use their airport space or give it up, The Times of London reported Friday. The situation has prompted UK Transport Secretary Grant Shapps to write to the independent airport slot coordinator Thursday, asking them to relax the rule in order to prevent airlines from flying nearly or entirely empty planes.

"Such a scenario is not acceptable," Shapps wrote. "It is not in the industry's, the passengers' or the environment's interests and must be avoided."

European rules stipulate that airlines taking off from the continent must use 80 percent of their slots or lose them to someone else, Business Insider explained. Airport Coordination Limited has already relaxed the rules for flights to and from Hong Kong and mainland China, but they remain in effect for all other destinations, including outbreak hotspots like Italy and South Korea, according to The Independent.

Shapps isn't the only one who has spoken out. Virgin Atlantic CEO Shai Weiss also called for the rules to be suspended, as they were following 9/11 and the SARS epidemic.

"Passenger demand for air travel has dramatically fallen due to Covid-19 and in some instances we are being forced to fly almost empty planes or lose our valuable slots," he told The Independent.

British trade organization Airlines UK said that, unless the rules were changed, one of its members would have to fly 32 planes that were only 40 percent full between now and March 25, wasting emissions on more than 5,200 empty seats.

"It makes no sense whatsoever under these unique and challenging circumstances to force airlines to fly empty aircraft, wasting money and fuel and creating carbon emissions," the organization said.

The emergence of COVID-19, which has now sickened at least 109,343 people in 104 countries and killed 3,809, comes as there is growing awareness of the climate costs of air travel. Some planes burn five gallons of jet fuel per mile, releasing tons of carbon dioxide and other greenhouse gases into the atmosphere, Earthar reported. All told, aviation accounts for more than two percent of global greenhouse gas emissions, but it is also one of the fastest growing sources of carbon pollution, according to the European Commission. If the airline industry were a country, it would rank among the top 10 global emitters, and a person flying from New York to Paris and back burns about the same amount as someone heating their home in the EU for a year.

A breath of fresh air: Pollution in China drops

Date: -10-Mar-2020, Source: theaseanpost.com

Since the COVID-19 outbreak, all eyes are on China and its response to containing the spread of the virus. On 31 December, 2019, the Chinese government reported that it was



This aerial photo taken on 17 February, 2018 with a drone shows pollution being emitted from steel factories in Hancheng, Shaanxi province.

treating dozens of patients infected with a new virus. Just two weeks later, the first death was reported.

As of today, more than 114,000 cases have been confirmed, of which 5,800 are classified as serious. More than 110

countries and territories have been affected, with major outbreaks in central China,

Italy, South Korea and Iran. A total of 4,026 deaths have been recorded so far.

China has quarantined millions of people and implemented lockdown measures and restrictions in over 50 cities and four provinces. The goal of course is to stop the deadly coronavirus epidemic from spreading further.

As China seeks to control the spread of COVID-19, there are much less cars on the road and fewer factories in operation, which in some places has resulted in clearer skies.

Last week, the National Aeronautics and Space Administration (NASA) reported that air pollution –mainly nitrogen dioxide emitted from burning fossil fuels – had decreased by 30 percent in China over the last month.

"It is an unprecedentedly dramatic drop in emissions," said Lauri Myllyvirta, lead analyst at the Centre for Research on Energy and Clean Air. "I've definitely spoken to people in

Shanghai who said that it's been some of the most pristine blue skies that they remember over the winter."

Air pollution is estimated to contribute to more than one million premature deaths in China each year. Fine particle pollution, also known as PM 2.5, can enter the bloodstream through the lungs and has been linked to asthma attacks, heart attacks and respiratory problems.

Another significant contributor to the emissions decrease is the dramatic decline in China's domestic and international air traffic, which account for about 15 percent of global air travel emissions.

Separating growth from carbon

A study published in the Journal of the American Academy of Paediatrics found that outdoor air pollution in China is associated with over 300,000 deaths, 20 million cases of respiratory illness, and a health cost of over 500 billion yuan (US\$71 billion) – over three percent of gross domestic product (GDP) annually.

Pollution is a global health problem. Some 4.5 billion people worldwide are exposed to concentrations of airborne particulate matter (PM), at twice the level the World Health Organisation (WHO) considers safe.

Air pollution is present inside homes and outside and is responsible for the premature death of seven million people each year, including 600,000 children, according to the Special Rapporteur's report submitted to the United Nation's (UN) General Assembly.

In June 2019, Professor Guojun He and colleagues from the Hong Kong University of Science and Technology (HKUST) conducted a study on the health impacts of pollution and found that residents from areas which are given subsidised coal in China show a particulate pollution rate that is 46 percent higher than other areas. The average life expectancy of its residents is 3.1 years lower than in other areas.

His study concluded that if the entire country of China complied with its Class 1 standard for PM10 (particulate matter 10 micrometres or less in diameter), it could save 3.7 billion lives worldwide.

The COVID-19 outbreak has certainly highlighted China's central role in the global system. ASEAN member states are feeling high levels of uncertainty over promised investments from China which at any point could be pulled back to prioritise domestic needs. Corporations worldwide are also experiencing major shortages in materials and stocks with most factories located in China.

China may not be thinking about carbon emissions at the moment, but global citizens are observing for themselves, the rate in which China has the power to save the planet from overheating.

On the other hand, giant corporations originating from the West, continue to source production in China and at the same time blame it for polluting the earth.

This slowdown could make companies re-evaluate their dependencies on China or it could encourage companies to invest in developing production tech that utilises clean energy. Either way, it looks as though Southeast Asia could be a viable alternative to spread out production and decrease dependencies on any one country.

The question of whether ASEAN would have the capacity and determination to protect its citizens from long-term environmental damage by developing frameworks for investments that would integrate clean energy and sustainability remains highly unlikely.

China must use this opportunity to revamp itself and re-establish confidence among its global partners. An improvement in practices could be the assurance that partners need to continue working with the second largest economy in the world.

Satellite images show how smog pollution has dropped in northern Italy after weeks of coronavirus restrictions

Date: -12-Mar-2020, Source: dailymail.co.uk

Smog has dropped in northern Italy after almost a month of coronavirus restrictions, according to new satellite images.

The levels of nitrogen dioxide - highlighted in dark orange - appear to have decreased in the photos from the Sentinel 5 satellite of Europe's Copernicus Programme, run by the European Commission and the European Space Agency.

The progress of the air pollution in the European country was documented over the course of three weeks, on the dates February 14, February 24, March 4 and March 8.

The photos were uploaded on Twitter by Santiago Gassò - a researcher at the University of Washington and NASA - on Wednesday, the same day World Health Organization classified coronavirus as a pandemic.

Following his findings, he penned on his social media account: 'In one month, there is a clear decrease of NO2 levels (a pollution marker) in northern #Italy according to the satellite sensor.' Earlier this week, Italy implemented a nationwide lockdown in a desperate bid to contain the spread of COVID-19.

There have been 1,016 deaths from 15,113 confirmed cases of COVID-19 in the European country - the most anywhere outside of mainland China.

US President Donald Trump has taken extreme measures to contain the spread of COVID-19 as he's imposed a 30-day ban on most Europeans entering the country - excluding the United Kingdom and Ireland - starting at midnight on Friday.

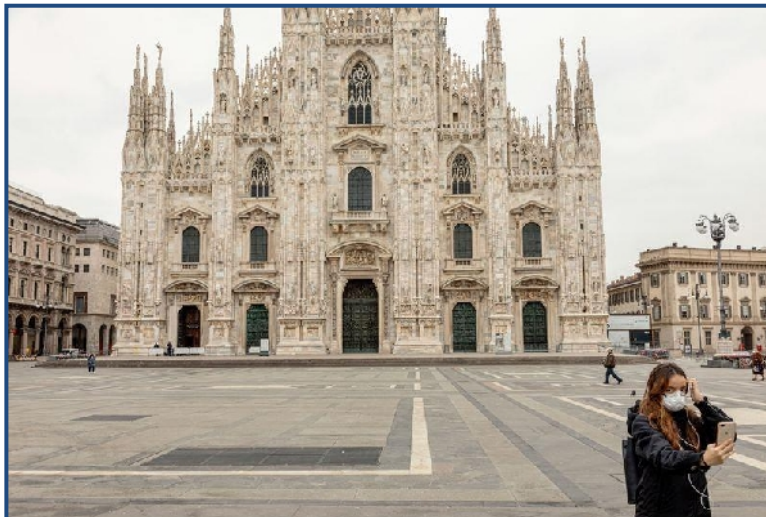
At least 125,000 patients have been infected and 4,000 have died worldwide since the outbreak began last December. The virus has been spreading between humans in four continents since February 28, the WHO has admitted.

The killer coronavirus rapidly spreading around the world can survive in the air for three hours, scientists have found.

US government researchers, who worked with other experts, also found the deadly infection can live on surfaces for up to three days. Tests showed the virus can survive on copper for four hours, cardboard for an entire day and up to 72 hours on plastic and steel.

Italy's Coronavirus Lockdown Is Already Lowering Air Pollution

Date: -13-Mar-2020, Source: bloomberg.com



A person takes a selfie near the Duomo cathedral in Milan on March 12

The impact of Italy's nationwide quarantine that began this week can already be measured in lower air pollution levels and falling nitrogen dioxide emissions, with the decline particularly evident in the northern region that entered lockdown ahead of the rest of the country.

The drop in pollution has been detected by the Sentinel-5 Precursor satellite, and

researchers concluded that it was primarily the result of efforts to contain the spread of the highly infectious coronavirus. "We are very confident that the reduction in emissions that we can see coincides with the lockdown in Italy causing less traffic and industrial activities," said Claus Zehner, the satellite's mission manager at the European Space Agency, in a statement.

Italy has reported the second-highest number of diagnosed cases of coronavirus, with more than 15,000 known infections and more than 1,000 deaths. Prime Minister Giuseppe Conte declared a nationwide lockdown on March 9, making Italy the first country to implement such a measure.

The Copernicus Sentinel-5 satellite tracked nitrogen dioxide emissions across Europe from January 1 to March 11, using a 10-day moving average. Nitrous oxide accounts for 6% of global greenhouse-gas emissions, according to Rhodium Group, a research firm that

produces annual estimates. Most of that comes from agriculture, although fossil fuels use also contributes to the total.

The drop in emissions might be short lived. Earlier this year, satellites also detected a dramatic decline in China, where the coronavirus outbreak started. Emissions dropped in February, as parts of the country halted activity to contain the spread of the disease, but picked up again in March with workers slowly returning to their jobs.

Malaysia Installs Air Pollution Early Warning System Using Gas Chromatography

Date: -14-Mar-2020, Source: chromatographytoday.com



Pasir Gudang, has recently become the first city in Malaysia to install an air quality monitoring system that can detect hazardous air pollutants. Air pollution and quality is a major concern of many governments and also the World Health Organization (WHO). The WHO suggests that there are almost 7 million premature deaths - one in eight total global deaths each

year - attributable to outdoor air pollution. The system installed in Malaysia is based on gas chromatography with both flame ionisation detectors and mass spectrometry. Let's take a look at how gas chromatography detects pollutants and the problem of air pollution.

A problem breathing

Ambient air pollution is a major cause of premature deaths worldwide - but particularly in large cities and industrial areas. In a survey, the WHO reported that of over 4300 cities surveyed globally, only 20% of the urban population lived in areas that complied with current WHO air quality guidelines. In many cities the levels of pollution were between 4 and 15 times the guideline levels.

There are many different pollutants that can cause everything from irritation through breathing problems to an early death. The vast majority of the early deaths are due to heart disease and stroke brought on by outdoor air pollutants. The pollutants include ground level ozone, nitrogen oxides and particulates such as PM2.5 and PM10 that can be transported to the lungs affecting how effectively they can work at transporting oxygen from our lungs into the bloodstream where it is needed.

Using chromatography to monitor air quality

Chromatography is an ideal tool to analyse air pollutants. It analyses the constituents of a mix by separating the mix into its constituent parts and feeding the parts into a detector system. The advantages of gas chromatography in analysing air pollutants is that the system can be tuned to analyse specific compounds.

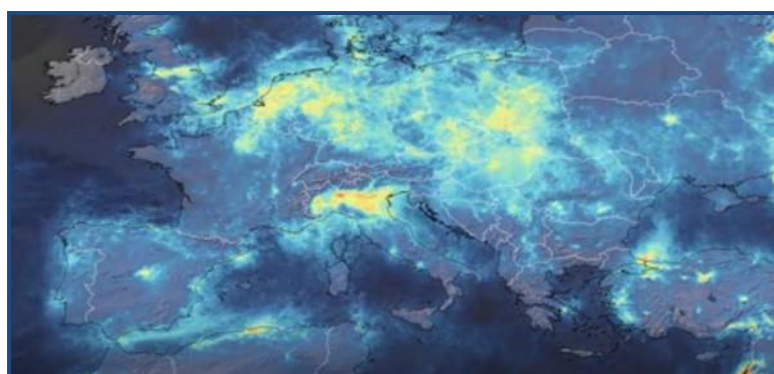
Chromatography works by a mobile phase flowing over a stationary phase. The mobile phase carries the sample and interactions between the sample components and the stationary phase cause the sample to separate into its constituents. By fine tuning the stationary phase - usually a silica sorbent - and the liquid phase - a gas - gas chromatography can analyse for a wide range of air pollutants reliably and accurately.

Malaysian air measurements

The Malaysian city of Pasir Gudang is an industrial port city located on the southern tip of the Malay peninsula. The city has installed two gas chromatography-mass spectrometry units to monitor volatile organic compounds in the air. Toxic gases are detected using gas chromatography systems with flame ionisation detectors (GC-FID). The system automatically alerts the authorities if the air quality is reduced in any particular area. The government is also making the readings available to the public. Will the UK government be so transparent in its failures to meet air quality levels?

Air Pollution in Italy Drops Dramatically During Coronavirus Outbreak

Date: -15-Mar-2020, Source: sciencetimes.com



A still image from an animation showing nitrogen dioxide levels in northern Italy decreasing over 2020, in part in response to the COVID-19 outbreak

Italy's Growing Number of Confirmed Cases

As of March 15, Italy's confirmed cases have already reached 21,157 and about 1,966 have already recovered and 1,441 number of deaths. There are 17,750 active cases and 91% or 16,232 of it are considered mild cases; and about 9% or 1,518 of it are

serious or in critical condition.

Among the closed cases recorded, 58% or 1,966 of it has already recovered while 42% or 1,441 are already dead. Italy's health care resources have become exhausted. With these growing numbers, the coronavirus has found its new epicenter. WHO chief Tedros Adhanon Ghebreyesus said in a virtual conference that Europe has now become the new epicenter of

the pandemic COVID-19 with more reported cases and deaths than the rest of the world except for China.

Levels of nitrogen oxide emissions drop in Italy

A 'notable drop' in air pollution across Italy between January to March after the coronavirus lockdown has been reported by the European Space Agency Copernicus satellite. Tropomi was used on the Copernicus Sentinel-5 satellite to plot traces of these harmful gases in the atmosphere and used the data collected to make an animation showing its changes.

The reduction in emission as seen from space seems to coincide when Italy was put into lockdown causing less industrial activities and traffic that is very much evident in Po Valley in northern Italy wherein the decline in NO₂ is seen, according to ESA's Claus Zehner, Sentinel-5P mission manager.

Similar findings were also reported by Santiago Gasso a NASA researcher, upon looking at the data from Copernicus. Just within a month, there is a clear decrease in NO₂ levels in northern Italy.

The ESA satellite that captured this data is dedicated to monitoring the Earth's atmosphere. Aerosols, carbon monoxide, and nitrogen dioxide were just some of the variety of harmful gases that the Tropomi instrument is used for mapping its traces.

With Italy's lockdown, it also closed much of its industrial activity and limited the air and car travel to prevent the virus from spreading further.

Dramatic Impact of Coronavirus Lockdowns Seen From Space

The effects of the COVID-19 in China is not only seen on land but it can also from space. Orbital instruments designed in monitoring the planet's atmosphere picked up a significant drop in the nitrogen dioxide levels since January.

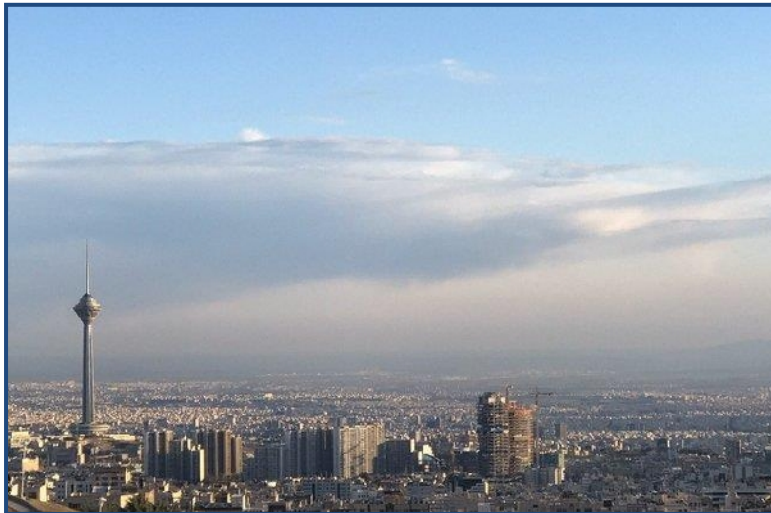
The substantial drop might have been because of the economic slowdown and travel restrictions in China since the COVID-19 became widespread. The Chinese government has closed business and restricted travel between cities to limit the spread of the virus. The impact of those measures is seen in local pollution levels.

Fei Liu, an air quality researcher in NASA's Goddard Space Flight Center said that some cases of the drop-off of the NO₂ have already been recorded before: just like the 2008 economic recession, and also during the Lunar New Year but nothing like this has ever happened before.

As the World Health Organization announced the COVID-19 as a pandemic because it continues to spread worldwide, this second-order impact is most likely to be also seen in the different countries who already has announced a lockdown.

How Pollution Aggravates the Impact of Coronavirus

Date: -16-Mar-2020, Source: usnews.com



Cloudy and clear sky cover Iran's capital Tehran on March 2, 2020, as air pollution levels drops due to the covid coronavirus outbreak. Many factories stopped production and residents remain mostly at their houses following the coronavirus cases in Iran, resulting in a drop in air pollution levels.

THE BAFFLING SPREAD OF the novel coronavirus has given many scientists and policymakers pause. There may be some important clues in the patterns the disease is leaving that tell us quite a bit about what conditions can hasten its spread and even worsen its lethality. So far, the areas of the world where the most people are dying of the disease – called the case-fatality rate – are densely populated cities in China and Iran.

Recent studies also confirm that air pollution has been blindingly severe in that region of northern Italy where the coronavirus has been most virulent. The Lombardy region and the Po Valley in northern Italy rank among the most air polluted areas of Europe. Similarly, South Korean cities also suffer from levels of air pollution comparable to smoking cigarettes and men there have one of the highest rates of tobacco smoking in the world.

In addition to China and Iran having some of the highest concentrations of human beings on the planet, there are a number of other important environmental factors in both regions that could explain why the disease seems more deadly in those locales. First, people living in Tehran or China's Hebei province sometimes inhale the equivalent of a pack or more of cigarettes every day.

But while China has instituted national standards for air pollutants and taken the modern step of banning fireworks – one of the most severe forms of air pollution ever measured – monitoring is limited to cities. In fact, air pollution in major Chinese cities is declining. In Iran conditions are worsening. The United Nations Environment Program ranks Iran 117 out of 133 countries with respect to overall environmental quality.

Especially in the wintertime, air in these areas regularly can contain levels of ultra-fine particulate air pollution from coal-burning and diesel engine products of incomplete combustion that would be illegal in most modern cities. The high levels of diesel pollutants around the world today are due to the millions of trucks and cars on the roads that rely on

diesel engines that were fraudulently manufactured to pass emissions tests. These diesel vehicles came with their own defector devices on all of the diesel engines produced in the 1980s. Whenever hooked up to a computer test, the engine would lower its emissions.

All this dirty air does not just clog vistas, it also clogs lungs and the respiratory system. Basically, tiny pollutants 50 times smaller than a human hair can enter the lung and sometimes get into the bloodstream, compromising the immune system. Without normal healthy mucosa, the nose and lung lose the ability to slough off bacteria and viruses typically inhaled.

Lungs normally clear pollutants through the removal of viruses and bacteria by coughing. Healthy nose hairs also block the inhalation of pollutants. But chronic air pollution compromises the ability of the lungs to do their job. The natural mucociliary escalator dries up and cannot do its job of keeping us healthy.

Adding to this is the fact that basic sanitation in both Iran and China is dreadful. Specifically, public toilets often consist of squatting plumbing where you are not permitted to put toilet tissue down into the system. This means that bathrooms are surrounded with pieces of fecally contaminated toilet paper that may slosh around when water overflows.

Without question, in these regions there are also massive general problems of sanitation and sewage, particularly around live-animal and slaughter markets such as the one where the coronavirus is believed to have originated in Wuhan that can also be found in Iran. These areas are also compromised by their very high population density and residential overcrowding. It is not unusual for adults that may not even be related to share beds. Many people sleep in their kitchens and dining rooms. In some factories where workers also live, there can be 8 to 10 in a single room.

Further compounding these situations, there's a low level of vitamin D that comes about from the lack of sunlight. It is well known that those who live in the Northern Hemisphere tend to have lower levels of this essential nutrient. Those living in densely polluted regions will not have the opportunity for sunlight that causes the liver to produce this important disease-fighting vitamin. All of which suggests that the coronavirus may be much less of a problem in areas that are not as crowded, have better sanitation, and lower air pollution than in other zones.

This does not mean the United States shouldn't be vigilant, but it does suggest that America may have less of a problem than have Italy, China and Iran thus far. Because the virus appears to be more deadly for the elderly and because there is a two-week period when those carrying the virus can have no symptoms, there will be a need for quarantines wherever a case occurs. The most important thing people need to understand is that they should self-quarantine and not go to the doctors or clinics if they suspect they might have the new coronavirus or the flu.

Vigilance is required on all fronts. Prevention is always cheaper in the long run. We have to ask, do we want to pay later with enormous loss of life and livelihoods, or should we invest now to maintain a healthier general environment so that we will have less to pay in the future?

Thousands of lives have been SAVED in China since the coronavirus outbreak started, claim scientists after lockdowns drive down air pollution around the globe

Date: -17-Mar-2020, Source: dailymail.co.uk



A man wearing a facemask as a preventive measure against the COVID-19 coronavirus walks at the Summer Palace in Beijing on March 17, 2020. China put cities on complete lockdown which led to a reduction in air pollution levels

Thousands of lives have been saved in China since the coronavirus outbreak started, claim scientists, saying lockdowns have dramatically improved air quality.

Across the globe countries are implemented measures to restrict public interactions including closing pubs, cancelling events and encouraging home working.

Satellite images from the European Space Agency and

NASA show a dramatic reduction in the amount of harmful greenhouse gas emissions in the atmosphere. Researchers from Stanford University say in places like China the reduction in air pollution has led to fewer premature deaths from breathing toxic air.

The improved air quality around the world isn't likely to remain long term though, as scientists warn things will likely 'return to normal levels' when industry resumes.

To combat the rapidly spreading virus countries put areas and later the whole country on lockdown resulting in limited travel and industrial activity. Limiting travel has led to a reduction in vehicle emissions and cutting the amount of industrial activity has led to a drop in the number of harmful particles put in the air. Satellite observations indicated steep falls in nitrogen dioxide emissions in the wake of strict lockdowns in Italy and China, the two worst affected countries so far

Environmental resource economist Marshall Burke says there is a proven link between poor air quality and premature deaths linked to breathing that air.

'With this in mind', he said, 'a natural - if admittedly strange - question is whether the lives saved from this reduction in pollution caused by economic disruption from COVID-19 exceeds the death toll from the virus itself.' 'Even under very conservative assumptions, I think the answer is a clear 'yes'.'

At just two months of reduction in pollution levels he says it likely saved the lives of 4,000 children under five and 73,000 adults over 70 in China alone. 'That's significantly more than the current global death toll from the virus itself.'

He said the average person loses about three years of their life due to air pollution - similar to the impact of tobacco smoking and higher than Malaria.

Cutting pollution levels longer term will also help reduce the number of deaths in any future pandemic, according to Sara De Matteis from Cagliari University, Italy.

'Patients with chronic lung and heart conditions caused or worsened by long-term exposure to air pollution are less able to fight off lung infections and more likely to die. This is likely also the case for Covid-19,' she told the Guardian.

'By lowering air pollution levels we can help the most vulnerable in their fight against this and any possible future pandemics.' Burke said it was incorrect and foolhardy to suggest that pandemics are 'good for health' and that isn't what he is saying.

He said: 'The calculation is perhaps a useful reminder of the often-hidden health consequences of the status quo, ie, the substantial costs that our current way of doing things exacts on our health and livelihoods.'

Lauri Myllyvirta, lead analyst at the Centre for Research on Energy and Clean Air in Helsinki, Finland said nitrogen dioxide levels were down by 35 per cent over China during the shutdown compared to the same period in 2019.

'Most factories have been closed or running at low capacity, either because of restrictions on operation or because employees haven't been able to return from holidays, or because of lack of demand,' Myllyvirta told Business Insider.

'If the government holds onto the GDP growth target for the year, that could mean launching a massive construction program to prop up GDP,' he said. 'This is what happened after the global financial crisis in 2009.'

Maria Castellina, spokesperson for Friends of the Earth, said coronavirus is a reminder that we are 'all part of one global community' and that we 'need to cooperate to solve global problems'.

'But this is a time that can also bring out the best in us: people helping older neighbours, anyone self-isolating to protect others, and rapidly developing technology showing that many of us can work and live in completely different ways.'

'It is this attitude of kindness, resilience and ability to adapt, that we should use to inform other global crises. 'Exceptional circumstances like these remind us just how important our health is, yet 4.2 million premature deaths globally are linked to air pollution.

'Imagine what we could do if we didn't return completely to business-as-usual but kept people's health and wellbeing front and centre in decision-making.'

Unfortunately this improved air quality isn't expected to last - with scientists predicting a return to normal levels as soon as the crisis is over.

'When the Chinese economy does recover, they are likely to see an increase in emissions in the short term to sort of make up for lost time, in terms of production,' climate scientist Zeke Hausfather told Wired.

'Broadly speaking, the only real times we've seen large emission reductions globally in the past few decades is during major recessions,' says Hausfather.

'But even then, the effects are often smaller than you think. It generally doesn't lead to any sort of systematic change.' Air quality researcher at NASA's Goddard Space Flight Center Fei Liu said: 'This is the first time I have seen such a dramatic drop-off over such a wide area for a specific event.'

Dramatic footage from the ESA Copernicus satellite shared on Friday showed a 'notable drop' in air pollution over Italy after the coronavirus lockdown.

ESA's Claus Zehner, Sentinel-5P mission manager, said, 'The decline in nitrogen dioxide emissions over the Po Valley in northern Italy is particularly evident.

'Although there could be slight variations in the data due to cloud cover and changing weather, we are very confident that the reduction in emissions that we can see, coincides with the lockdown in Italy causing less traffic and industrial activities.' This came after the country closed bars, pubs, restaurants and other venues in a bid to stop people spreading the virus - resulting in a reduction in traffic, air and industrial pollution.

The UK also saw a drop in air pollution levels, although it is too soon into the isolation process to get exact figures for the whole country, according to experts. Readings for nitrogen dioxide - a harmful greenhouse gas - across London were lower on Sunday than on Monday for the first time.

The Department of the Environment, Food and Rural Affairs reported that air pollution levels were 'low' across the country today and don't expect that to change.

On Monday Prime Minister Boris Johnson urged people to stay home and avoid all but essential travel and contact with other people. According to EU air quality monitoring website AirQualityNow.eu - London saw a drop from 96 on Sunday to just 20 on Monday. The figure for Monday would normally be higher than the weekend rate.

The Copernicus Atmosphere Monitoring Service (CAMS) observed a decrease of fine particulate matter (PM2.5) for February relative to the previous three years of between 20 and 30 per cent, Copernicus said in a statement.

PM2.5 is one of the most important air pollutants regarding health impacts according to the World Health Organization. Nitrogen dioxide is a noxious gas which is released during fuel combustion and emitted by cars, power plants and industrial facilities.

It forms when fossil fuels such as coal, gas or diesel are burned at high temperatures and can cause a range of harmful effects on the lungs including increased inflammation of the airways and a greater risk of asthma attacks. A global drop in the number of flights is also having an impact on air pollution.

'Based economic growth forecasts the impact of the coronavirus could significantly reduce global CO2 emissions,' said Professor Ian Colbeck, of the University of Essex.

'Figures from China suggest a 25 per cent reduction in energy use and emissions.

'Air travel emissions are a significant contributor to climate change so expect this figure to drop as more and more flights are cancelled.'

At an individual level the amount of road traffic could reduce significantly, with companies allowing staff to continue to work from home after the crisis.

'It's quite possible that once things revert back to pre-virus conditions that companies and their staff may have seen the benefits of working from home and so the actual number of commuters may reduce,' said Professor Colbeck. Glen Peters, Research Director for the Centre for International Climate Environment Research agrees, saying it could lead to major changes.

'Based on new projections for economic growth in 2020, we suggest the impact of the coronavirus might significantly curb global emissions,' he said in an article for the academic website The Conversation.

The biggest barrier to long term change will be the rapidly dropping price of oil.

The International Energy Agency had already predicted oil use would drop in 2020, and this was before an oil price war emerged between Saudi Arabia and Russia.

Burke said the indirect impacts of the virus are probably significantly higher than we know and any benefits from air pollution would be dominated by the direct and indirect costs of the virus.

He told the Guardian this includes 'the health effects of lost income and the morbidity/mortality costs of non-Covid health problems going untreated.'

Sascha Marschang, the acting secretary general of the European Public Health Alliance, told the Guardian big decisions were needed after the crisis ends.

'Policymakers should speed up measures to get dirty vehicles off our roads.

'Science tells us that epidemics like Covid-19 will occur with increasing frequency. So cleaning up the streets is a basic investment for a healthier future.'

Unexpected upside to coronavirus shutdown? Cleaner air.

Date: -18-Mar-2020, Source: whyy.org



Philadelphia streets have slowed down in the wake of the coronavirus shutdown.

Breathe in.

Air pollution in Philadelphia right now is at one of its lowest levels.

"Is it the cleanest we've ever had? The data isn't showing that yet. But is it cleaner than it would have been otherwise? I think that's something that we can say," said Peter DeCarlo, an air-quality expert and former Drexel professor now with Johns Hopkins University.

Air-quality experts believe that there might be one upside to the region's partial shutdown to stop the spread of the virus that causes COVID-19: cleaner air.

Government officials have been recommending that people stay at home since Tuesday, after both city and state officials ordered all nonessential businesses, including government operations, to close starting Monday evening.

"I would expect our air pollution levels will probably go down because the number of vehicles in the streets are less, and we know that vehicles are our biggest source of air pollution," said city Health Commissioner Thomas Farley.

In Philadelphia, about 400,000 people drive to work every day — 341,670 by themselves and 55,071 in carpools, according to U.S. Census data from the 2018 American Community Survey.

With dramatic reductions in people driving to work and buses transporting children to school like the ones we are seeing this week, levels of nitrogen dioxide — the noxious gas

emitted from burning fossil fuels — go down. The gas worsens coughs, reduces lung function, and increases asthma attacks, according to the American Lung Association.

DeCarlo said it's too early to measure significant reductions in Philadelphia, adding that meteorological factors such as wind, air pressure, and rain have a big impact on air pollution. But after comparing levels of particulate matter for March starting in 2014, he said this year's pollution is at the lower end.

In China, as a result of people working from home, a drastic reduction in flights, and industries working at lower capacities due to the virus, air pollution dropped by roughly a quarter in February, with levels of NO₂ decreasing about 30%, according to NASA. Satellite images showed a similar situation in northern Italy after the government introduced severe measures to stop the coronavirus spread.

DeCarlo expects something similar to happen in Philadelphia, especially if the city goes into a total lockdown.

"I think this is an opportunity for people to go outside and breathe a little cleaner air and walk or bike more frequently," he said. "While they might not be aware of it, I think they're bodies might actually be aware of it."

Marilyn Howarth, director of community outreach and engagement at the University of Pennsylvania's Center of Excellence in Environmental Toxicology, said the decrease in pollution has an effect on people's health, even if it's for only two weeks.

"It's significant for reducing asthma exacerbation and heart disease and heart attacks. And it will probably have positive impacts on babies, pregnant women, and other vulnerable populations," Howarth said.

And because dirty air worsens the health conditions of those more affected by the coronavirus, experts have linked air pollution to a higher COVID-19 death rate.

Ezra Wood, a professor of atmospheric chemistry and air pollution at Drexel University, said although there is a connection between air pollution and the virus, it's too soon to say how much the current situation is going to help.

"It's hard to say. It depends on how much air pollution comes down," Wood said.

Robert Routh, a staff attorney with the Clean Air Council, regularly fights to implement policies to reduce emissions and the negative effects of climate change.

"The coronavirus is obviously not a good thing, and this catastrophe is not the way any reasonable person would plan on having the world lower its carbon footprint," he said. "But if anything, it should demonstrate that climate change is driven by human activity and our actions and behaviors, on a wide scale, affect emissions."

Routh said if people take this opportunity to reflect and end up adopting new habits, the temporary beneficial side effects of this crisis could become long-term.

30% cut in Israel's air pollution

Date: -19-Mar-2020, Source: en.globes.co.il



The fall in economic activity and in particular car journeys and public transport use has significantly improved Israel's air quality, the Ministry of Environmental Protection reports. Israel's Ministry of Environmental Protection has announced that the decline in

economic activity caused by the Covid-19 pandemic has significantly reduced air pollution in Israel over the past week. The concentration of nitrogen dioxide (NO₂) in the atmosphere has fallen to 30% below average levels.

The government's draconian instructions, which have sought to flatten the infection curve and reduce social contact to allow the health system to cope with the spreading epidemic, have in particular significantly cut use of public transport and vehicle usage. Travel on public transport is down 50% in Jerusalem, 60% in the greater Tel Aviv area, and 85% in the Sharon area.

The Ministry of Environmental Protection's national air monitoring system examined the air quality data for the past week and compared them to the average in recent months. The results of the test, conducted by Dr. Ilan Levy from the national air monitoring system, show that concentrations of NO₂ dropped by 10 micrograms per cubic meter to 35.5 micrograms per cubic meter between January 1, 2020 and March 11, 2020. The average concentration during March 12-March 16 was measured at 25 micrograms per cubic meter, a 30% reduction.

The pollutants tested by the ministry's national monitoring service are NO₂ and fine particle matter (PM_{2.5}) - air pollutants resulting from human activity, such as transportation and industry.

The Ministry of Environmental Protection says that at this stage, it cannot be stated unequivocally that the reason for the decline in NO₂ over the past week is solely the reduction in emissions of pollutants from transportation; the weather conditions may also have played a role. At the same time, the reduction in NO₂ concentrations is consistent and clear, steep and unmistakable, and took place at all of the monitoring stations checked.

AI system can predict air pollution before it happens

Date: -19-Mar-2020, Source: eandt.theiet.org

Air pollution kills an estimated seven million people every year and cities around the world are being forced to take action to do what they can to lower the risk to inhabitants.

A team of Loughborough University computer scientists believe their AI system has the potential to provide new insight into the environmental factors that have significant impacts on air pollution levels.

In particular it focuses on the amount of 'PM2.5' particulates in the air – that is particulate matter of less than 2.5 µm in diameter that is often characterised as causing reduced visibility in cities and hazy-looking air when levels are high.

In 2013, a study involving 312,944 people in nine European countries revealed that there was no safe level of particulates.

PM2.5 particulates were found to be particularly deadly, blamed for a 36 per cent increase in lung cancer per 10 µg/m³ as they can penetrate deep into the lungs.

Worldwide exposure to PM2.5 contributed to 4.1 million deaths from heart disease and stroke, lung cancer, chronic lung disease, and respiratory infections in 2016.

There are systems that already exist that can predict PM2.5 but Loughborough's research looks to take the technology to the next level.

The system the researchers have developed can predict PM2.5 levels in advance – one hour to several hours' time, plus 1-2 days ahead.

It interprets the various factors and data used for prediction, which could lead to a better understanding of the weather, seasonal and environmental factors that can impact PM2.5

It even predicts the PM2.5 level plus a range of values the air pollution reading could fall within – known as 'uncertainty analysis'.

It also has the capability to be used as an air pollution analysis tool for use in a carbon credit trading system.

The system's uncertainty analysis and ability to understand factors that affect PM2.5 are particularly important as they will allow potential end-users, policymakers and scientists to better understand related causes of PM2.5 and how reliable the prediction is.

The Loughborough team created the system with machine learning and used public historical data on air pollution in Beijing to train and test the algorithms. China was selected as the focus as 145 of 161 Chinese cities have serious air pollution problems.

The developed system will now be tested on live data captured by sensors deployed in Shenzhen, China.

Project leader professor Qinggang Meng said: “Air pollution is a long-term accumulated challenge faced by the whole world, and especially in many developing countries.

“The project aims to measure and forecast air quality and pollution levels. We also explore the feasibility of linking the real-time information on carbon emission to end-to-end carbon credit trading, thus dedicating to carbon control and greenhouse gas emission reduction.

“We hope this research will help lead to cleaner air for the community and improve people’s health in the future.”

At Least Air Quality Is Much, Much Better With Everyone In Quarantine

Date: -20-Mar-2020, Source: thedrive.com



Dolphins have returned to Venice, Los Angeles’ trademark haze is gone, deer are wandering Japanese cities, and traffic, especially along traditionally packed commuter corridors, has all but disappeared. Mother Nature is

making the best of our collective nightmares as the

self-isolation necessary to combat the coronavirus pandemic has observably reduced human pollution to historic levels.

The viral outbreak began affecting the world’s pollution levels after a number of major cities and countries went on lockdown. China’s notoriously smog-filled municipalities, the first to be quarantined, saw an immediate clearing with the results visible from NASA’s Earth Observatory satellites. Italy’s country-wide lockdown has produced similar results as the normally jam-packed, bumper-to-bumper ancient streets lit up green like the Northern Lights.

Like China, Italy’s mandatory quarantine cut was even observed by the European Space Agency's satellites, with the agency later sending out a statement saying, “New data from the Copernicus Sentinel-5P satellite reveal the decline of air pollution, specifically nitrogen dioxide emissions, over Italy. This reduction is particularly visible in northern Italy which coincides with its nationwide lockdown to prevent the spread of the coronavirus.”

The statement added, “the reduction in emissions that we can see coincides with the lockdown in Italy causing less traffic and industrial activities.” ESA's researchers also included the animation you see below showing the decreasing pollution.

Los Angeles, Beijing, Tokyo, London, New York City, Washington, and San Francisco followed as populations quarantined and stopped driving their automobiles. Trending on similar paths as those results above, Los Angeles’ haze has dissipated and its air quality saw immediate improvements. I live in LA, and I've witnessed that trend firsthand since the city went into voluntary quarantine. I've noticed I can breathe better, too. And air quality is improving across the United States. The national air quality tracking site, AirNow.gov, has been providing real-time data on the U.S.’s conditions and shows tangible evidence of how the reduction of cars on the road has improved the nation’s air which you can see below.

The BBC is also reporting that researchers from Colombia University in New York City believe that the sidelining of much of the world’s cars has already contributed to a 50 percent reduction of greenhouse gases compared to the same time last year. One researcher told the BBC, “This is the cleanest I have ever seen it. It's less than half of what we normally see in March.”

Outside the skies clearing, Italy’s waterways have made a massive comeback as well. In Venice, the city’s canals, which were recently dark and soupy, have returned to remarkable clarity. Citizens have been able to spot fish returning to the waterways, as well as swans. Italy’s coastal areas, which are normally replete with tourists and cruises, have seen the return of dolphins, too.

The quarantined human population has also had effects on animals, too. In Japan, Nara Park’s herd of a thousand sika deer have entered the surrounding cities. The deer are likely searching for food as most are usually fed by tourists, but they're also reclaiming what was once was their habitat. And a herd of 14 elephants in China was so free to roam the countryside that they found a farm producing corn-based alcohol and proceeded to drink 30 kilos of the stuff before they drunkenly passed out in a nearby tea farm.

Other than giving us a much-needed break in our bleak social media feeds thanks to adorable animals, one researcher used the virus-affected pollution data from four major Chinese cities to calculate that this mandated reduction of mobility likely saved 77,000 lives. The research paper, which is hosted on G-Feed, a blog of seven scientists working in the areas of global food, water, health, and the environment, states, “that having 2 months of [pollution] reductions likely has saved the lives of 4,000 kids under 5 and 73,000 adults over 70 in China.” With more of the world continuing its coronavirus-induced quarantines for now, we're likely to see even greater reductions.

We’re still grappling with our new reality and how it will likely continue for the foreseeable future. But how the environment is reacting to our reduced presence is a salient point of

how we do indeed affect our world in harmful ways. These stories shouldn't point to how badly our everyday lives are screwing it up or how some of us are attempting to make it even worse. Rather, it should also give us hope that when if we actually and meaningfully decide to reduce our impact and treat the threat of climate change seriously, we could see immediate results that better everyone's lives.

Novel AI system can predict air pollution levels in advance

Date: -20-Mar-2020, Source: deccanchronicle.com



This file picture shows low visibility due to Smog at New Delhi railway station

London: Scientists have developed a new artificial intelligence (AI) system which they say can predict air pollution levels hours in advance. The technology is novel for a number of reasons, one being that it has the potential to provide new

insight into the environmental factors that have significant

impacts on air pollution levels, said researchers at Loughborough University in the UK.

The project focuses on using AI to predict PM2.5—particulate matter of less than 2.5 microns in diameter—that is often characterised as reduced visibility in cities and hazy-looking air when levels are high.

Particulate matter is a type of air pollutant and it is the pollutant with the strongest evidence for public health concern. This is because the particles are so small they can easily get into the lungs and then the bloodstream, resulting in cardiovascular, cerebrovascular and respiratory impacts, the researchers said.

There are systems that already exist that can predict PM2.5 but the new research looks to take the technology to the next level, said Yuanlin Li from Loughborough University.

The system predicts PM2.5 levels in advance—giving predictions for the levels in one hour to several hours' time, the researchers said.

It interprets the various factors and data used for prediction, which could lead to a better understanding of the weather, seasonal and environmental factors that can impact PM2.5, they said. The AI system has the capabilities to be used as an air pollution analysis tool in a carbon credit trading system, the researchers noted.

The team created the system using machine learning—a type of artificial intelligence technology that uses large amounts of data to learn rules and features, so a system can make predictions.

The researchers used public historical data on air pollution in Beijing to train and test the algorithms.

The system will now be tested on live data captured by sensors deployed in Shenzhen, China, the researchers said.

Air pollution in Malta falls by up to 70 per cent in just one month

Date: -21-Mar-2020, Source: timesofmalta.com



Major thoroughfares are traffic free following measures by the authorities to curb the spread of the virus

Air pollution levels have declined dramatically in the last month with experts pointing to less traffic on the roads as schools shut and more people work from home.

Nitrogen dioxide readings from morning rush hour in the period before and after the measures were implemented, show an average 70 per cent drop.

Mark Scerri from the Institute of Earth Systems said: “It is difficult to quantify with what’s available, but my gut feeling is that closing down the schools, together with other measures to control the spread of COVID-19 have de facto decreased traffic flows and hence the level of the associated air pollutants.” Nitrogen dioxide is a noxious gas emitted by motor vehicles.

Scerri took an average of the readings in the morning rush hour period between February 19 and March 15, which peaked at 70 $\mu\text{g}/\text{m}^3$ and March 16 to 19, when the average high was 20 $\mu\text{g}/\text{m}^3$

All schools, childcare centres, university and MCAST closed in Malta on March 13 as part of measures to prevent the spread of the coronavirus.

Times of Malta also examined the hourly data compiled by the Environment Resources Authority’s monitoring stations on two dates: February 19 and March 19.

In the time brackets between 7am and 7pm, Malta's roadways were over 50 per cent less polluted on March 19 compared to the same day in February.

The biggest drop in nitrogen dioxide was reported at 7am, falling from 85.377 microgram per cubic metre ($\mu\text{g}/\text{m}^3$) to 13.561 $\mu\text{g}/\text{m}^3$ an 85 per cent percentage decrease.

This data also showed that the amounts of harmful particulate matter ejected from vehicle exhausts and the construction industry, also declined.

Both PM2.5 and PM10 particles were also down by up to 50 per cent or more compared to the same day in the previous month.

These particles are a mix of liquid and solid particles which are both harmful to those with chronic illnesses like asthma and bronchitis. In large amounts they create a haze in the air.

Atmospheric pollution researcher Raymond Ellul said on Friday said that it makes sense that a fall in pollution would be linked to a decline in economic activity and road use.

He added that the current situation of reduced pollution gives impetus to seriously address climate change.

Air quality is picking up in quarantined countries

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



An empty road in Madrid, Spain

Air quality is improving in countries under COVID-19 quarantines, experts say, but it is far too early to speak of long-term change.

Images by the U.S. space agency NASA are clear, in February the concentration of nitrogen dioxide (NO_2) fell dramatically in Wuhan, China, the epicentre of the COVID-19 pandemic, passing from an indicator that was red/orange

to blue.

NO_2 is mainly produced by vehicles, industrial sites and thermal power stations.

As China moves past the peak of its crisis, however, recent images by the European Space Agency (ESA) show a resurgence in NO_2 emissions. A striking reduction has also been

observed by the ESA in northern Italy, which has been locked down to fight a spread of the novel coronavirus.

The European Environment Agency (EEA) reports a similar change in Barcelona and Madrid, where Spanish authorities issued confinement orders in mid March.

‘Dramatic drop-off’

“NO₂ is a short-lived pollutant, with a lifetime in the atmosphere of about one day,” said Vincent-Henri Peuch, from the EU earth surveillance programme Copernicus.

“As a result, this pollutant stays near the emissions sources and can be used as a proxy of the intensity of activity in different sectors,” he told AFP.

Fei Liu, an air quality researcher at NASA’s Goddard Space Flight Center, noted the change in China, saying: “This is the first time I have seen such a dramatic drop-off over such a wide area for a specific event.”

Even during the economic crisis more than a decade ago, the decrease in NO₂ levels “was more continuous in time,” according to EEA air quality specialist Alberto Gonzalez Ortiz.

In northern Italy, “average NO₂ concentration levels have been almost halved on average,” Mr. Peuch remarked. The pollutant can provoke serious inflammation of the respiratory system.

Confinement measures thus protect in two ways, by reducing the risk of COVID-19 infection and by easing pollution from road traffic, according to a group of French doctors.

It is nonetheless hard to know how much benefit the world’s population will actually experience because, according to the health experts, “what will have more impact is the long term exposure,” Mr. Gonzalez Ortiz said.

Coronavirus: Bay Area air quality is improving as people stay home Fewer vehicles on the road, slowing economy lead to blue skies in Bay Area, China, Italy

Date: -23-Mar-2020, Source: mercurynews.com

Millions of people who are staying home from work and school are creating an unintended consequence for the environment: cleaner air.

Shelter-in-place orders are only about a week old, but air pollution experts say they are seeing drops in smog across the Bay Area — a pattern that already has played out in China, Italy and other parts of the world where efforts to slow the spread of coronavirus have significantly reduced motor-vehicle traffic and industrial activity.



OAKLAND, CA – MARCH 17: Light traffic and blue skies are seen in this aerial view of the maze in Oakland, Calif., on Tuesday, March 17, 2020.

“We are seeing clean air quality right now. When we look at our measurements, it is below what we were seeing a few weeks ago, for sure,” said Phil Martien, director of assessment, inventory and modeling at the Bay Area Air Quality Management District in San Francisco. Martien and other air scientists say it’s still too early to calculate exactly how much less soot and smog

is in the air across Northern California due to the coronavirus pandemic. That’s because shelter-in-place rules only took effect a few days ago. Weather changes also can have a big impact on day-to-day air pollution levels. Wet weather washes particles out of the air, hot weather exacerbates smog, and breezy weather can blow pollution to other parts of the state.

Nevertheless, anyone walking, biking or driving outdoors can see the blue skies. And other clues are beginning to surface.

Traffic counts at Bay Area bridges have been roughly 70% lower in recent days than normal, Martien said. Because motor vehicles are responsible for about 30% of the fine particulate matter, or soot, in Bay Area air, that means those tiny particles, which lodge deep in the lungs and can cause heart and lung problems, have probably declined by at least 20%, he said.

Similarly, nitrogen oxides, chemicals that are emitted from burning fuels and contribute to smog, are down roughly 40% using similar estimates, he said. And carbon dioxide, a leading greenhouse gas, is off roughly 20% due to the decline in Bay Area driving, Martien said.

Other factors, such as whether people are burning more wood at home in their fireplaces or how much pollution from large factories is being reduced, are still not yet known. It will take months to investigate. But health benefits are likely.

“This is not how we want to see air quality go down,” Martien said. “I suspect this is just a temporary reduction. But definitely, for the elderly and people who have health issues like heart issues or breathing difficulties, clean air is especially beneficial.”

Every day since March 14, the EPA Air Quality Index has reported all nine Bay Area counties bathed in green on its color scale, for good quality air. It’s rare to have so many consecutive clean-air days.

And last week, air-quality sensors that measure particulate matter showed the lowest average readings of any week so far in 2020 — down 21% in Oakland, 36% in San Jose and 41% in San Francisco from the week before.

Blue skies this month show what the future might look like when more of California's vehicles are electric, said Ronald Cohen, a chemistry professor at UC Berkeley who studies Bay Area air trends. But for now, they symbolize lost jobs and lost economic activity.

"As wonderful as it is to breathe clean air, in the short term we want all that pollution to come back because we want the economic activity to come back," Cohen said. Most months, Bay Area air quality is generally cleaner than in many parts of the world, including in Los Angeles and the Central Valley.

That's because 50 years of air pollution laws have required everything from unleaded gasoline to vehicle smog checks to scrubbers on factory smokestacks. The region's high-income population also tends to drive more electric vehicles and newer vehicles than people in other areas, and there is only a modest amount of heavy industry like oil refineries, and a mostly mild climate.

However, in high-pollution places such as China — where coal-fired power plants, steel mills and 340 million vehicles belch out dangerous levels of smog daily — the coronavirus has sparked far more dramatic changes.

NASA scientists have reported drops of up to 30% in smog-forming pollutants over central and eastern China in January and February, compared to the same months in recent years, based on satellite measurements. They attribute some of that drop to strict limits on driving and other activity during the outbreak.

The big improvement in air quality, which already has started to wane as China's economy begins to slowly ramp back up, saved thousands of lives, scientists estimate.

Through Sunday, a total of 81,093 cases of COVID-19 have been documented in China, with 3,270 deaths, according to the World Health Organization.

Marshall Burke, an assistant professor of earth system science at Stanford University, downloaded air pollution data from particulate sensors at U.S. consulates in four Chinese cities — Beijing, Shanghai, Chengdu, and Guangzhou. He compared the levels in January and February with prior years and calculated in a recent article that the cleaner air saved the lives of at least 1,400 children under age 5 and 51,700 residents over age 70 who otherwise would have died from heart attacks, emphysema, extreme asthma and other health problems triggered by bad air pollution.

In an interview, Burke noted that it's likely that many more lives will be saved from the temporary clean air in China than will be lost to COVID-19. That doesn't mean coronavirus is beneficial, he stressed. Although some lives will be saved with far fewer traffic fatalities

during the emergency than normal, the economic downturn, additional poverty and medical chaos from the economic impacts likely will result in many deaths that cannot yet be measured.

“This is not a silver lining. The pandemic is incredibly destructive,” Burke said. “But it shows that when we really disrupt the economy and shut things down, we emit a lot less pollution, and that affects our health.”

Air pollution over China declined dramatically from January to February during the peak of the coronavirus as economic activity slowed, satellites showed. (NASA)

Similar health improvements occurred during the 2008 Beijing Olympics, when the Chinese government idled factories and reduced driving, resulting in about a 20% reduction in air pollution for two months.

Coronavirus pandemic leads to huge drop in air pollution

Date: -24-Mar-2020, Source: positive.news

Air pollution has plummeted in the past six weeks as entire countries hit by the Covid-19 outbreak were forced to hit the pause button on industry.

As factories closed their doors, businesses were forced to shut and traffic fell sharply around cities and industrial clusters in Asia and Europe, there was a marked fall in global nitrogen dioxide levels. The toxic gas is produced by car engines, power plants and other industrial processes.

The impact – a silver lining amid a tragic crisis – is revealed in satellite imagery recorded by the European Space Agency in recent weeks and transformed into striking visualisations by the Guardian.

Satellite imagery showing how nitrogen dioxide concentrations fell over Italy from January to March 2020. Images: European Space Agency

“We are now, inadvertently, conducting the largest-scale experiment ever seen,” Paul Monks, professor of air pollution at the University of Leicester, told the Guardian. “Are we looking at what we might see in the future if we can move to a low-carbon economy? Not to denigrate the loss of life, but this might give us some hope from something terrible. To see what can be achieved.”

One of the largest drops in pollution levels is visible over the Chinese city of Wuhan, which is home to 11 million people as well as to hundreds of factories that supply car parts and other types of hardware. Wuhan was placed under strict lockdown from late January. The impact is also starkly evident in satellite imagery of Italy: since the country went into lockdown on 9

March, NO₂ levels in Milan and other parts of northern Italy have fallen by about 40 per cent.

Meanwhile, researchers in New York told the BBC that early results showed carbon monoxide mainly from cars had been reduced by nearly 50 per cent in 2020 so far compared with last year.

There has also been a recorded drop in CO₂ emissions since measures to try to contain the virus began, according to the UK-based Carbon Brief website.

However, experts have warned that levels of both nitrogen dioxide and CO₂ could rise steeply once more as the pandemic abates. How governments choose to kickstart their economies again will become all important, they suggest.

Virus lockdown makes big dent in Paris air pollution

Date: -25-Mar-2020, Source: timesofmalta.com

France's stay-at-home orders to combat the coronavirus outbreak have produced a 20 to 30% decline in overall air pollution levels in Paris, according to a report from the region's air quality monitoring agency.

The lockdown has taken countless cars and delivery trucks off the roads since coming into effect on March 17, and massively reduced the number of flights at the two airports serving the capital.

The Airparif report said that just two days after the self-confinement began, it registered "a 20 to 30% improvement in air quality in the Paris metropolis, after nitrogen oxide emissions dropped by more than 60%."

Major thoroughfares saw the biggest improvements, with pollution levels falling to those normally seen only in the city's parks.

"This decline in air pollution was accompanied by a drop in carbon dioxide, a greenhouse gas, underscoring the links between these two problems and the joint benefits for the climate of any improvement in air quality," Airparif said.

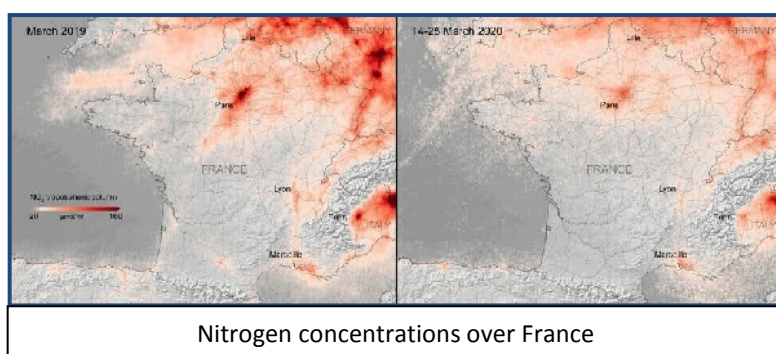
It noted, however, that the lockdown had not led to marked declines in so-called PM_{2.5} and PM₁₀ particles, the smallest and most harmful air pollutants, which can penetrate deep into the lungs and even enter the bloodstream.

Airparif said increased home heating as colder weather set in, combined with continued agriculture activities in surrounding areas, had kept the particulate levels from declining.

"But thanks to the sharp traffic declines, the levels did not increase to alert levels, which would probably have been the case in normal conditions," it said.

Coronavirus lockdown leading to drop in pollution across Europe

Date: -27-Mar-2020, Source: yubanet.com



March 27, 2020 – New data, based on observations from the Copernicus Sentinel-5P satellite, are showing strong reductions in nitrogen dioxide concentrations over several

major cities across Europe – including Paris, Madrid and

Rome.

The coronavirus disease (COVID-19) has been spreading rapidly across the world – affecting 170 countries with more than 530 000 confirmed cases worldwide. The coronavirus outbreak was declared a global pandemic by the World Health Organisation, and has since stated that the disease is ‘accelerating’.

In order to curb the spread of the COVID-19 outbreak, countries across the world are implementing strict measures – placing cities and even entire countries on lockdown.

The Copernicus Sentinel-5P satellite has recently mapped air pollution across Europe and China and has revealed a significant drop in nitrogen dioxide concentrations – coinciding with the strict quarantine measures.

Scientists from the Royal Netherlands Meteorological Institute (KNMI) have been using data from Copernicus Sentinel-5P satellite to monitor both weather and pollution over Europe.

The new images clearly illustrate a strong reduction of nitrogen dioxide concentrations over major cities across Europe – specifically Milan, Paris and Madrid.

The satellite images show nitrogen dioxide concentrations from 14 to 25 March 2020, compared to the monthly average of concentrations from 2019.

Henk Eskes, from KNMI, explains why these dates were chosen, “The nitrogen dioxide concentrations vary from day to day due to changes in the weather. Conclusions cannot be drawn based on just one day of data alone.

He continues, “By combining data for a specific period of time, 10 days in this case, the meteorological variability partly averages out and we begin to see the impact of changes due to human activity.”

“The chemistry in our atmosphere is non-linear. Therefore, the percentage drop in concentrations may differ somewhat from the drop in emissions. Atmospheric chemistry

models, which account for daily changes in weather, in combination with inverse modelling techniques are needed to quantify the emission based on the satellite observations.”

The KNMI team, in collaboration with scientists worldwide, have started to work on a more detailed analysis using ground data, weather data and inverse modelling to interpret the concentrations observed, in order to estimate the influence of the shutdown measures.

Henk comments, “For quantitative estimates of the changes in the emissions due to transportation and industry, we need to combine the Tropomi data from the Copernicus Sentinel-5P satellite with models of atmospheric chemistry. These studies have started, but will take some time to complete.”

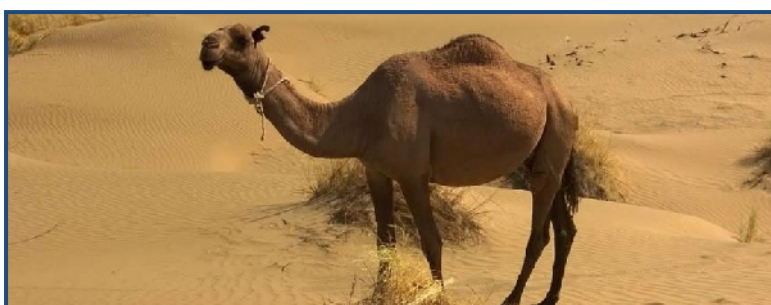
Other countries in northern Europe are being closely monitored, including the Netherlands and the United Kingdom – but scientists have observed a larger variability owing to changing weather conditions. New measurements from this week will help to assess the changes in nitrogen dioxide over northwest Europe.

Claus Zehner, ESA’s Copernicus Sentinel-5P mission manager, says, “The special features of the Copernicus Sentinel-5P satellite, with its high spatial resolution and accurate ability to observe trace gases compared to other atmospheric satellite missions, allows for the generation of these unique nitrogen dioxide concentration measurements from space.”

ESA’s Director of Earth Observation Programmes, Josef Aschbacher, says, “The long-term cooperation between ESA and KNMI proves very valuable and shows the importance of complementary analyses by different partner organisations. As we can see, the Copernicus Sentinel-5P satellite is the best satellite equipped to monitor nitrogen dioxide concentrations on a global scale.”

Is Turkmenistan Responsible for Poor Air Quality in Zagreb?

Date: -28-Mar-2020, Source: total-croatia-news.com



As if a global coronavirus pandemic, a set of earthquakes and snow weren't enough, Zagreb now has to deal with another problem - a concerning amount of air pollution hanging over the city. Does the answer to the city's poor air quality lie in Turkmenistan?

As Poslovni Dnevnik writes on the 28th of March, 2020 in the western part of the Karakum desert in Turkmenistan, sand dunes as high as ninety metres extend in parallel, in a meridional direction.

recorded across various cities and i rit, Sisak and Zoljan near Našice

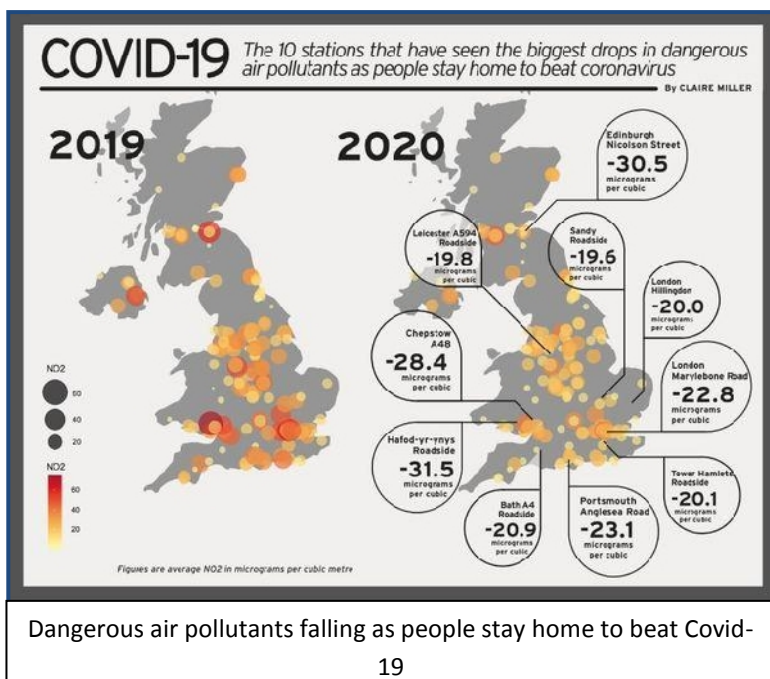
Experts from the "Dr. Andrija Štampar" Public Health Institute and the DHMZ are telling the public that this air pollution of sorts is made up primarily of sand particles which have travelled from Turkmenistan's Karakum desert, located east of the Caspian sea.

They noted that air pollution should drop down to significantly lower levels over this coming weekend. According to the Croatian Encyclopedia, the the Karakum desert, sometimes referred to as the Garagum deser, is a sandy desert in Turkmenistan, Central Asia. It extends from Lake Sarikamish and Amu - Darje in the north, to the Kopet Dag mountains in the southwest and the Garabil hills in the southeast. It covers about 350,000 square kilometres in total.

As previously stated, in the the western part of the Karakum desert, sand dunes which are almost ninety metres high extend in parallel, in a meridional direction. Along approximately 1300 kilometres of the Karakum canal (Amu-Dar-Murgab-Aşgabat-Serdar/Gyzylarbat), which irrigates about one million hectares of land in total, cotton is also grown. Sulfur, oil, and gas deposits are rich there. The southern part also sees the the Trans-Caspian railway pass through it.

Dangerous air pollutants falling as people stay home during the lockdown

Date: -29-Mar-2020, Source: manchestereveningnews.co.uk



Air pollution in Greater Manchester has dropped by as much as two-fifths as people stay home to beat the coronavirus outbreak.

With fewer people on the move as all but necessary journeys were at first strongly discouraged and later banned, local monitoring stations are measuring much lower levels of dangerous air pollutants compared to this time last year.

Research by the BBC Shared Data Unit found levels of nitrogen dioxide (NO₂) at the Manchester Sharston station averaged 15.0 micrograms per cubic metre between March 17 and 24. That was down from an average of 25.5 micrograms per cubic metre between March 19 and 26 last year. NO₂ primarily gets in the air from the burning of fuel, usually as emissions from cars, trucks and buses and power plants.

The UK Air Quality Strategy (2000) sets an objective that the annual average NO₂ should not exceed 40 micrograms per cubic metre across a year.

There is evidence that high levels of NO₂ can inflame the airways in our lungs and, over a long period of time, affect how well our lungs work. This can cause problems such as wheezing, coughing, colds, flu and bronchitis

People with asthma are particularly affected as increased levels of NO₂ can cause more frequent and more intense attacks. Levels were down by more than a third at Shaw Crompton Way, from 37.1 micrograms per cubic metre last year to 22.6 micrograms per cubic metre this week.

They also fell from 29.4 to 20.5 at Bury Whitefield Roadside, from 25.5 to 20.9 at Salford Eccles, from 34.6 to 31.8 at Manchester Piccadilly, and from 16.8 to 16.0 at Wigan Centre.

The latest readings suggest that levels of the pollutant in Greater Manchester have dropped in recent days, although falls compared to last year may have been ongoing before steps were taken to control the coronavirus outbreak.

Across the UK, 110 out of 160 monitoring stations have seen a drop in the amount of NO₂ in the air this week compared to the same time last year. The monitoring station at Tavistock Road in Plymouth has seen the biggest drop, going from an average of 23.4 micrograms per cubic metre last year to just 7.0 this year.

The falling levels is likely to be a result of fewer vehicles on the road as people stay home, as an estimated 80% of NO₂ in the air comes from traffic emissions.

On March 16, prime minister Boris Johnson urged everybody in the UK to work from home and avoid pubs and restaurants. On Friday last week schools, pubs, restaurants and other gathering places were ordered to shut.

On March 23, the public in the UK were ordered to stay home except for making necessary journeys to buy food or to go to work for those who are key workers.

Vietnam's Big Air Pollution Challenge

Date: -30-Mar-2020, Source: thediplomat.com

Vietnam is struggling with alarming air pollution. Its two biggest cities, Hanoi and Ho Chi Minh City, are now among the top 15 polluted cities in Southeast Asia.

Fine particulate matter (PM_{2.5}) is the most concerning air pollutant in Vietnam. In 2019, Hanoi had only eight days with PM_{2.5} lower than the national standard of 50 micrograms per cubic meter (µg/m³). The air quality in Ho Chi Minh City was not much better, with only 36 days below the standard. For the remaining days of the year, over ten million people in these cities were exposed to heavily polluted air.

Finer particles are particularly harmful to human health as they can penetrate deep into the lungs and cardiovascular system, causing diseases including stroke, heart disease, lung cancer, chronic obstructive pulmonary diseases and respiratory infections. Up to 60,000 deaths in Vietnam in 2016 were related to air pollution. On average, air quality being below the World Health Organization's standard reduces life expectancy by one year and costs the country about 5 per cent of GDP per year.

Among the main causes of this pollution is transportation. Vietnam now has 3.6 million automobiles and 58 million motorbikes, mostly concentrated in big cities. Many of them are old vehicles, with limited emission control technology. They cause daily traffic jams and emit a large amount of air pollutants. There are many old buses and motorbikes with visibly black exhaust smoke in the country.

Vietnam's transportation issues are exacerbated by poor urban planning. Mushrooming high-rise buildings in city centers, each with thousands of inhabitants, create enormous pressure on the already overloaded road infrastructure. No mass transit systems exist except for the yet-to-be-convenient bus fleet. Open and green space is considered luxurious in Vietnam's big cities.

Another problem is dust from commercial and residential construction sites. Thousands of construction sites filled with trucks that are heavily loaded with sand and cement create perpetual dust storms. Old industrial sites inside cities and air polluting facilities such as coal power plants and cement and steel manufacturers worsen air pollution. Solid biomass cooking stoves used by hundreds of thousands of city dwellers as well as the burning of rice fields after harvest in peri-urban areas of Hanoi contribute significantly to air pollution, particularly in the dry season from October to February.

Environmental authorities have identified short-term solutions. These include stricter regulations on new vehicle emission standards, better traffic control, enforcement of dust management measures for construction sites and transporting trucks, enhanced monitoring of industrial emissions and bans on charcoal stove use in cities. While these measures could help partially address Vietnam's pollution, long-term national policies are needed.

First, improving and reinforcing urban planning would mitigate air pollution considerably. Hanoi and Ho Chi Minh City have plenty of highly occupied high-rise buildings and now need more open and green space. Densely populated facilities such as government offices, universities and hospitals could be relocated to be outside cities. Relocating old industrial sites such as the Rang Dong Light Bulb Factory would reduce hazardous air pollutants. The completion of mass transit systems is also urgently needed, followed by the development of new systems. Green building codes and feed-in tariffs could promote the development of energy efficient and solar-powered buildings.

Second, policies promoting the use of greener vehicles could reduce air pollution. Phasing out obsolete and polluting vehicles could be encouraged by providing subsidies for trading in old cars, paid for by higher taxes on new vehicles. This would help address distributional effect concerns, as owners of old vehicles tend to be from lower-income households. The government could also issue enabling policies to promote electric vehicles (EVs), such as allowing only EVs in downtown areas and an income tax reduction for EV manufacturers to make them more affordable.

Third, pollutant pricing would be appropriate given the polluter pays principle. The environmental protection tax regulation could be revised to better target polluting fuels such as diesel and coal. Carbon pricing would reduce the consumption and production of carbon-based products and promote a low-carbon economy. This would alleviate air pollution and mitigate climate change, which is another threat to Vietnam's economic and social security.

Fourth, a smooth and efficient transition to a renewable electricity system would help mitigate air pollution and climate change. Enabling policies such as feed-in tariffs and reverse auctions for solar and wind power would maintain the momentum of a recent boom in solar power that made Vietnam the top country in Southeast Asia for solar power installation. Vietnam could set more ambitious targets for renewable energy, given its high potential for solar, wind and off-river pumped hydropower.

Last, fossil fuel subsidy reform could reduce the use of the dirty fuel and free up the current annual fossil subsidy of US\$ 612 million or 0.3 percent of Vietnam's GDP for other welfare activities such as health, education and environmental protection.

It is the perfect time to prioritize these potential measures by revising the Law on Environmental Protection, which is planned to be approved by the National Assembly at the end of 2020. Vietnam has the capacity to turn around its pollution problem through careful regulation.

Kathmandu breathes relaxed as lockdown improves air-quality

Date: -31-Mar-2020, Source: myrepublica.nagariknetwork.com



KATHMAMNDU, March 31: Nearly a week after the government imposed a temporary lockdown across the nation to contain the spread of the coronavirus (COVID-19), the Kathmandu Valley and other major cities have started

to witness a significant improvement in their Air Quality Index (AQI). On Monday, Kathmandu's AQI was measured to be 85, which is considered as moderate.

Amidst the growing fear of the spread of the COVID-19 pandemic, Nepal government imposed a nationwide lockdown starting from last Tuesday, March 24. The decision was taken by the authorities a day ago, right after the second Covid-19 case was confirmed in Kathmandu. The authorities have extended the lockdown till April 7.

Environment experts mention that the decrease in the air pollution level comes as a consequence of reduction in the movement of people and vehicles like motorbikes, cars, buses and even trucks or tipper trucks that emit carbon monoxide, nitrogen oxide and harmful hydrocarbons. "The primary reason behind the drop in air pollution is the decrease in the number of vehicles running on the roads that emit harmful greenhouse gases," said former Minister for Science, Environment and Technology Ganesh Shah.

The lockdown has also forced all big and small power plants and other industrial facilities that are the major contributors to the burning of fossil fuels leading to the production of nitrogen dioxide and other harmful gases.

During normal days, the capital city's air quality index fluctuates between 150 and 180 which is considered unhealthy. However, on Monday, the central areas in the Valley measured AQI between 50 and 85. Similar was the case in most of the major cities across the nation as the AQIs of Pokhara and Biratnagar were noted at 58 and 75, respectively.

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 figures show a dramatic improvement in the air quality levels to extraordinary levels.

Shah mentioned that restriction in people's movement has also decreased the indoor air pollution caused by burning solid fuel sources such as firewood, crop waste and dung for cooking and heating, which has remained one of the main reasons for the increase in air pollution level in Nepal for the past few years.

According to environmentalist Bhushan Tuladhar, frequent rainfall and the impact of westerly wind are also the reasons for the improvement in air quality level these days. The water molecules from rainfall often tend to lower the pollutants found in the air.

Tuladhar on Sunday had posted a picture of a clean Kathmandu stating that along with the reduction in the use of vehicles, rainfall and impact of westerly wind have also contributed to the decrease in air pollution across the Valley. Tuladhar's post mentioned that the air pollution in Kathmandu on Saturday was 10 times less than the average air pollution level.

Experts believe that higher mortality rate from communicable diseases like Covid-19 itself is caused due to long exposure of people to polluted circumstances that often lead to problems in the people's respiratory systems and lungs. The World Health Organization

estimates that 4.6 million people die each year from causes directly attributable to air pollution. Many of these mortalities are attributed to indoor air pollution.

However, it is not just the cities across Nepal alone that are facing these positive consequences of lockdown. Major cities across the globe that are currently under temporary lockdown are also seeing better air quality levels than before.

The last two months have shown a drastic improvement in air quality, especially in hard-hit areas like Wuhan and northern Italy, as well as a number of metropolitan areas throughout the US. India's capital Delhi, too, has witnessed a dramatic decrease in the air pollution level due to a nationwide lockdown.

Shah mentioned that the decrease in Delhi and other major Indian cities' air pollution levels is also a reason for the improvement in Kathmandu's air quality. "Particles that pollute the air, often get carried from Delhi and other places of India to various parts of Nepal," he explained.

Referring to the current statistics, Shah stated that if we are to prioritize a 'green and clean economy' even after the lockdown is over, we can still achieve a healthier air quality level. "The lockdown has taught us that it is possible to achieve better air quality levels," he said.

April 2020

Coronavirus: Wales' air pollution drops because of lockdown

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



The air pollution drop could provide a glimpse into an electric vehicle future

National Atmospheric Centre data shows nitrogen dioxide levels and small particle pollution is significantly lower than normal. It said air quality levels could continue to improve in the coming weeks. Scientists compared this year's pollution to average air pollution over the past five years.

They looked at data from 10 UK cities: Birmingham, Belfast, Bristol, Cardiff, Glasgow, Leeds, London, Manchester, Newcastle and York.

Nitrogen dioxide is produced by vehicle engines, power plants and other industrial processes. It can cause severe respiratory problems and worsen existing conditions such as asthma.

James Lee, a professor of atmospheric chemistry from the National Centre for Atmospheric Science and the University of York, said: "The air is definitely much healthier.

"These are big changes - pollution levels at the moment are the equivalent of a holiday, say an Easter Sunday." The data comes from background air monitoring stations in cities, sited away from main roads.

"We chose these because that is where people live," said Prof Lee. "This is a really big opportunity for us to see into the future when more people will have electric cars."

Driving has dropped dramatically since the government asked people only to go out for essential journeys.

Towns and cities across Wales have seen dramatic declines in vehicle numbers on roads and the closure of shops and factories has also cut pollution across the world. Satellite images have shown huge differences in worldwide pollution.

Prof Lee said lockdown was giving scientists an insight into the future: "I think it will definitely change people's behaviour. "I think a lot more of us will work from home, people won't want to travel to meetings, it is going to have an effect."

Wildlife experts said people can now hear more birds and other animals because noise pollution has fallen. Janine Pannett, of Montgomeryshire Wildlife Trust's Dyfi Osprey Project in Machynlleth, said: "Just take that little bit of extra time to enjoy what's on your doorstep.

"Whether it's opening the window and listening to the birdsong for 10 minutes or if you're lucky enough to have access to a green space go and see - whether it's insects, birds, what's there on your doorstep.

"Birdsong is very important. Time of year is really important to listen out for returning migrants, not just large birds like our ospreys, but smaller birds like the chiffchaff, and it's so uplifting to hear the sounds of spring creeping in." The team has just put the finishing touches to cameras monitoring their osprey nest. They're expecting the birds to return from Africa in the next few days. "This is always the most exciting time," Ms Pannett said. "We have no idea what's happened to our breeding pair Monty and Telyn since they left us in August and September last year. "Hopefully they're winging their way back to us as we speak."

Is the COVID-19 pandemic impacting air quality?

Date: -1-Apr-2020, Source: 9news.com

DENVER — A significant decrease in manufacturing and transportation in the U.S. due to constraints from the COVID-19 pandemic has also decreased air pollution, according to the Colorado Department of Public Health and Environment (CDPHE)

CDPHE said this effect has not only been seen in the U.S., but also internationally. Their data showed a decrease in both measured ground concentrations and in column satellite data.

In Denver, CDPHE examined data from air monitoring sites that showed a definite drop, in most cases, in average pollutant concentrations between March 2019 and March 1-25, 2020. Garry Kaufman, director of CDPHE's Air Pollution Control Division, said the initial analysis of air quality data showed some recent trends in air quality in the Front Range.

"We'll need more long-term data to draw any firm conclusions about the effects of the response," said Kaufman. "And any conclusions will be greatly overshadowed by the fact that many Coloradans are and will suffer from this disease — physically, emotionally and economically — and some will die."

Kaufman said the division looked at measures of various air pollutants at five different air monitoring sites in the Denver area. When comparing data from March 2019 to March 1-25,

2020, he said the data showed significant declines in levels of nitric oxide, nitrogen dioxide, carbon monoxide, sulfur dioxide and particulate matter.

He added that because ozone season does not typically start until June, it is too early to assess the effects of the current public health situation on ozone.

The data shows, for example, PM2.5 concentrations are down between 36-49% and PM10 concentrations are down 29 to 41% in the north Denver area, depending on the monitor.

In addition, Kaufman said satellite sensing of nitrogen dioxide levels in Los Angeles, New York, China and the United Kingdom also show decreases.

"Satellite measurements of air pollution aren't perfect, as they don't provide ground-level concentrations to which people are exposed," said Kaufman. "But, they are useful for looking at total levels of air pollution in the atmosphere and trends over time."

Kaufman added that attempting to predict or formally model the long-term air quality impacts of this crisis is difficult, premature, and not a current priority. He said limiting the spread of the virus and ensuring that the health care system is equipped to care for all Coloradans is CDPHE's top priority.

"We have never faced a pandemic like this, and that means there is tremendous uncertainty in trying to predict second- or third-order outcomes from the crisis," Kaufman said. CDPHE's air quality division has a network of air monitors throughout the state, including in the Front Range. The department said it will continue to operate and maintain the monitors and they will continue to share the data.

"Because the disease is respiratory, air quality is more important now than ever," said Kaufman. "It's why we've provided guidance to avoid open burns and continue our enforcement of clean air regulations. We'll keep monitoring data to inform our policy making during this difficult time."

Lockdown eases seasonal smog – but less than expected

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

We think of spring as the time of blossom and fresh new green growth, but it is often the most polluted time of year in western Europe. Last week, as winds turned easterly, particle pollution once again spread across western Europe. Spring smogs can cause particle pollution to reach the top value of 10 in the UK air quality index, but four to nine is more typical. With the lockdown in place, the increases were less than normal. The air quality index peaked at three over most of England and Wales. A few places in south-east England, Yorkshire and north Wales reached four, the level where health advisory messages are issued. After three days, a welcome change of wind direction at the weekend pushed the polluted air southwards.



Beijing has implemented several successful smog control schemes.

In March 2014, Paris and many other French cities banned half their cars to control a spring smog. Most of the UK was also affected, but actions here are limited to advising elderly and vulnerable people to refrain from outdoor exercise. A second smog struck that April

and the then prime minister David Cameron was heavily

criticised by opposition MPs and European officials when he tweeted that the bad air quality in London was harmless Saharan dust.

It was not. Later, Public Health England estimated these two smogs led to around 600 early deaths in England and Wales. Spikes were also seen in people arriving at hospital emergency departments in London and Paris, especially in young people with asthma.

Like Paris, many cities across Europe restrict traffic, reduce speed limits and subsidise public transport during severe smogs. These types of actions have been found to reduce air pollution by around 15%-20% in areas with a lot of traffic. However, during spring smogs, polluted air spreads from country to country, so it is hard for any city to completely control these episodes on its own.

Globally, Beijing has been the venue for the most successful smog control schemes. These were devised for the 2008 Olympics, but have since been used for other high-profile events. Industry around Beijing was curtailed and traffic cut by half for the Asia Pacific Economic Conference in 2014, and the 2015 parade to mark 70 years since the end of the second world war.

Suddenly, the people of Beijing could see the true colour of the sky without the customary haze. It was nicknamed “APEC blue” and later “parade blue”. These controls took place over an area of around 500,000 km², covering a population of nearly 300 million people.

I have often wondered what would happen if we did the same in Europe, but I thought I would never find out. In 2017 a team of French scientists used a computer model to predict what might happen if all of Europe shut down for a day to control a springtime smog. Particle pollution would fall by about 20%-40% in major cities. Last week we saw Beijing-scale measures implemented across Europe for the first time.

But with countries in lockdown, why was air pollution still as high as three or four? Measurements from King’s College London provide the answer. Chemical analysis of the

pollution particles showed traffic sources along with gas combustion for power generation by industry and for home heating, as you might expect. Wood burning in London's homes added to the mixture. Many particles also included ammonia in their make-up. This comes from agriculture; crops are being planted and fertilised, and manure is being spread on fields over the UK and Europe. It is these agricultural emissions that make spring our most polluted season.

A study of the Sars epidemic in China suggested that infected people were more likely to die if their area had poor-quality air. In Dublin the in 1980s, it was a deterioration of survival rates inside hospitals that prompted the city to ban the most polluting types of coal. It is too early to tell whether avoiding this smog will have helped those people suffering from the Covid-19 virus. One big lesson is that air pollution control comes from many sources, and farmers and those with wood fires will need to be part of the fight for clean air.

Birdsong and clear views: coronavirus lockdown clears Paris pollution

Date: -3-Apr-2020, Source: reuters.com

PARIS (Reuters) - Parisians confined to their flats by a lockdown imposed to curb the spread of coronavirus can at least now open their windows and breathe in fresh air, listen to the birds and enjoy a peaceful night's sleep.

That's because air pollution and noise have fallen sharply in Paris, where streets are largely deserted, empty of the traffic that normally drowns out birdsong and chokes the air around landmarks such as the Eiffel Tower and Arc de Triomphe.

There are no bars pumping out music and no construction sites hurling dust particles into the air. One of the city's two international airports is closed and the coaches and tour buses that ferry tourists around are off the roads.

Even during a week of crisp blue skies, when a dirty haze might be expected to hang over Paris, the air has remained clear. Star-gazers have enjoyed unusually clear sightings of the International Space Station zipping through the night sky.

"We're really witnessing an improvement in air quality, including pollutants responsible for global warming such as carbon dioxide," said Karine Leger, head of the Airparif agency which monitors air quality in the greater Paris region. The same is true for noise pollution.

At street level on some of Paris busiest thoroughfares such as the Champs Elysees boulevard, noise levels are down to as little as six to nine decibels at night, some 70%-90% lower than normal, according to Bruitparif, which monitors noise quality. "We're in an exceptional situation," said Matthieu Sineau of Bruitparif. "In these unfortunate times, people can at least realise the interest they have in a quieter living environment." Geolocalising data collected by mobile phone operator Orange indicates nearly one in every

five Parisians fled the capital in the hours before the lockdown was imposed. And with those still present mostly holed up indoors, Paris more than ever feels like a giant museum.

“It’s silent, you can hear the birds,” said resident Mehdi Thorin who had ventured outside to buy groceries. “I love Paris when there’s no one about.”

Even so, he doesn’t expect the peace to last for long once the lockdown is over. “People will return to their old habits, get back in their cars. It will be like it was before.”

Tehran Air Quality Worsens

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



Tehran Air Quality Worsens

Although a large number of people stayed home in self-quarantine as the novel coronavirus rampaged across Iran, official data show Tehran’s residents were exposed to more polluted air in March compared to the

year-ago month.

Charts published by Tehran Air Quality Control Company website, Airnow.tehran.ir, show that clear blue skies were seen only for eight days in the month, meaning that the air quality index was under 50.

The index categorizes conditions dictated by a measure of polluting matters into good (0-50), moderate (51-100), unhealthy for sensitive groups (101-150), unhealthy (151-200), very unhealthy (201-300) and hazardous (301-500).

Colorado sees “significant declines” in air pollution as coronavirus ramps down driving, industrial activity

Date: -5-Apr-2020, Source: denverpost.com

At least temporarily, air pollution that hurts human lungs has decreased sharply along Colorado’s Front Range, and in cities worldwide, with driving and industrial activity ramping down as the novel coronavirus spreads, according to data reviewed by The Denver Post.

And this horrific pandemic is giving an unsolicited, yet possibly useful, glimpse of what it might take to bring an atmosphere clogged with toxic and heat-trapping gases, which contribute to climate change, back to a healthier balance.



U.S. 36 is empty of cars heading both eastbound to Denver and westbound to Boulder on March 29, 2020, in Superior. Many Colorado highways and roads are seeing a marked decrease in traffic due to the coronavirus pandemic and the stay-at-home order by Colorado Gov. Jared Polis.

Particulates pollution, nitric oxide and nitrogen dioxide also decreased this month around metro Denver — by up to 50% in some areas — compared with concentrations a year ago, the data shows. Decreases since January were even more abrupt, by 80% in the case of sulfur dioxide downtown.

Air quality researchers at the Colorado Department of Public Health and Environment looked at what fixed sensors were measuring in response to

queries by The Post. They provided data from five monitoring stations that federal and state regulators use to track Colorado’s legally mandated efforts to deal with bad air that for two decades has flunked national health standards.

Investigating air pollution trends during the COVID-19 crisis is “premature” and “not a priority,” state officials emphasized, cautioning that more data would be needed to draw firm conclusions.

But “we see significant declines,” Garry Kaufman, director of Colorado’s Air Pollution Control Division, said in an emailed statement.

“We have a network of air monitors throughout the state, including the Front Range,” he said. “We will continue to operate and maintain these monitors, and they will continue to provide us with valuable data. Because the disease is respiratory, air quality is more important now than ever.

U.S. and European satellites have observed significant decreases in nitrogen dioxide levels following shutdowns in China, Europe and across the United States. Satellite images over the past two weeks, provided by researchers to The Post, showed markedly reduced muck in the air over Los Angeles, New York and Seattle.

Unlike this satellite data, the Colorado data comes from air-testing instruments positioned near ground level that measure concentrations of multiple pollutants that people inhale.

The data provided to The Post, comparing pollutant concentrations between March 2019 and March 2020, showed the following average decreases:

Sulfur dioxide (SO₂) dropped by 36%. A toxic gas that comes mostly from industrial burning of coal and other fossil fuels, sulfur dioxide weakens lung defenses and impairs breathing. It can cause wheezing, chest tightness and shortness of breath, especially in people with asthma.

Carbon monoxide (CO) decreased by 20%. The pollutant is linked to driving and other activities that at high levels chokes off oxygen entering the blood.

Nitrogen dioxide (NO₂) fell by 24%. This pollutant wafts out of vehicle tailpipes and power plants, irritating eyes and throats, causing respiratory distress. Scientists watch it as a relatively quick indicator of air pollution trends.

Nitric oxide (NO) decreased by 26%. A precursor to nitrogen dioxide and ground-level ozone (O₃), which worsens respiratory problems and is linked to thousands of premature deaths, it comes from burning fossil fuels.

Large particulates (PM₁₀, smaller than 10 microns) dropped by 37% and fine particulates (PM_{2.5}, smaller than 2.5 microns) fell by 45%. A wide range of industrial activities and vehicle transport churn up particulates, which affect respiratory health, especially hurting people with asthma. Particulate pollution also is a major component of the haze that frequently obscures views of Colorado's white-capped Front Range mountains.

Measurements of the main heat-trapping greenhouse gases that cause global warming — carbon dioxide (CO₂) and methane (CH₄) — haven't been done. These pollutants mix into the atmosphere and concentrations don't respond quickly to changes. As temperatures rise and soil warms in spring, carbon dioxide levels tend to rise. Record-high atmospheric levels of carbon dioxide and methane are expected this year, National Oceanic and Atmospheric Administration officials said Thursday. And any effects of virus-related ramp-downs on these global warming drivers likely wouldn't show up for months.

Too soon to tell

Colorado researchers said it's too early to determine the effects of virus-related shutdowns on ozone, for which the U.S. Environmental Protection Agency has deemed Colorado a "serious" violator of federal health limits.

Pinpointing the extent to which reductions result from less driving, less flying or less factory and power plant activity would require further study, state authorities said.

Over the past month, driving in Colorado has decreased with hundreds fewer cars on roads each day. Gov. Jared Polis noted at a briefing last week, that automatic traffic recorders measured a 60% reduction in vehicles.

Another factor may be a partial shutdown since March 17 after an equipment failure at the Suncor Energy oil refinery north of Denver, which ranks among Colorado's largest polluters,

emitting 800,000 tons a year of heat-trapping and other gases including sulfur dioxide, hydrogen sulfide, ozone-forming volatile organic compounds, nitrogen oxides and particulates. The refinery has been plagued with equipment failures, despite heavy investments, and state regulators on Wednesday sent Suncor a letter urging steps to prevent future problems, saying continued “opacity exceedances” are unacceptable.

In New York, Boston and other cities, air quality researchers are attempting to measure changes in nitrogen dioxide, carbon dioxide and other pollution following the imposition of stay-at-home orders and shutdowns.

Scientists say air-testing data collected during the coronavirus pandemic must be analyzed carefully, taking into consideration the influences of cloud cover, wind and sun — which affect the concentrations of pollutants people breathe. Meanwhile, World Health Organization teams are investigating whether particulate air pollution may be a vector that spreads COVID-19 and makes it more virulent.

Pollution trends as humans suddenly drive much less and shut down industrial activities amount to what some scientists are calling a massive and unwanted “natural experiment” on air quality.

“Obviously, the priority here is getting through this with the maximum number of people healthy — mentally and physically,” said Boulder-based atmospheric chemist Tammy Thompson, senior air quality scientist for the Environmental Defense Fund.

“But there is this data that can help scientists understand how to improve air quality once things go back to normal. This will help us understand what sources are causing the biggest impacts. And hopefully it will get us more motivated to do something about it,” Thompson said. “There is a link between air pollution and human health.”

Ramping back up

Some air experts now are considering the extent to which rapidly ramping up industry, transport and energy activity if the virus subsides necessarily would entail ramping up harmful air pollution. Shifts toward working from home and online meetings, if sustained, could help reap health and environmental benefits.

Non-polluting renewable energy in recent months moved ahead of coal in the United States for generating electricity, and it appears that investment in clean energy is likely to continue after the virus, said Vivienne Heston, spokeswoman for the Institute for Energy Economics and Financial Analysis, a think tank on efforts to accelerate green utilities development.

“That’s good for reducing carbon emissions,” Heston said. “There’s a strong argument to be made for renewables. We are definitely in a transition, and the world has to decide how quickly we want to transition.”

After the economic Great Recession of 2008-2009, air researchers estimated that total carbon dioxide pollution decreased by about 2%. But then carbon dioxide concentrations bounced back to record high levels. Beyond air chemistry, economics and the virus, much will depend on politics, Thompson said.

“We need to have the right people making decisions at federal and state levels who care about cleaning up the air.”

As Many Stay Home, L.A.’s Air Quality Is Better Than It’s Been in Decades

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



If there’s a silver lining to the COVID-19 pandemic it may be that the health crisis, which has resulted in the most drastic economic shutdown in Los Angeles history, has also produced the longest stretch of clean air the city has seen in more than a generation.

The March 2020 air quality index compiled by the Environmental Protection

Agency confirms what millions of Angelenos can see just by looking out the window: the brownish haze that customarily settles atop the city on weekday afternoons has lifted and visibility has cleared for miles in every direction since the “safer at home” order was imposed.

Last month, Los Angeles experienced the longest stretch of days of “good” air since at least 1980. The federal agency’s online data goes back no further, but one expert suspects that L.A.’s air hasn’t been this clean since around the time the United States entered the Second World War. Cody Hill, an energy company executive based in the Bay Area, posted a graphic of the EPA data to his Twitter account and wrote that, in terms of air quality, March may well have been “one of the best months at least since the 1940s, when there was huge migration as we ramped up aircraft production in the L.A. basin to fight WW2.”

The notorious L.A. smog starts as a cloud of traffic emissions that’s spewed into the air during the morning rush hour. This layer of air pollution is then held in place by a combination of the Southland’s topography and its prevailing weather patterns, and baked for hours in SoCal’s warm ultraviolet rays, an effect that air-quality experts liken to a pot of soup heating on a stove.

There's no question that the drastic improvement in air quality—a combined measure of the particle pollution, carbon monoxide, sulfur dioxide, nitrogen dioxide, and ozone we breathe into our lungs—is due to the fact that most Angelenos are driving less and staying inside more. On March 18, L.A.'s infamous rush-hour traffic was moving 71 percent faster than it usually does on a Wednesday afternoon, The New York Times reported. But strong winds and repeated rain showers in March also played a part, says Ed Avol, a professor of clinical preventive medicine at the Southern California Environmental Health Sciences Center at USC.

Avol is in his 60s and grew up in Los Angeles. He has spent decades studying issues of air quality in L.A. as they relate to health. "Certainly the air is a lot cleaner now than when I was a child, but we still have a long way to go to get clean air," he said. "And these last couple of weeks have shown us that it's possible, but it's going to take a lot of hard work to get there."

The historically low air pollution is an aberration and the smog will return when life goes back to normal, unless, as Avol hopes, telecommuting is here to stay. He believes it has the potential to do for air pollution in the next decade what increasing fuel emissions standards accomplished in the early 2000s.

"It's obviously very unfortunate that it takes a pandemic to get us to think about these things and to see this improvement. It should give us all pause to think about how much driving we each do, and whether we really need to do so much of it. Telecommuting from home, for those who can, even just for a couple of days a week, can have a marked reduction in terms of emissions."

"And this experience should make that very clear to people who didn't think about it before."

Air pollution falls dramatically in parts of Ireland following travel restrictions

Date: -9-Apr-2020, Source: irishtimes.com

Air pollution levels have dropped dramatically in parts of Ireland following travel restrictions introduced to curb the spread of coronavirus, the State's environmental watchdog has said.

The Environmental Protection Agency (EPA) is reporting decreases of up to 50 per cent in nitrogen-dioxide (NO₂) at its air quality stations around the country.

Petrol and diesel vehicles are the main producer of nitrogen-dioxide in Ireland's air, although industry and power plants also contribute to pollution levels.

High levels of nitrogen-dioxide are thought to exacerbate respiratory illness and asthma, with children and older people most vulnerable. The pollutant also indirectly contributes to climate change.

The EPA analysed results collected from monitoring stations from March 12th, when schools were closed and traffic levels fell, and compared the data with the same period last year.

Describing the numbers as “an emerging trend”, the EPA said there was a decrease in NO₂ concentrations at many monitoring stations, which was “not unexpected” since “reduced traffic congestion should decrease the levels”.

Interestingly, there has been no increase in the particulates created by coal, peat and wood fires in people’s homes, even though most people are spending far greater amounts of time at home.

Very small particles

Particulate matter is very small particles which can be solid or liquid in the air and have the greatest impact on people’s health in Ireland, according to the EPA.

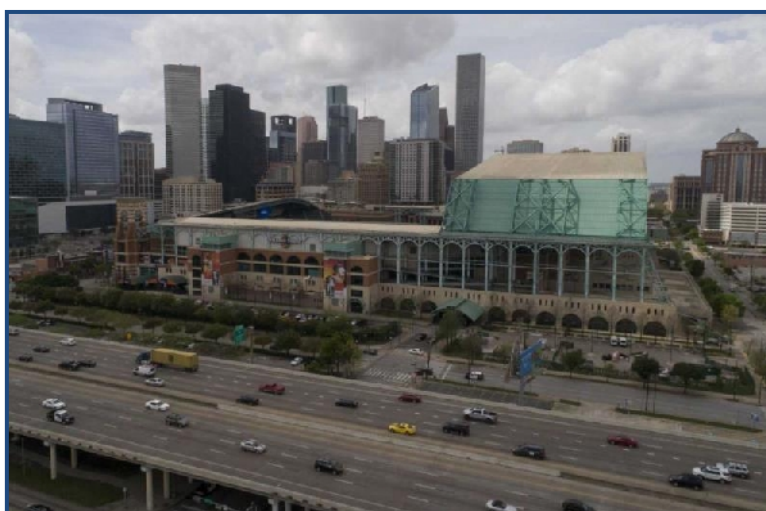
“Currently levels of air pollution in Ireland resulting from solid-fuel burning have not changed due to Covid-19 restrictions, and are generally as expected for this time of year,” said the EPA spokeswoman.

Research from Italy this week warned that higher levels of air pollution could worsen the Covid-19 threat, suggesting that the virus can attach itself to particulate matter and use that to transport itself into human lungs.

The hypothesis is based on a correlation between the high mortality rates seen in Wuhan in China and Lombardy in Italy, and the air pollution levels in those areas.

Curbing rush hour isn’t reducing air pollution in some parts of Houston

Date: -10-Apr-2020, Source: houstonchronicle.com



Traffic moves briskly along Interstate 69 near Minute Maid Park on March 13, 2020, in Houston.

All the parked cars in Houston are having a positive effect on air quality, but not as dramatically as some thought, and pollution in some areas remained the same even as the state went on lock down, according to an analysis by Texas A&M University researchers.

“In Houston, contrary to expectations, NO_x air quality

has seen limited improvement, and fine particulate matter pollution arguably worsened,” wrote Gunnar W. Schade, an atmospheric scientist with Texas A&M.

Babies in low strollers may be exposed to higher levels of air pollutants

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



The findings, published in the journal Environment International, showed that on average, no matter what type of pushchair they were in, babies were exposed to 44 percent more pollutants than their parents during both the morning and afternoon school runs.

New UK research has found that parents who use low-riding pushchairs or strollers which are closer to the ground may be exposing their babies to worryingly high levels of air pollution.

Carried out by researchers at from the Global Center for Clean Air Research (GCARE) at the University of Surrey, the new study looked at three different pushchair types (single pushchairs which face the road, single pushchairs

which face the parent and double pushchairs which face the road) to investigate what level of air pollution babies were exposed to when being pushed along in each.

The researchers simulated 89 school drop-off and pick-up trips over a 2.1 km distance between the times of 8 a.m. to 10 a.m. and 3 p.m. to 5 p.m., and measured levels of air pollution exposure for both parents and babies.

The findings, published in the journal Environment International, showed that on average, no matter what type of pushchair they were in, babies were exposed to 44 percent more pollutants than their parents during both the morning and afternoon school runs.

Infants who were sat at the bottom of a double pushchair were also found to be exposed to 72 percent more pollutants than a child on the top seat, suggesting that despite their popularity, low-riding pushchairs could be the worst choice for limiting babies' exposure to air pollution.

There was some good news, however, for concerned parents, with the results also showing that using a pushchair cover could reduce the concentration of small-sized pollution particles by as much as 39 percent.

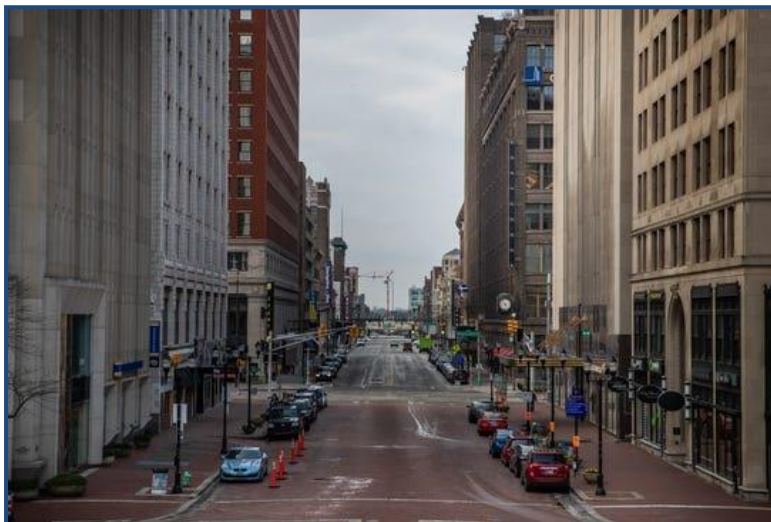
Professor Prashant Kumar, Founding Director of GCARE at the University of Surrey, commented on the findings saying, "For parents, nothing is more important than the health

of our children and this is why we at the University of Surrey are continuing to build on this research to understand the impact air pollution has on babies travelling in pushchairs."

"Our research shows that choices such as the type of pushchair you use, can impact on the amount of pollution your child faces when you are running a typical errand. But there is cause for some optimism, as our study confirms that pushchair covers and upping the buggy heights appears to have shielded children from an appreciable amount of pollution under certain conditions."

Air pollution down 38% in Indianapolis as Hoosiers stay home to stop spread of coronavirus

Date: -12-Apr-2020, Source: indystar.com



A look at downtown Indianapolis during rush hour on the morning of Monday, March 23, 2020.

As the novel coronavirus spreads across Central Indiana, Hoosiers are holed up in their homes to wait out the pandemic. And, much like other cities across the world, this has created a particular environmental benefit: Air quality has improved.

Simply put, fewer cars on the road means fewer pollutants fouling the air.

And Indiana's stay-at-home order means there are a lot fewer cars on the road. The state's main air monitor for Indianapolis showed a 38% drop in emissions of nitrogen dioxide, a substance commonly used to measure traffic pollution, compared to the same last year.

"I can now say unequivocally that the stay-at-home order has resulted in better air quality, immediately," said Gabriel Filippelli, director of the Center for Urban Health at Indiana University-Purdue University Indianapolis.

The improvement could be particularly beneficial in Central Indiana, which has historically had high levels of air pollution, concerning public health experts.

Filippelli, who monitors the air quality sensors around Indianapolis as part of his work, said he believes the drop in nitrogen dioxide is predominantly caused by the reduction in vehicle traffic.

Nitrogen dioxide, emitted from the burning of fuel, the U.S. Environmental Protection Agency says, is known to aggravate the respiratory system.

The Indiana Department for Environmental Management said that it has not seen a notable reduction in emissions over the last two weeks. The agency said that weather patterns have likely made it difficult for the sensors to pick up air quality improvements.

Still, IDEM officials said they are taking a closer look to see if emissions have reduced. Regardless of any improvement in air quality, no one, of course wishes for a pandemic. That said, Janet McCabe, a former official focusing on air quality at both IDEM and the EPA, believes the circumstances might create an opportunity.

"Maybe," McCabe said, "there are some lessons that can be learned coming out of this on how to do things to carry into the future and extend the benefits."

Health impacts of improved air quality

As the coronavirus pandemic has shut down operations worldwide, air pollution levels over major cities including Beijing, Los Angeles and New York have plummeted. The fall is closely tied to drops in traffic volume, as people adhere to shelter-in-place orders to prevent the virus' spread.

The almost immediate impact on air quality, McCabe said, strengthens the connection between pollution and driving.

"That's huge, and it's a very quick signal," McCabe said. "If people need affirmation that it actually does improve air quality to have less traffic, that's pretty good evidence right there."

Indianapolis seems to be following suit. The IDEM monitor located at Washington Park, near 30th Street and Keystone Avenue, shows a 38% drop in the daily average nitrogen dioxide levels. Filippelli looked at these numbers over a two-week period — the last week of March and first week of April — for both this year and 2019.

There has been an even steeper reduction in traffic volumes during the month of March, according to data from the Indiana Department of Transportation. Compared to the baseline of the first week of March, the Central Indiana region has seen a roughly 40% drop in cars on the road during weekdays and a little more than a 50% decline during the weekends. People who live in highly-polluted areas near truck stops, highways or busy intersections will feel the effects of improved air quality more substantially, Filippelli said, but he also says the impacts will ripple across the city.

Those with preexisting respiratory conditions such as asthma, which the EPA says can be exacerbated by exposure to nitrogen dioxide for extended periods of time, will likely feel the benefits the most.

The longer-term impacts on air quality are hard to nail down, in great part, because the drop in nitrogen dioxide would likely be reversed once stay-at-home orders are pulled back and people return to the roads.

“It can actually impact people’s health in the short term, because if you’re prone to asthma, for example, bad air can trigger asthma attacks,” Filippelli said. “In the long term, it’s not so clear.”

Coronavirus and air pollution

Such reductions resulting from the pandemic can also help those who may suffer from it.

Coronavirus is a respiratory disease that preys on older adults and people with asthma. Some of the main symptoms include coughing, shortness of breath and tightness in the chest. Many of the more severe illnesses developed from COVID-19 often feature pneumonia.

So any improvements in air quality can have a significant impact for those with cardiovascular problems or other issues that could be an added complication for the coronavirus, said Jeff Dukes, director of the Purdue Climate Research Center.

“Obviously, the disease is a huge threat to people’s lungs,” Dukes said, “and any improvement on air quality is going to make it easier for people.”

High levels of air pollution have actually been correlated with higher death rates from COVID-19, a new study out of Harvard University recently found.

According to the research, people who live in cities such as Chicago with higher long-term average particulate matter pollution — particles in the air resulting from chemical reactions with pollutants including nitrogen dioxide — are more likely to die from coronavirus than nearby areas with cleaner air. Even if just a county away.

That has been the case with previous similar illnesses, such as the Spanish Flu more than 100 years ago. Research out of Carnegie Mellon University in 2018 found that air pollution was a major reason for differences in mortality rates from the Spanish Flu across various areas.

The American Lung Association ranks the Indianapolis, Carmel and Muncie metropolitan area as the 19th worst for year-round particulate pollution. And Indianapolis’ pollution has, in recent years, concerned area public health experts.

As of Wednesday morning, the virus has claimed 58 lives in Indianapolis and an additional 26 lives in Hamilton and Madison counties. The city’s metro area, including Carmel and Anderson, is ranked 13th for the number of deaths in the country, as of Tuesday.

'In our hands'

The COVID-19 pandemic has caused a widespread economic recession, thousands of deaths and is yet to be even close to conclusion.

That said, the crisis also has opened a window into how quickly air quality could be improved in cities where thousands die from complications caused by pollution each year.

"We are now getting a much better sense of how quick air quality can be improved if we change our practices and our habits," Filippelli said. "We're doing this right now because of a horrific and tragic pandemic, but it's a good lesson ... I see it as a way to remind us that most of our environmental qualities are in our hands."

While the effects of this brief drop in air pollution aren't likely to have a large or lingering impact, the pandemic could act as a guideline in how to address future widespread threats to society — even threats like climate change.

"The question to me is whether we can see the urgency for solving these longer-term, slower-acting problems as clearly as we see the urgency for solving short-term problems," Dukes said.

One of the main challenges in recovering from the pandemic, McCabe predicts, may be the impetus to go right back to the way things were before.

McCabe said government agencies could be paying attention and consider implementing different policies and reduction goals, even if the reduction is small to start. Dukes likewise suggested businesses lean into teleworking as a way to reduce travel and subsidize office energy use.

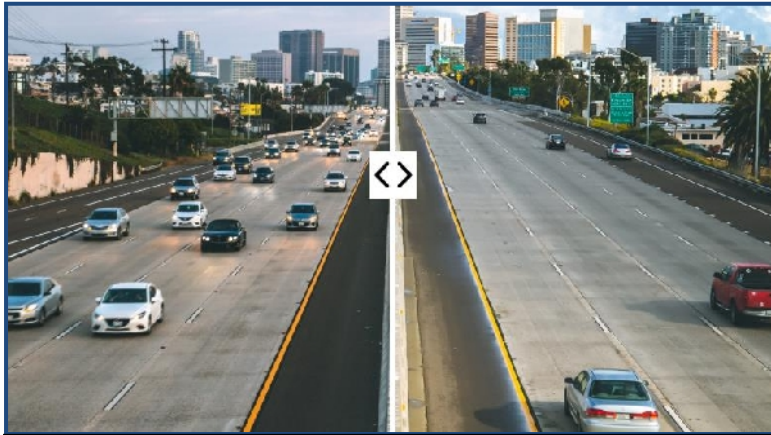
"Everyone is interested in everyone going back to work," McCabe said. "But if society and agencies view this as, 'Thank goodness that's behind us, let's go back to the way it was before,' then we are missing big opportunities to improve things."

Coronavirus Air Pollution Plunge Could Guide San Diego Climate Plans

Date: -13-Apr-2020, Source: voiceofsandiego.org

California politicians shrank our world last month to curb the spread of COVID-19, and it appears to have caused a drop in both greenhouse gases that cause global warming and harmful pollutants in the air we breathe.

When Gov. Gavin Newsom imposed a stay-at-home order in mid-March, businesses responded by permitting many employees to work from home. Freeing them from the need to commute by car each day had an immediate effect: San Diego freeways saw, on average, 23 percent fewer cars during the workweek from the same time a year ago, according to CalTrans. Weekends experienced a 32 percent drop.



Left: San Diegans commute during rush hour on the I-5 freeway near downtown on March 5, 2020. Right: The same stretch of freeway is nearly empty during rush hour on April 7, 2020, after the governor's shelter-in-place order went into effect.

On the last Sunday of March, traffic fell 60 percent from the same point a year ago. But the dip in car traffic is also apparent in preliminary data from air-quality sensors placed around the San Diego basin, though the region's 17 rainy days in March could

exaggerate the decline because rain obscures the true amount of pollutants in the air.

Digging Into San Diego's Air Pollutants

U.S. cities and counties are responsible for meeting air-quality standards set by the Environmental Protection Agency. California cities are also responsible for meeting sometimes more stringent state standards.

But the lack of car travel during the first month of the pandemic response has made those pollutants scarcer in the air we breathe.

Nitrogen dioxide, for instance, is added to the atmosphere when fuel is burned and released from tailpipes. It's primarily responsible for that brown haze seen on cold mornings across the San Diego skyline. It's also capable of damaging the lungs and likely the cause of asthma in children, according to the EPA.

Nitrogen dioxide levels decreased by about 33 percent from the year prior around an air-quality sensor adjacent to I-15 near Rancho Bernardo. A sensor just east of I-5 in Chula Vista found a 24 percent drop in nitrogen dioxide levels.

When sunlight hits nitrogen dioxide and other chemicals, it creates ozone – the main ingredient in smog. But when there's too much ozone – because too many cars are adding it to the atmosphere all at once – it can trap heat and other harmful pollutants, causing toxic breathing conditions.

The county experienced an overall dip in ozone. Ozone is usually at its worst during the sunny summertime, and it's one pollutant for which the county has failed to meet both federal and state standards. A city's terrain matters a lot when it comes to air quality. Los Angeles rests in a bowl surrounded by mountains, which make it harder for emissions from cars or heavy industries to escape.

San Diego is not situated like Los Angeles, “but we still cook up some ozone a few times a year and therefore we’re out of attainment with air quality standards,” said Bill Brick, chief of the monitoring and technical services division at San Diego Air Pollution Control District.

The county also measures particulate matter (which is essentially fine dust or smoke particles) larger than 2.5 microns, a measurement that stands for one millionth of a meter and too small to be seen with the naked eye.

Particles that small pose the greatest risk to human health because they make their way deep into a person’s lungs and even into the bloodstream, according to the EPA. Cars and trucks rolling along the pavement and wildfires are large sources of such dangerous dust.

Those particles dropped almost 19 percent during the stay-at-home order, as measured by a sensor at Lexington Elementary School in El Cajon. Similarly, a sensor in Otay Mesa near the U.S.-Mexico border experienced an almost 40 percent drop.

Penelope Quintana, an environmental health expert at San Diego State University, studies the health effects of fine dust pollution from traffic near the U.S.-Mexico border.

“If there’s something good to come out of this (COVID-19) slowdown, it’s showing how our behavior can reduce pollution,” Quintana said. “Maybe we can take some lessons from that of what’s possible.”

The Sudden Rise of Telework

In human history, many previously incurable maladies preceded the COVID-19 pandemic. In all of Earth’s history, our burning of fossil fuels is unprecedented. Humans didn’t begin doing that en masse until the Industrial Revolution.

It’s difficult to say what the halt in the global economy means for slowing human-caused climate change.

Measurements of global carbon dioxide, the most persistent greenhouse gas (which are also emitted from tailpipes) taken at Mauna Loa Observatory in Hawaii by San Diego’s Scripps Institution of Oceanography continue to tick up. On March 11, geophysicist Ralph Keeling said fossil fuel use would have to drop 10 percent around the world for an entire year to affect the steadily creeping curve.

It’s also hard to say what this jolt to San Diego driving habits means for local greenhouse gas reduction goals.

Hasan Ikhata, executive director of the regional planning agency SANDAG, is hopeful these telework habits will stick.

The agency expects to publish a vision of its 2021 transportation plan soon. Agencies typically propose pollution-cutting measures like building bike lanes, adding sidewalks and expanding public transit to get people out of their cars.

“The best way is to eliminate the trip altogether,” Ikhata told Voice of San Diego.

During a March 27 address to SANDAG’s board of directors, Ikhata said he hoped many employers will continue to permit employees to work from home after COVID-19.

“That’s definitely going to make it easier to meet some of our requirements and will be good for our system,” he told the board.

Ikhata said SANDAG should put more resources into its iCommute program, created in 2014 to increase commuting by transit, biking, walking and telework.

The agency got a federal grant to conduct a telework study in 2016 with four San Diego companies, Ikhata said. By the end, 60 percent of the managers said they would allow additional employees to work from home.

But the data from that study wasn’t rich enough, Ikhata said, because it was difficult to get businesses to participate. He thinks the COVID-19 pandemic experience will encourage companies to join in on a second pilot study.

By 2035, SANDAG needs the region to cut greenhouse gas emissions 19 percent from 2005 levels to meet a draft target set by the California Air Resources Board.

“Maybe (telework) will be the most cost-effective way to do it,” Ikhata said.

Telework isn’t part of the city of San Diego’s Climate Action Plan, approved in 2015, which called for half of people living close to high-frequency transit to bike, walk or take transit to work by 2035. But telework could become part of the updated plan due in 2021, said Ashley Rosia-Tremonti, the city’s sustainability manager.

Transportation accounts for 55 percent of the total greenhouse gases emitted and tracked by the city of San Diego.

“There will be a lot of data coming out of this time period to help us make those decisions down the road,” Rosia-Tremonti said.

When coal plants decrease pollution or shut down, people have fewer asthma attacks

Date: -14-Apr-2020, Source: ehn.org

Asthma attacks decreased significantly among residents near coal-fired power plants after the plants shut down or upgraded their emission controls, according to a new study.

Coal-fired power plants emit air pollution that includes mercury, sulfur dioxide, nitrogen oxides, and particulate matter. Living near coal-fired power plants is linked to higher rates of respiratory and cardiovascular disease, and cancer, and premature death.

According to a study published this week in the journal *Nature Energy*, when those plants shut down or upgrade their emissions controls, rescue inhaler use, emergency room visits and hospitalizations for asthma all decrease among nearby residents. The study is the first to show decreased inhaler use following a reduction in pollution from coal plants, and builds on previous evidence that living near these facilities leads to increased asthma exacerbations.

The study was conducted between 2012 and 2017 in Kentucky, which ranks among the top U.S. states for air pollution from power generation. Researchers focused on Jefferson County, where one coal-fired power plant shut down and three others upgraded emission controls around the same time, and found that inhaler use, ER visits, and hospitalizations all fell—in some zip codes by up to 55 percent—following the reduction in emissions.

"We saw about three fewer emergency department visits and hospitalizations per quarter per zip code," Joan Casey, assistant professor at the Columbia University Mailman School of Public Health and lead author on the study, told EHN. "That translates into about 400 prevented asthma-related hospital visits per year across the county."

While many studies have looked at health impacts associated with living near coal-fired power plants, this is the first to use digital sensors to track rescue inhaler use among the same group of people before and after a drastic reduction in emissions. They did this by attaching sensors to rescue inhalers distributed among Louisville residents with asthma and chronic obstructive pulmonary disease, commonly referred to as COPD, starting in 2012. The sensors tracked the date, time, and location of each inhaler puff.

The researchers had data for 207 participants before and after the installation of "scrubbers," or emission reduction equipment, at the three coal-fired power plants in 2016. Comparing people to themselves before and after the pollution reduction allowed them to control for factors like socioeconomic status, underlying conditions, indoor air quality, age, etc., which is harder to do with hospital data, Casey said.

In the months following scrubber installation, Casey and her colleagues saw an average reduction of inhaler use of about 17 percent, with continued declining use after that.

"A lot of studies have shown that populations living near coal-fired power plants have higher rates of respiratory hospitalizations," Casey said, "but it's been difficult to attribute those directly to coal-fired power plants because poor communities of color tend to be located closer to these facilities in the U.S., and they have a higher burden of diseases like asthma and COPD."

Because of the "natural experiment" created by the drastic change in emissions and the addition of the inhaler data, Casey believes their research more definitively links asthma attacks and resulting hospital visits to unchecked emissions from coal-fired power plants.

"All of that information together convinced us that what we were seeing was probably real," she said.

Rolling back regulations

Coal-fired power plants have been decommissioned at increasing rates each year as the cost of other power sources, like natural gas and renewables, become cheaper.

As of December 2018 (the most current data available), there were 336 predominantly coal-fired power plants still in operation in the U.S., according to the U.S. Energy Information Administration.

It's likely that similar improvements in asthma outcomes occurred in communities across the U.S. during the same time period of the study, thanks to a sweeping change in pollution regulations.

In 2014, coal-fired power plants accounted for 63 percent of sulfur dioxide emissions in the nation. The 2012 federal Mercury and Air Toxics (MATS) rule required all coal-fired plants to install scrubbers that reduce toxics like mercury and sulfur dioxide in emissions by 2015 (or 2016 if they got a special extension). During 2015, plants that had recently installed this equipment reduced their sulfur dioxide emissions by 49 percent.

"I think our findings are exciting," Casey said, "because we're seeing that the cost to install these scrubbers can be made back quickly just through prevented healthcare visits. We're only looking at asthma here, but we know there are other related health outcomes as well, so the benefits are likely far greater than what we're estimating."

But despite these benefits—and the fact that these pollution controls have already been successfully installed at coal-fired power plants across the country—the current U.S. Environmental Protection Agency administration intends to roll back the MATS rule, undoing the regulations that have kept people in places like Jefferson County, Kentucky, healthier.

The administration also recently announced plans to suspend enforcement of environmental regulations during the coronavirus pandemic.

"It's disappointing to see the EPA suspend enforcement of environmental laws during the COVID-19 pandemic," Casey said, "especially as we're starting to see stark disparities in COVID deaths among the same groups—communities of color and the poor—that face the greatest respiratory harm from pollution, including coal-fired power plants. We should be tightening environmental regulations, not abandoning them during this time."

Portland Air Pollution Drops Along With I-5 Traffic

Date: -16-Apr-2020, Source: .opb.org



Morning rush hour emptied of cars in Portland, Oregon's I-5 interchange during the coronavirus pandemic, March 20, 2020.

As the coronavirus pandemic keeps Oregonians home and off the roads, highway traffic and traffic-related air pollution have plummeted in the Portland metro area.

Weekday traffic on Portland's freeways is down 46% from last year, according to a report from the Oregon Department of Transportation

Meanwhile, the Oregon Department of Environmental Quality has found about a 40% reduction in traffic-related air pollution at its air quality monitoring station along Interstate-5 in Tualatin.

Nitrogen dioxide and black carbon are two pollutants in car exhaust, and they both dropped precipitously from March to April along I-5.

While the timing matches up with Gov. Kate Brown's orders for Oregonians to stay home to prevent the spread of the coronavirus, Laura Gleim with DEQ said wind and weather are also affecting how much pollution the state's air monitors are picking up.

"When you look at the graphs it looks fairly significant, but there's a lot of factors that affect those numbers," she said. "It's important to note that some of the fluctuation we're seeing is because of changes in weather, wind speed, direction, temperature. Pollutants rise and fall based on weather."

Vivek Shandas, professor of urban studies with Portland State University, has been analyzing the same satellite data that shows huge pollution reductions in cities around the world during the coronavirus pandemic.

So far, though, he's seeing a reduction of less than 2% in nitrogen dioxide across Oregon and Washington. He said the lower numbers could be the result of clouds interfering with satellite data, and they also reflect the fact that other cities started out with a lot more nitrogen dioxide pollution, or NO₂, than cities across the Northwest.

"In places where there's a lot of NO₂, it's a good signal," he said. "So, Beijing or Delhi or parts of northern Italy where there's a lot of it being produced— L.A. was a good example in the US. There were clear days. There was a lot being produced from cars, and it turns out

that affects the ability of the sensor on the satellite to pick up the difference between pre- and post-COVID emissions.”

Shandas said satellite data show urban areas are seeing more air pollution reductions than rural areas in Oregon and Washington, and he’s working with city and state officials to quantify those differences and the resulting health benefits of air pollution reductions.

He also pointed to a new article published in the scientific journal Nature that underscores how weather and the angle of the sun in the northern hemisphere can be complicating factors in determining whether nitrogen dioxide levels are dropping because of coronavirus-related restrictions or seasonal changes that naturally lead to a 50% drop in that pollutant from January to May.

Fires near Chernobyl make Kiev air most polluted in world

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

KIEV (Reuters) - Fires around the defunct Chernobyl nuclear plant and elsewhere pushed pollution levels in Ukraine’s capital Kiev to the worst in the world on Friday, giving inhabitants another reason to stay indoors on top of the coronavirus lockdown.

According to Swiss monitor IQAir, Kiev had the highest level of air contamination of major world cities, ahead of Hangzhou, Chongqing and Shanghai in China.

Though the 1986 Chernobyl disaster sent clouds of nuclear material across much of Europe, there was no new radiation risk from the fires and pollution, Ukraine’s health ministry said.

“Smog has been formed in Kiev and Kiev region. It does not carry a chemical or radiological threat, the radiation background is within normal limits,” it said in a statement.

The city’s roughly 3.7 million people were, however, urged to remain indoors - where most are anyway due to restrictions intended to contain the coronavirus - and close windows.

“This smoke can cause headaches, coughs, difficulty breathing, eye irritation, inflammation of the mucous membrane of the nose and larynx, as well as a number of diseases and allergies,” the ministry added.

Police said a huge fire was started by arsonists in the forests around Chernobyl earlier this month. It was put out this week, but new blazes broke out on Thursday evening, fanned by heavy winds.

Forest fires were also registered in the neighbouring Zhytomyr region, destroying some houses and causing a car accident that killed several people.

On Friday, the state emergency service said there was no open fire across the Chernobyl station area or in Zhymomyr, though there was some smouldering of dry grass.

The Chernobyl plant and abandoned nearby town of Pripyat have become a tourist draw, especially since a U.S. television miniseries about the accident aired last year. The site is currently shut as part of the nationwide lockdown.

Air pollution in Kyiv not associated with fires in Chernobyl, - State Emergency Service

Date: -18-Apr-2020, Source: 112.international



The chairman of the State Emergency Service, Mykola Chechotkin, states air pollution in Kyiv is not related to fires in the Chernobyl zone. He said this during a daily meeting chaired by the President of Ukraine, the press service of the head of state reports.

According to Chechotkin, the radiation background in the Exclusion Zone, Kyiv and the

region is within normal limits and does not exceed normal values.

Also, the head of the State Emergency Situations Committee noted that there are no threats to the critical infrastructure of the Exclusion Zone, such as the Shelter, or the radioactive waste storage facility.

In addition, the State Emergencies Ministry announced the creation of forces reserve in case of complications.

Earlier Kyiv city hall recommended that citizens close their windows, which is due to a drastic increase of concentration of harmful emissions into the air. That's the consequence of fires in Chornobyl exclusion zone and a forest district in Zhytomyr region, northern Ukraine; they still have not been extinguished.

Bellingcat investigation bureau came up with a big article focused on the current environmental situation.

"Citizens have meanwhile expressed concerns that radioactivity in the exclusion zone could be spreading through thick smoke from the burning trees. Also, some international media outlets have made misleading claims about "spiking radiation levels" at the "abandoned nuclear waste storage" — with both of these statements actually being incorrect", the agency wrote.

An Unintended Consequence of COVID-19 Shutdowns? Blue Skies and Cleaner Air

Date: -20-Apr-2020, Source: vogue.com



Snow on the San Gabriel Mountains beyond downtown Los Angeles under a clear sky on April 14, 2020, after weeks of storms and reduced traffic as coronavirus infections accelerated in the region.

In March, on day 48 of the strict lockdown to fight the novel coronavirus in Wuhan, China, Rebecca Arendell Franks, a woman living in the epicenter of the outbreak, began to notice some surprising changes outside her apartment window. With no work, traffic, or ancillary pollution, “spring in Wuhan is

absolutely stunning,” she wrote on Facebook.

“I used to think there weren’t really birds in Wuhan, because you rarely saw them and never heard them,” Arendell Franks shared. “I now know they were just muted and crowded out by the traffic and people. All day long now I hear birds singing.”

As economies across the world are halted and millions of people abide by stay-at-home orders in the effort to “flatten the curve” of COVID-19, many are observing similar unintended consequences: cleaner air and water in some of the most polluted cities on earth.

Across China, levels of nitrogen dioxide, an air pollutant produced by burning fossil fuels like gas, were down by as much as 30% in January, according to NASA satellite readings. With minimal cars on the road, Los Angeles’s notorious smog has lifted, giving way to clear blue skies and, according to Environmental Protection Agency data for March, better air quality than the city has experienced in almost 40 years. Carbon monoxide emissions are down by 50% in New York; the famed Venice canals are sparkling; and you can see the stars in Delhi, a city where people wore masks long before the coronavirus to protect themselves from thick car fumes and industrial exhaust. In the usually densely trafficked Nairobi, Mount Kenya can suddenly be seen towering 85 miles away—a sight so surreal, it sparked a disbelieving meme.

“It is helpful in letting people know that there is a different world possible,” Rhiana Gunn-Wright, director of climate policy at the Roosevelt Institute and an architect of the Green

New Deal, told Vogue. “Seeing these things has helped people reconnect to nature, to realize that our actions are affecting it all the time.”

In an installment of Vogue’s Global Conversation series this week, designer Stella McCartney marveled at the malleability of the environment. “We’ve seen how incredible nature is, how she bounces back so quickly when we just stop for a second,” McCartney said. “I think that’s so hopeful. Will we ever be able to heal earth? It looks like we can.”

For environmental experts, it’s a glimpse at the cleaner, greener world that could be—but without a deadly pandemic and economic free fall. “This is a short-term positive,” Tom Steyer, the environmental activist and former 2020 presidential candidate told Vogue in a Zoom interview. “What’s really necessary is to re-create our society in a way that dramatically reduces emissions, and rebuild an America that is much more sustainable.”

While gains like the lifting of smog in L.A. and Delhi and improved air quality in China are inspiring awe on social media, pollution hasn’t fallen nearly as much as some experts would have thought, according to Leah Stokes, Ph.D., a climate policy expert and assistant professor at the University of California, Santa Barbara. She cites projections saying carbon emissions could fall 4% in 2020—a historic decline in a single year, but hardly worth the price of a pandemic.

“Climate policy would be a lot less expensive, and a lot less disruptive,” Stokes told Vogue. “If we had electric cars and buses in Los Angeles, the air would be clean every day.”

The temporary easing of global pollution amid the pandemic is both a glimmer of hope, and a humbling reminder of the looming threat of climate change—another seemingly invisible natural threat (and one that is therefore often denied or downplayed) that could have widespread, devastating effects. Some are already upon us, from global warming and pollution to deadly wildfires, hurricanes, and heat waves. As the headline of a New York Times op-ed by Gunn-Wright put it this week: “Think This Pandemic Is Bad? We Have Another Crisis Coming.”

“It is good for us to realize that, in fact, we are not lords of nature,” Gunn-Wright said. “We are co-inhabitants.”

The relationship between the coronavirus crisis and climate change became even more direct this week with the release of a Harvard T.H. Chan School of Public Health study that found that people with COVID-19 who live in parts of the U.S. with high levels of air pollution are more likely to die from the disease than people who live in less polluted areas. As Gunn-Wright notes, African Americans are more likely to live in communities exposed to toxic fumes (due to histories of racial segregation and redlining), leading to conditions like heart disease, asthma, diabetes, and cancer that make them more vulnerable to the coronavirus. This, after data had already shown that African Americans are dying from COVID at disproportionately higher rates.

“Of course, we’re all going to die. But with climate change, some of us are going to die first,” she said, “and it looks the same as the people who are dying of COVID.”

Climate advocates can’t help but notice that the Trump administration’s response (or lack thereof) to the pandemic feels all too similar to its repeated rebukes of climate change. “We saw Mr. Trump and the Republicans deny science and attempt to avoid dealing with the reality in hopes that COVID would go away,” Steyer said, calling Trump’s mishandling of the coronavirus pandemic “his Katrina moment on steroids.” He added, “In the context of climate, the Republican party and Mr. Trump behaved the same way. They’ve refused to accept the data or even deal with the data.”

While environmentalists see the current crisis as an opportunity to rebuild a more sustainable and resilient economy with green jobs and investments in clean energy, the Coronavirus Aid, Relief, and Economic Security (CARES) Act failed to include even modest suggestions like limiting bailouts for fossil fuel industries. Several climate experts stressed that the best hope for combating climate change is to unseat Trump and flip Congress to Democratic leadership.

“I really hope voters in 2020 understand that what Mr. Trump is doing in climate is as bad as what he did in COVID,” Steyer said.

The sight of clearer skies and cleaner water amid the pandemic may be fleeting—in China, as lockdown restrictions have eased, emissions have, predictably, returned. But Gunn-Wright hopes people will come out of the coronavirus pandemic with a new, climate-related goal. “If you were reminded that the sky in your town is blue when it’s always gray,” she said, “maybe after this is over, we can pledge to keep the sky blue.”

Researcher finds significant pollutant has dropped 30-40 per cent in major Ontario cities

Date: -21-Apr-2020, Source: kitchener.ctvnews.ca



A young puma ventured into the centre of the locked-down centre of the Chilean capital, Santiago.

KITCHENER -- As transportation slows to a crawl around the globe while countries take action against the spread of COVID-19, an Ontario researcher says the effects on air quality in the province are already starting to show.

Hind Al-Abadleh is a professor with the department of

chemistry and biochemistry with Wilfrid Laurier University.

She says she has collected data from air quality stations maintained by the Ministry of Environment, Conservation and Parks, which are found in different cities around Ontario.

Al-Abadleh says that the levels of nitrogen dioxide, a key air quality indicator, have already dropped in several major Ontario cities.

"So far the preliminary results show that there is a reduction of about 30 to 40 per cent in Toronto-west area near the 401, about a 40 percent reduction in Kitchener, and about 40 percent reduction in Ottawa," she says.

She says that nitrogen dioxide is one of the ingredients that makes ground-level ozone, a major contributor to the formation of smog. The main source of nitrogen dioxide: the transportation sector, which contributes about 70 per cent.

With more people at home because of the pandemic, less congestion and less traffic from trucks, Al-Abadleh says there has been less emission

"This is huge news, and the reason is, because it actually shows people in numbers the effect of their carbon intense lifestyle on the levels of a pollutant like nitrogen dioxide that is used, and the air quality health index that is measured to indicate how good the air is that we breathe," she explains. All over the world, wildlife has flourished in and around cities as more people stay home.

Wild boars were caught on video in a Catalan town under lockdown in Spain. Satellite images of major cities show that pollution has decreased dramatically.

In Ontario, experts say we can expect to see a boom in wildlife populations while COVID-19 control measures are in place. Even after more people are able to return to work, though, the progress doesn't have to be undone. Juan Moreno-Cruz is an associate professor at the School of Environment, Enterprise and Development at the University of Waterloo. He says that cities can learn a lot of lessons from the effects the pandemic has had.

"We have learned now that there are alternatives to the traditional model. Not the staying home part but the working from home part, maybe work locally, maybe telecommuting," he says.

"Large corporations are learning that, actually, that is a possibility. So there is an opportunity to take stock and see what new is out there." He says that cities can expand their capacity to encourage working from home by investing in the necessary infrastructure: internet, cell phone towers and public transportation.

That kind of change, he says, is how we could maintain the advances made in air quality and pollution after people are able to return to work.

"Being able to differentiate those who need to be out and those who can stay or work from home or work remotely is going to reduce emissions," Moreno-Cruz says.

"But it's not only that: the impact on those who have to be out will also be reduced, because people that have to be driving all the time, people that have to be on the road all the time, they're the ones that are actually filling their weight for the pollution." Al- Abadleh echoes that sentiment, and says that this is an important opportunity for people to recognize the impact they can have on the environment.

"We don't have to wait for pandemics or catastrophes or extreme weather events, or more people being admitted to hospitals because they cannot breathe well, and they need oxygen because of worsening air pollution," she says. "We don't have to wait for these events to happen before we need to act."

Cleaner air due to coronavirus pandemic makes Earth Day 50th anniversary celebration bittersweet for environmentalists

Date: -22-Apr-2020, Source: abcnews.go.com



The downtown Phoenix skyline is easier to see, April 7, 2020, as fewer motorists in Arizona are driving, following the state stay-at-home order due to the coronavirus, and it appears to be improving the air quality.

This year was supposed to be a milestone for environmentalists worldwide: the 50th anniversary of Earth Day.

But the novel coronavirus pandemic has canceled almost all of this year's planned events, from large green rallies in major cities to smaller park beautifications in the suburbs.

"It's a shame," Ned Mulcahy, the staff attorney for the

nonprofit Group Against Smog & Pollution (GASP), told ABC News. "Part of celebrating the environment is being out in the environment."

Mulcahy and other environmentalists, however, have said the pandemic has given them a glimmer of hope. Researchers around the world have seen a drop in air pollutants as a result of fewer cars on the road and exhaust from factories due to the shelter-in-place orders issued by world governments.

"We're seeing in some places the best air quality in decades," Bill Magavern, the policy director for the Coalition for Clean Air, told ABC News. "It is very good for our lung health that air pollution is down during this time of crisis."

While scientists warn that air quality will likely take a hit once shelter-in-place orders are lifted, the temporary change in the environment could spur environmental regulations and policies that could lead to better air in the long term. Two weeks ago, satellite data from NASA showed a 30% drop in air pollutants in the northeastern section of the U.S. during March. The air had particularly low quantities of nitrogen dioxide, or NO₂, according to Barry Lefer, a NASA air quality scientist.

"Power plants, automobiles and the trucks, those are the things that are big NO₂ emitters," Lefer told ABC News. Mulcahy said GASP has been monitoring the air quality in western Pennsylvania and found significant drops in sulfur dioxide, SO₂, throughout March. At the beginning of March, the amount of SO₂ in certain neighborhoods was around 0.055 parts per million (ppm). By the end of the month, it was under 0.01 ppm, according to the data.

Mulcahy noted that SO₂ and other pollutants have been linked to higher rates of asthma, heart disease and other chronic diseases. A Harvard University study released earlier this month found that areas with increased air pollution could have higher rates of coronavirus infections.

Drew Shindell, a professor at Duke University's Nicholas School of the Environment, told ABC News that cleaner air can also provide some mental health relief during the pandemic.

In some cases, such as in China, India and the mountainous regions of the U.S., people have been able to see their horizons clearly for the first time in years without any smog.

"It can be apparent to people how [smog] is not natural and how much they can be in control of it," Shindell said.

He added that scientists have seen these drops in pollutants before. In 2008, air quality slightly improved in certain regions of the U.S. because of the global recession. During that year's Summer Olympics, Beijing's smog dissipated after the government implemented temporary air pollution controls, Shindell said.

The professor noted that the air quality in both of those incidences went back to their dirtier levels after the events ended, and it is highly likely that the same thing will happen whenever shelter-in-place orders are fully lifted.

"We don't have an example of these changes leading to long-term benefits so far," he said.

While the social distancing orders will likely stay in place for weeks, environmentalists say people should find ways to take in the cleaner air where possible. Magavern, who lives in California, said that a few minutes outdoors, with proper social distancing from others, or even leaving the window open to catch some fresh air, would bring physical and mental health benefits.

"Of course [people] should be observing physical distancing, but go out and breathe the fresh air. Look at how beautiful our parks and cities and rural areas can be when the air is so clean. Remember that," he said. Magavern and other environmentalists said they hope this newfound appreciation for clean air can lead to stronger policy actions by leaders. During a video news conference Thursday, former EPA administrator Gina McCarthy, who is now the chair of the Natural Resources Defense Council, said leaders needed to realize how important it is that they fight back against man-made pollutants.

"Maybe it'll be a wake-up call that public health and preparedness for public health is hugely important. It needs to be invested in," she said. Charles Driscoll, a professor of environmental engineering at Syracuse University, fears that environmental policy may take a back seat in the coming months as governments focus on rebuilding the economy in a post-COVID-19 world. Nevertheless, he said there could be enough public demand to steer leaders to take action on the environment.

"I think hopefully people will see what the possibilities are and facilitate the transfer from fossil fuels to a renewable energy future," he told ABC News. "We really need federal leadership to get aboard on this."

Air pollution levels have fallen by more than a third in Manchester since the coronavirus pandemic lockdown, a study reveals

Date: -23-Apr-2020, Source: manchestereveningnews.co.uk



The lockdown has forced motorists off the road

Air pollution levels have dropped by more than a third in Manchester since the coronavirus pandemic lockdown, according to a new university study. The welcome findings are in common with other UK cities after transport levels plummeted as people and workers stayed at home. The study involved levels of the

key pollutant nitrogen dioxide, which mostly comes from

combustion engines in vehicles. It found that in Manchester, levels fell by 39 per cent compared to the period pre-lockdown.

But, said experts at the University of York, there has not been the same impact on another form of toxic pollution, tiny particles known as PM2.5.

That's likely to be because the particles stay in the air longer, and are generated from more sources including agriculture and burning solid fuels, which have continued during the lockdown. Easterly winds have also been bringing pollution from Europe, where the same is true.

But the fall in nitrogen dioxide gives a potential glimpse into the cities of the future, university bosses said, where most transport will not be from diesel or petrol vehicles, which the Government plans to phase out to tackle climate change and pollution.

Elsewhere, the data shows that during the lockdown, levels of nitrogen dioxide have fallen by almost half in Leeds, compared with the five-year average for the time of year.

Newcastle and Cardiff have seen drops of around 45 per cent and Glasgow has seen levels fall 44 per cent.

Professor James Lee, of the National Centre for Atmospheric Science at the University of York, said the falls began before the official lockdown started, then decreased quite quickly before levelling out at the lower rate.

Looking at data from around 100 sites across the UK, mainly in cities, he said: "What we've seen since the lockdown is a reduction in nitrogen dioxide, which is mainly from vehicles, particularly diesel vehicles, quite uniformly in most places and certainly at sites near to roads."

Last month, just seven days after the lockdown was announced, the Manchester Evening News reported that with fewer people on the move as all but necessary journeys were at first strongly discouraged and later banned, local monitoring stations were measuring much lower levels of dangerous air pollutants compared to the same time last year. Air pollution in that immediate period was found to have fallen by as much as two-fifths.

Research by the BBC Shared Data Unit found levels of nitrogen dioxide (NO₂) at the Manchester Sharston station averaged 15.0 micrograms per cubic metre between March 17 and 24.

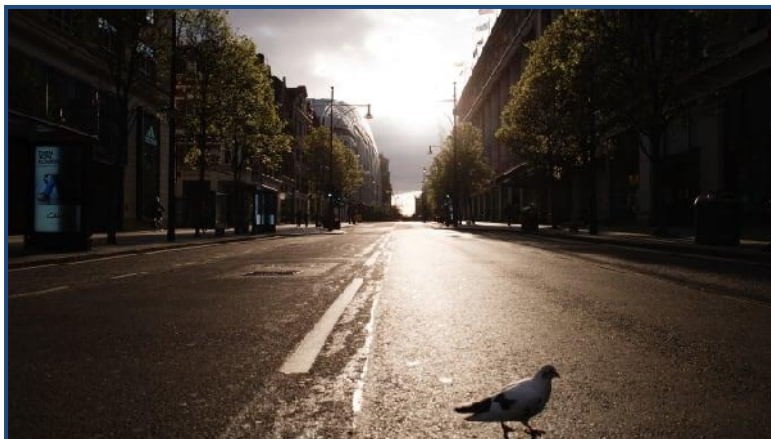
The UK Air Quality Strategy (2000) sets an objective that the annual average NO₂ should not exceed 40 micrograms per cubic metre across a year.

There is evidence that high levels of NO₂ can inflame the airways in our lungs and, over a long period of time, affect how well our lungs work. This can cause problems such as wheezing, coughing, colds, flu and bronchitis

People with asthma are particularly affected as increased levels of NO₂ can cause more frequent and more intense attacks.

Coronavirus lockdown has ‘dramatically improved’ air quality in London, mayor says

Date: -24-Apr-2020, Source: cnbc.com



A pigeon walks across a deserted Oxford Street in London, England, on March 28, 2020.

Lockdown measures in London, which have in turn cut traffic on its roads, have led to “dramatic improvements” in the city’s air quality, according to information published by the Mayor of London.

In an announcement on Thursday, authorities said there had been “huge reductions” in nitrogen dioxide (NO₂) in the city,

“especially at roadside sites.”

London’s Oxford Street, usually a hub of activity, has seen its daily average NO₂ drop by 47%, while Marylebone Road – one of the U.K. capital’s busiest roads – had posted a 48% reduction.

U.K. Prime Minister Boris Johnson announced a number of strict measures designed to tackle the coronavirus pandemic on March 23. The government said that people should only leave their homes for certain activities, such as exercise and shopping for necessities. Traveling for work is allowed, but only if that work can’t be done from home.

According to the Mayor’s office, even before the introduction of measures to tackle Covid-19, hourly average levels of NO₂ at central London’s monitoring sites had fallen by 35% in 2020 compared to the same timeframe in 2017. Since March 16, a further drop of 27% has been recorded.

“London has one of the most advanced air quality monitoring networks in the world, which has recorded how the coronavirus lockdown has dramatically improved air quality in London,” Sadiq Khan, the Mayor of London, said in a statement.

“But this cleaner air should not just be temporary, as Londoners deserve clean air at all times,” Khan continued.

“So once the current emergency has passed and we start to recover, our challenge will be to eradicate air pollution permanently and ensure the gains we’ve made” through policies such as the Ultra Low Emission Zone (ULEZ) continue.

The ULEZ was introduced to London in April 2019. Designed to operate 24 hours a day, seven days a week, it was temporarily suspended in March in order to allow “critical workers” to travel around the city “as easily as possible” during the coronavirus pandemic.

Around the world, many cities have seen air quality improve since the introduction of lockdown measures. And while the new NO₂ figures for London may be heartening, one air quality expert has warned there is still work to do. “Nitrogen dioxide pollution has gone down, but London recently saw huge spikes in dangerous particulate pollution,” Elizabeth Fonseca, from the Environmental Defense Fund Europe, said in a statement issued on the Mayor of London’s website.

“A few weeks or months’ improvement of just one pollutant doesn’t make lung disease and other ailments disappear,” Fonseca added.

Coronavirus detected on air pollution particles: report

Date: -25-Apr-2020, Source: thehill.com

Researchers in Italy have found that coronavirus was detected on particles of air pollution, the Guardian reported.

The researchers collected outdoor air pollution samples at both urban and industrial sites in the Bergamo province in Italy. They identified a gene specific to COVID-19 in several samples, according to the outlet.

The study has not yet been peer reviewed, and it does not determine whether the virus on pollution particles is in quantities sufficient enough to cause the disease in humans.

The samples were confirmed in an independent laboratory by blind testing, according to the Guardian.

Leonardo Setti, a researcher from the University of Bologna who led the study, told outlet that it is the lack of information about how the disease could be carrier by pollutants.

“I am a scientist and I am worried when I don’t know,” he said. “If we know, we can find a solution. But if we don’t know, we can only suffer the consequences.”

The team led by Setti suggests that a higher level of particle pollution in the air could explain why there were greater rates of infection in Northern Italy when coronavirus first hit the country.

If the virus was able to grab on to pollution particles, it could suggest that highly polluted areas could be more susceptible to transmit the disease. According to The Guardian, two other research groups have suggested that pollution particles could help the virus travel further. The northern part of the country is one of the most polluted areas of Europe.

Professor Jonathan Reid of Bristol University in the United Kingdom, who is also researching airborne transmission of the coronavirus, told the Guardian that, "It is perhaps not surprising that while suspended in air, the small droplets could combine with background urban particles and be carried around."

A study by researchers from the National Institute of Health, the Centers for Disease Control and Prevention, Princeton University and UCLA has found that coronavirus can stay viable in the air for up to three hours when the virus becomes suspended in droplets after someone coughs or sneezes.

In the same study, researchers found that on surfaces such as plastic and stainless steel, the virus survived for up to two or three days. However, the researchers noted that the virus's ability to infect people diminishes over time.

Falling visibility shows African cities suffering major air pollution increases

Date: -26-Apr-2020, Source: sciencedaily.com

Africa is not well-equipped with air quality monitoring, so scientists have used visibility data for capital cities in Ethiopia, Kenya and Uganda as a substitute measurement.

They discovered a significant reduction in visibility since the 1970s, where Nairobi shows the greatest loss (60%), compared to Kampala (56%) and Addis Ababa (34%) -- due to increased particulate matter (PM) emissions from vehicles and energy generation.

Correspondingly, PM pollution levels in the three cities are estimated to have increased by 182%, 162% and 62% respectively since the 1970s to the current period.

University of Birmingham experts published their findings in Environmental Research Letters. They are now calling for a systematic approach to understand the causes and effects of air pollution in urban East Africa -- allowing improvements in air quality to co-exist with sustainable future economic development.

Report co-author Dr. Ajit Singh commented: "Evidence indicates that ambient air quality in urban African locations is often poor, because of high rates of urbanisation and population growth leading to large-scale construction, increased energy use, vehicle emissions and industrialisation.

"PM air pollution is a major concern in East Africa because of its impact on human health. There are few air quality monitoring networks, resulting in little long-term air quality data, but visibility measured at major cities can be used as a proxy for PM pollution.

"We're tremendously proud of our work in East Africa and the analysis techniques we developed to study Nairobi, Kampala and Addis Ababa are translatable to other parts of the world where air quality data is limited."

The Birmingham team's work is funded by the UK Department for International Development (DFID) through the East Africa Research Fund (EARF) grant 'A Systems Approach to Air Pollution (ASAP) East Africa' and Digital Air Quality (DAQ) -- East Africa funded via EPSRC Global Challenges Research Fund. Co-author Dr. William Avis commented: "Air pollution poses a major health, economic and social threat to cities around the world -- inextricably linked to how we plan, manage and live in urban areas. East Africa is no exception to this, but lacks robust air quality data."

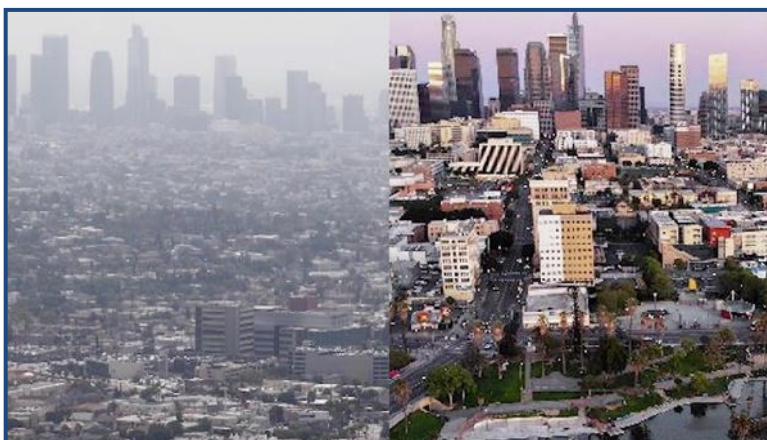
Co-author and ASAP lead Professor Francis Pope said: "We need to understand the causes and effects of air pollution in these three cities, which are rapidly developing and will likely experience further increases in PM. Poor air quality acts as a brake on development through increasing expenditure on health, loss of labour productivity, and the impact of illness on education.

"To date, no studies have been able to assess the role of socio-economic factors upon the evolution of air pollution in East Africa. Our work provides data that helps us understand this relationship and provides a much needed baseline for East African urban air quality that can help assess future air quality improvement interventions in the region." The researchers compared changes in pollution to population growth and GDP statistics -- finding increased PM levels linked to increases in national GDP and populations in all three study cities.

They also discovered distinct variations in seasonal visibility, which are largely explained by changing PM sources and sinks in rainy and dry seasons. Visibility was lowest during the dry months and highest in wet months. At all study sites, visibility was higher on Sundays -- due to reduced traffic and industrial emissions.

How the pandemic is changing air pollution levels

Date: -29-Apr-2020, Source: cbsnews.com



Los Angeles air quality has improved dramatically with the economic slowdown and stay-at-home orders resulting from the coronavirus pandemic.

With more of us staying inside and off the roads, cities around the globe are reporting less air pollution.

In the United States, Washington, D.C., is experiencing its cleanest spring air in 25 years, while Los Angeles -- once ranked as having the worst air quality in the country -- is now boasting some of the best in the world.

"I don't really think we've seen anything like this," said Ryan Stauffer, a research scientist with NASA who uses satellite data to study air quality. Last month, in the northeast, NASA observed a 30% drop in the air pollutant nitrogen dioxide compared to the same month in previous years. Stauffer said it's likely a response to fewer cars on the road.

"Nitrogen dioxide is formed from the burning of fossil fuels," Stauffer said. "So, think about the burning of gasoline in your car engine. It also comes from electricity power generation. So, it's emitted in fairly significant quantities, especially around cities and areas with high amounts of traffic."

Lelia Hawkins, a professor at Harvey Mudd College in Claremont, California, who specializes in air pollution and climate change, said, "We see the benefits of better practices right away just like we're seeing now. ...

"People are asking, you know, is this a silver lining? And my answer is yes and no. It's great to have the cleaner air, but the devastating economic consequences of this crisis are not something that anyone would choose.

"On the bright side, this is a situation [that] will help air pollution scientists like me understand the role that various activities play in our daily exposure, and that will help us be strategic about policies we put in place."

But in the meantime, Hawkins said, these clearer skies should lead to a clearer understanding of our planet.

"The fact that we are able to see clear skies and a lot of places, some that haven't seen clear skies in a very long time, it shows us two things: One, we really are having an impact on our environment, and small changes that we make – in this case large changes, but even small changes – that are targeted can clean up the atmosphere; and two, that it can happen really rapidly."

Air quality near busy Australian roads up to 10 times worse than official figures

Date: -30-Apr-2020, Source: theconversation.com

Air quality on Australia's roads matters. On any given day (when we're not in lockdown) people meet, commute, exercise, shop and walk with children near busy streets. But to date, air quality monitoring at roadsides has been inadequate.

I and my colleagues wanted to change that. Using materials purchased from electronics and hardware stores for around A\$150, we built our own air quality monitors.

Our newly published research reveals how our devices detected particulate pollution at busy intersections at levels ten times worse than background levels measured at official air monitoring stations.

Our open-source design means citizen scientists can make their own devices to measure air quality, and make the data publicly available.

This would provide more valuable data about city traffic pollution, giving people the information they need to protect their health.

Particulate matter: a tiny killer

Everyone is exposed to airborne particulate matter emitted by industry, transport and natural sources such as bushfires and dust storms.

Particulate matter from traffic is a mixture of toxic compounds, both solid and liquid. It's a well-known health hazard, particularly for children, the elderly, pedestrians, cyclists and people working on or near roads. Particulate matter smaller than 2.5 micrometres in diameter, referred to as PM2.5, is particularly harmful. To put this in context, a human hair is about 100 micrometres in width.

When inhaled, these fine particles can damage heart and brain function, circulation, breathing and the immune and endocrine systems. They have also been linked to cancer and low birth weight in newborns.

Do-it-yourself air monitoring

Highly reliable equipment to measure air quality has traditionally been expensive, and is not deployed widely.

Official air quality monitoring usually takes place open spaces or parks, to provide an averaged, background reading of pollution across a wide area. The monitoring stations are not typically placed at pollution sources, such as power stations or roads.

However there is growing evidence that people travelling outdoors near busy city roads are exposed to high levels of traffic emissions.

Air quality monitors can be bought off the shelf at low cost, but their readings are not always reliable.

So I and other researchers at the University of Wollongong's SMART Infrastructure Facility made our own monitors. They essentially consist of a sensor, weatherproof housing, a controller and a fan. Anyone with basic electronics knowledge and assembly skills can make and install one. The monitor connects to the internet (we used The Things Network) and the software required to run it and collect the data is available for free [here](#).

The weatherproof housing cost about A\$16 to make. It consists of PVC plumbing parts, a few screws and small pieces of fibreglass insect screen, which can be bought at any hardware store.

Sensors can be bought from electronics retailers for little as A\$30, but many are not tested, calibrated or overseen by experts and can be inaccurate. We tested three, and chose the Novasense SDS011, which we bought for A\$32.

A controller is needed to run the monitor and send data to the internet. We bought ours from an online retailer for under A\$60. A fan, needed to circulate air through the housing, was bought from Jaycar for A\$14.

Accounting for wiring and a few other parts, our monitors cost under A\$150 each to make - ten times cheaper than mid-grade commercial detectors – and produce reasonably accurate results.

What we found

Following community meetings, we deployed our sensors at nine key locations and intersections around Liverpool in Western Sydney, a region which has traditionally suffered from poor air quality.

Our monitors have been in place since March 2018, placed close to pedestrian height on structures such as light poles, shade awnings or walls.

They have detected roadside measurements of PM2.5 at values of up to 280 micrograms per cubic metre in morning peak traffic. This is more than ten times the readings at the nearest official monitoring station. The severity of the pollution and how long it lasts depends on how bad the traffic is. These findings are comparable to other studies of busy roads.

Breathing easier

Our experience of roadside air quality can be improved in a number of ways.

Obviously, exposure to air pollution is worst at peak traffic times, so plan your travel to avoid these times, if possible.

Pollution levels drop quickly with distance from busy roads and can be at near background levels just one block away. So try to detour along quieter back streets or through parks.

Barriers, such as dense roadside vegetation, can shield pedestrians from pollution. Children in prams are more exposed to traffic pollution than adults, as they are closer to the level of vehicle exhaust pipes. Pram covers can reduce infants' exposure by up to 39%.

Of course, the best way to reduce air pollution from traffic is to have fewer vehicles on our roads, and cleaner fuel and engines.

In the meantime, we hope our low-cost technology will prompt citizen scientists to develop their own sensors, producing the data we need to breathe easy in city streets.

May 2020

France's plan to push pedal power to keep post-pandemic pollution levels low

Date:-1-May-2020, Source: weforum.org

- France is preparing to ease COVID-19 lockdown measures on 11 May.
- It's introducing a \$20 million scheme to get more people cycling - to cut pollution and keep people safe.
- Around the world, public transport is starting to move again with new safety measures.

As Albert Einstein wrote to his son Eduard, in 1930: "Life is like riding a bicycle, to keep your balance, you must keep moving."

In today's coronavirus pandemic, world leaders are looking for ways to get people out of lockdown and the economy moving again, while also balancing the impact on public health and the environment.

In France, the bicycle could play a key role in that, as the government plans to encourage people to cycle more after the lockdown measures are eased, to keep pollution levels down and people safe.

"We want this period to take a step forward in cycling culture, and that the bicycle is the little queen of deconfinement in a way," the Minister for Ecological Transition Élisabeth Borne said.

The \$22 million scheme involves allowing people to have repairs at registered bike shops of up to \$55, as well as paying for training and temporary parking spaces.

It's hoped that people will switch to pedal power rather than driving for short journeys, with the ministry noting that 60% of "trips made in France in normal times are less than 5 kilometres".

Pollution in Paris

The move comes after France announced tentative measures to ease lockdown from 11 May, including the gradual reopening of schools, non-essential shops and markets.

Face masks will have to be worn on public transport, including all trains and the metro in Paris.

The capital city is also banning private cars from one of its main streets, the Rue de Rivoli, along which lies the Louvre, famously housing the Mona Lisa.

Mayor Anne Hidalgo said: “I would like there to be an axis dedicated exclusively to bikes and another reserved only for buses, taxis, emergency vehicles and craftsmen's vehicles, but not cars.”

It's part of an existing plan to roll out more bike lanes across the city and around the country, to triple the rate of daily commutes taken on two wheels from 3% to 9% by 2024 - but it's been accelerated because of the need to get people around safely as lockdown eases.

Around 48,000 people in France die prematurely each year due to air pollution, according to the Public Health France agency. But levels in Paris have dropped since the lockdown was introduced.

“We're really witnessing an improvement in air quality, including pollutants responsible for global warming such as carbon dioxide,” Karine Leger, head of the Airparif agency which monitors air quality in the greater Paris region, told Reuters.

Globally, it's estimated that levels of harmful particulate matter have dropped by up to 60% from the previous year in cities around the world, based on a three-week lockdown.

Amid the coronavirus shutdown, some types of air pollution down by as much as 60 percent in Portland

Date:-1-May-2020, Source: oregonlive.com



Some key indicators of air pollution in Portland have fallen by as much as 60 percent since the coronavirus pandemic prompted stay-home orders in Oregon. Mark Graves

Some types of air pollution have fallen precipitously in the Portland area since the coronavirus pandemic forced residents to drastically curtail travel, according to an analysis from researchers at Portland

State University.

Levels of nitrogen oxide, a byproduct of car exhaust, fell by 40% at an air quality monitoring station near Interstate 5 between February and April. Particulate matter, sometimes called PM2.5, was also down 40% over the same period.

“This is why the sky seems so much bluer,” said Linda George, a professor of earth sciences who conducted the analysis with graduate students Tsai Cookey and Tiffany Mosher. “We just have fewer particles in the air.”

The drop in pollutants wasn't restricted to areas adjacent to freeways, either, George said. At a monitoring station in Southeast Portland, which gives an idea of air quality averages across the city, nitrogen oxide levels were down by 60%.

Black carbon, which comes from diesel exhaust, decreased by about 25%. Those types of air pollution likely saw a smaller drop because some industries, like construction and shipping, have been less impacted by stay-home orders.

Measuring changes in air quality isn't as simple as looking at two days and comparing pollutant levels. Often, the measurements at certain monitoring stations can vary widely depending on wind. To counter that, George, Cookey and Mosher had to find days with nearly identical wind conditions to take out the meteorological variable.

All of the decreases are likely due to a sharp drop in cars and trucks on the road. Weekday traffic dropped by more than 60% statewide during the week of April 13 through April 19 compared to the same period last year, according to the Oregon Department of Transportation.

The dropoff in travel around Portland was mirrored around the world. Dramatic decreases in demand for oil, gas and coal were expected for 2020, according to a report from the International Energy Agency. The agency predicted worldwide demand for energy would fall by 6% in 2020, the equivalent of losing the entire country of India, the world's third largest energy consumer. Demand was expected to fall by 9% in the U.S. and by 11% in the European Union.

"This is a historic shock to the entire energy world," Fatih Birol, executive director of the agency, said in a statement.

While any drop in air pollution is welcome news, especially for those who live near freeways like I-5 and other major sources of emissions, the dip is unlikely to make a major dent in the carbon dioxide levels on a longer scale.

Carbon dioxide levels are expected to decrease by almost 8% for 2020, reaching levels not seen since 2010. To prevent the worst impacts of climate change—holding warming to 1.5 degrees celsius over pre industrial levels—the world needs to see a 7.5% reduction in carbon dioxide emissions every year for the next decade.

And it needs to do so without the sudden shocks that the coronavirus has brought, such as the unexpected deaths of more than 200,000 people and a complete halt to much of the global economy. But even as demand for traditional energy sources has fallen, demand for energy from renewable sources has remained robust. Birol said there could be valuable lessons amidst the tragedy of the pandemic.

"Resulting from premature deaths and economic trauma around the world, the historic decline in global emissions is absolutely nothing to cheer," Birol said. "And if the aftermath

of the 2008 financial crisis is anything to go by, we are likely to soon see a sharp rebound in emissions as economic conditions improve. But governments can learn from that experience by putting clean energy technologies – renewables, efficiency, batteries, hydrogen and carbon capture – at the heart of their plans for economic recovery.

Cleaner Air Because of Coronavirus Lockdowns Is Saving Thousands of Lives

Date:-3-May-2020, Source: vice.com



With fewer people on the roads and economic activity grinding to a halt, pollution from fossil fuels has plummeted — and so have deaths attributable to pollution. The cleaner air during the pandemic means about 6,000 kids won't develop asthma, 600 fewer

babies will be born prematurely, and 1,900 emergency room visits have been avoided, according to the Centre for Research on Energy and Clean Air, which published its findings Thursday.

Two specific types of pollution that have caused almost half a million deaths in Europe every year have significantly decreased: Nitrogen dioxide pollution from the burning of coal and oil is down 40% in Europe this month, according to the study, and pollution from tiny particles, small enough to enter the bloodstream if they're breathed, is down 10%.

"I am very conflicted about all of this. People are dying. The measures we have been forced to take are causing a lot of economic and other distress," the lead author of the air pollution study, Lauri Myllyvirta, told The Guardian. "I hope this will make people think: 'What if we had this sort of air quality not because everyone is forced to sit at home but because we managed the shift to clean transport and energy?'"

The researchers used simulated computer models that combine historical data for air quality, weather conditions, population, and emissions to estimate the number of deaths that have been avoided due to less air pollution.

But the actual number of lives saved due to the reduction of air pollution is likely way higher globally: The study only examined lives saved over the course of a single month in Europe, where the virus has killed more than 130,000 people in total. Some of the sharpest global declines in air pollution around the world have been recorded in densely populated regions of China and India, which have high levels of air pollution.

While Thursday's study didn't include how the drop in air pollution has affected coronavirus patients, dirty air does make COVID-19 cases worse: A Harvard study published earlier this month found that people who live in highly polluted areas are 15% more likely to die from the coronavirus.

It's not just Europe either: Air pollution is down significantly in Los Angeles, the city with the worst air quality in the U.S. It's also plummeted in India and China. Another study also published on Thursday, from global watchdog the International Energy Agency found that all in all, the drop in emissions could be the largest ever recorded — it's six times bigger than the drop during the financial crisis of 2009.

In fact, the pandemic could wipe out demand for fossil fuels, which has fallen off more than has ever been observed before, according to the International Energy Agency.

"It is still too early to determine the longer-term impacts, but the energy industry that emerges from this crisis will be significantly different from the one that came before," Dr. Fatih Birol, said in a statement.

So far, restrictions on travel have led to the biggest slump in oil demand in 25 years. Renewable energy, on the other hand, is still growing: Energy produced from wind and solar is expected to rise by 5% this year, and is expected to produce 40% of all energy this year.

But that shift will only stick with significant changes in policy around the world.

Air Quality Awareness Week is May 4 - May 8, 2020

Date:-4-May-2020, Source: epa.gov

BOSTON – To kick off Air Quality Awareness Week, the U.S. Environmental Protection Agency (EPA) urges New Englanders to be aware of the increased risk of fine-particle air pollution and ground-level ozone (often referred to as smog) and to take health precautions when levels are predicted to be high. EPA and states continue to offer free resources for the public to monitor the latest air quality forecasts.

"Even as EPA is celebrating 50 years of progress improving air quality in the U.S., ozone air pollution can continue to be a significant public health issue in New England, especially with warm summer weather," said EPA New England Regional Administrator Dennis Deziel. "Poor air quality affects everyone, but people with asthma or other respiratory sensitivities to air pollution should take extra precautions on days with reduced air quality."

Air-quality forecasts are issued daily by the New England state air agencies. Current air-quality conditions and next-day forecasts are available each day on EPA's web site (www.airnow.gov). People can also sign up to receive "Air Quality Alerts." These alerts provided free by EPA through the EnviroFlash system, in cooperation with the New England

states, automatically notifies participants by e-mail when ozone or fine-particle levels in their area are predicted to be high.

Warm summer temperatures aid formation of ground-level ozone. The current ozone standard is 0.070 parts per million (ppm) on an 8-hour average basis. Air quality alerts are issued when ozone concentrations exceed, or are predicted to exceed, this level. EPA New England posts a list of exceedances of the ozone standard, by date and monitor location, on its web site.

Although the number of unhealthy days varies from year to year due to weather conditions, over the long term, New England has experienced a significant decrease in the number of unhealthy ozone days. For the 2015 ozone standard, New England had 118 unhealthy days in 1983, compared with 24 in 2019. This downward trend is mainly due to a reduction in emissions from powerplants and other industrial facilities.

When air quality is predicted to be "unhealthy for sensitive groups," EPA and the states announce an air quality alert for the affected areas. On these days, EPA recommends that people in these areas limit strenuous outdoor activity and asks that the public and businesses take actions to help reduce air pollution and protect public health. These actions to reduce air pollution include:

Reducing trips in motorized vehicles whenever possible, or if you do go out, combine errands to reduce driving time and mileage.

Set air conditioners to a higher temperature and turn off lights, TVs and computers when they are not being used.

Avoid using small gasoline-powered engines, such as lawn mowers, string trimmers, chain saws, power-washers, air compressors and leaf blowers.

Avoid outdoor burning, including leaf burning and use of firepits and campfires.

Air pollution on the rise in China as coronavirus lockdown ends

Date:-5-May-2020, Source: independent.co.uk

Air pollution in China is on the rise following the end of the coronavirus lockdown, satellite data has revealed.

Nitrogen dioxide (NO₂) pollution increased as the country began to reopen last month. NO₂ levels, represented by colour density on the maps, are seen to intensify over areas including Wuhan, the suspected epicentre of the outbreak, Beijing, Shanghai and Hong Kong.

The maps were created using readings from the Sentinel-5P observation satellite, following guidelines by the European Space Agency, and first appeared in the META newsletter of the

European Environmental Bureau, (EEB), a network of organisations from more than 30 countries.

The satellite carries an instrument - the Tropospheric Monitoring Instrument known as Tropomi - to map trace gases in the atmosphere such as nitrogen dioxide, ozone, formaldehyde, sulphur dioxide, methane, carbon monoxide and aerosols, which affect air quality and the climate.

The emissions data covers a roughly four-month period, from 12 December, 2019 to 28 April. It showed that emissions dropped significantly between 25 January and 23 February.

On 23 January, China blocked people from leaving or entering Wuhan and expanded the lockdown to most of the province in the following days. Train service and flights were cancelled and checkpoints were set up on roads.

China also ordered a widespread lockdown across most of the country, confining hundreds of millions of people to their homes. Travel was severely curtailed, businesses shuttered and vast swaths of the population were instructed to work from home.

The lockdown ended on 8 April and as business, travel and industry began ramping up, so emissions have climbed.

EEB air policy officer Margherita Tolotto said: "During this pandemic, what happens in China has often been a window into what happens elsewhere some time later. Breathing toxic air compromises our health and makes us more vulnerable to health threats. Our governments and the European Commission must prevent harmful air pollution from returning and develop exit strategies which avoid taking us back to a dirty future."

Nitrogen dioxide levels in the atmosphere in part come from cars, trucks, buses and power plants. The air pollutant forms when fossil fuels like coal, oil, gas or diesel burn at high temperatures. Along with other nitrogen oxides, NO₂ contributes to particle pollution in the air.

The air pollutant can cause a range of health issues, according to the American Lung Association, including increased inflammation of airways; cough and wheezing and reduced lung function. The group also points to new research which warns NO₂ to be the likely cause of asthma in children.

According to the European Public Health Alliance (EPHA), people who live in polluted cities are more at risk from the coronavirus. Poor air quality has been linked to hypertension, diabetes and respiratory diseases, conditions that place Covid-19 patients at greater risk.

A 2003 study on SARS found that patients in regions with moderate air pollution levels were 84% more likely to die than those in regions with low air pollution, EPHA reported.

Air pollution blowing in from Europe causes a spike in harmful particles over London - just as nitrogen dioxide levels HALVE due to a fall in traffic during the coronavirus lockdown

Date:-6-May-2020, Source: [dailymail.co.uk](https://www.dailymail.co.uk)



Changes to indoor activity saw some groups of people, such as children and tube users, exposed to a higher level of PM2.5 because of additional time spent cooking at home

British air quality scientists have recorded a fall in nitrogen dioxide (NO₂) but a rise in particulate matter in London air since the coronavirus lockdown began.

Concentrations of NO₂, which comes from burning diesel and petrol in car engines, are down 55 per cent on a central London road due to a fall in traffic, they report.

But levels of microscopic particles known as PM₁₀ and PM_{2.5} were higher after the

lockdown was introduced than at any other time so far this year.

This is due to easterly winds carrying particulate matter from Northern Europe, as well as emissions from locked-down Londoners burning wood and cooking food.

'Our early analysis of the lockdown showed significant reductions in nitrogen dioxide (NO₂), particularly near busy roads in London where in some central areas concentrations were halved,' said Professor Martin Williams, head of science policy and epidemiology team at King's College London.

'However, the lockdown period coincided with easterly winds and higher temperatures, so we saw increased particle concentrations – PM_{2.5} – as pollutants from northern Europe added to UK emissions to give higher than usual PM_{2.5} levels.

'The higher temperatures post lockdown also led to higher ozone concentrations.'

Using air quality monitoring sensors, researchers recorded a 55 per cent drop in NO₂ around the normally busy Marylebone Road and a 36 per cent decrease on the nearby Euston Road.

The average hourly concentrations of the harmful gas have fallen more than a fifth – 21.5 per cent – across the whole of the capital.

NO₂ inflames the lining of the lungs and can reduce immunity to lung infections while exacerbating respiratory problems.

This could make the pollutant particularly fatal for people with COVID-19, for whom difficulty breathing is one of the main symptoms.

In normal circumstances, the fall in NO₂ would be beneficial, but that has been masked by increased ozone levels and PM_{2.5} – particulate matter under 2.5 micrometres in diameter.

Particulate matter, or PM, comes from a variety of sources, including vehicle exhausts, construction sites, industrial activity or even domestic stoves and ovens.

The tiny, inhalable particles of micromatter, which are too small to see with the human eye, can be made of sulphate, nitrates, ammonia, sodium chloride, black carbon or mineral dust.

PM can negatively impact brain function, as they can access blood circulation easily after they've been breathed into the lungs.

During the lockdown, some people will have been exposed to higher levels of PM_{2.5} pollution indoors because of more time spent cooking at home, the KCL researchers said.

Wood burning also contributed to levels of particulate pollution before and during the government-imposed lockdown and social distancing measures were introduced on March 24.

WHO guidelines indicate that by reducing particulate matter from 70 to 20 micrograms per cubic metre (µg/m), air pollution-related deaths can be cut by around 15 per cent.

The fact that PM is carried across continents by wind shows how much neighbouring nations rely on each other to reduce breathable pollutants.

Air pollution leads to an estimated 40,000 early deaths in the UK each year, contributing to heart disease, strokes, lung diseases and cancer, and can harm children's development and may even increase the risk of dementia.

'The high concentrations of PM during lockdown is a clear warning that if the UK is to achieve the current WHO PM guideline then as well as actions in the UK, other European countries will need to achieve their emission reduction targets,' Professor Williams said.

While it remains to be seen how air pollution affects those with COVID-19, more research is needed to assess how air pollutants could contribute to the spread of the virus.

According to a study by the Centre for Research on Energy and Clean Air (CREA) last month, more than 1,700 deaths in the UK have been avoided in the past month due to better air quality caused by the coronavirus lockdown.

CREA said levels of NO₂ dropped around 40 per cent between the start and end of April across Europe, while PM levels dropped 10 per cent.

These decreases have resulted in an estimated 11,000 avoided deaths related to air pollution across Europe, including 1,752 in the UK.

Researchers report decrease in South African air pollution during lockdown

Date:-7-May-2020, Source: engineeringnews.co.za

Concentrations of air pollutants over South Africa decreased during the national lockdown (imposed to try and counter the Covid-19 pandemic), preliminary analysis of satellite data indicated. The study focused on nitrogen dioxide (NO₂) and sulphur dioxide (SO₂).

The research was being carried out by researchers from South Africa's Council for Scientific and Industrial Research (CSIR) and the UK's University of Leicester. It was aimed at understanding the effects of the lockdown on air pollution in South Africa.

Data sourced from the TROPOMI instrument on the Sentinel-5P satellite provided information on pollutants in the atmosphere. This was supplemented by data from ground-based sensors, which recorded the levels of the pollutants at the level at which people breathe.

(Sentinel-5P is a European Space Agency satellite, the suffix -P standing for Precursor, as it preceded the Sentinel-5 satellite. Sentinel-5P was launched in October 2017 and Sentinel-5 should be launched next year. TROPOMI stands for Tropospheric Monitoring Instrument.)

The preliminary data show that, over the Highveld, there had been a 23% decrease in NO₂ concentrations over the period of March 27 to April 20, in comparison to the pre-lockdown period of March 10 to March 26. The fall in SO₂ concentrations was even greater, coming to 47%, for the period March 27 to April 17 (again, in contrast to the March 10 to March 26 period).

In spatial terms, there was a greater decrease in NO₂ in and around Gauteng province, because of the reduction in vehicle traffic. There was also a sizeable fall over the Highveld's industrialised region.

"It would be premature to attribute this change solely to the decreases in emissions from the lockdown," cautioned CSIR principal researcher Professor Rebecca Garland. "Confirmation with additional surface observations and a model are required. This work is on-going."

"This change will likely be temporary as many of the emissions reductions due to the lockdown will reverse when we go back to our normal day-to-day activities that make large contributions to air pollution," pointed out University of Leicester Associate Professor in

Earth Observations Eloise Marais. “This period does provide us with a unique opportunity to learn about the influence of different sources on air quality, whether natural or anthropogenic. This information is crucial for developing effective air quality policies.”

Florida's air is cleanest on record

Date:-8-May-2020, Source: firstcoastnews.com



After meeting all federal standards, resulting in the cleanest air on record, pollution levels drop even more due to the COVID-19 pandemic. JACKSONVILLE, Fla. — Over the past two months as the COVID-19 pandemic has our lives’ upended, greenhouse gas emissions

across major cities and metropolitan areas in the United States have dropped significantly. According to the U.S. Energy Information Administration, carbon dioxide emissions will fall nearly 7.5% in 2020.

“In the long term, obviously this way of reducing air pollution is not sustainable, but neither was the way we were handling air pollution prior to all this,” said Jenna Stevens, State Director for Environment Florida, where she’s seen pollution levels across the state the lowest they’ve been in decades.

In fact, when the Florida Department of Environmental Protection released its annual numbers a few months back – Florida met all of it’s federal benchmarks and has it’s cleanest air on record, being the most populous state to meet federal standards. It shows the state is on the right track.

Now over the past few months, the big drop in emissions simply has to do with less cars on the road. According to the EPA, transportation is the number one source of greenhouse gas emissions in the United States, at nearly 30%. So with all of us stuck at home, not burning gasoline on that commute to work, the atmosphere is grateful.

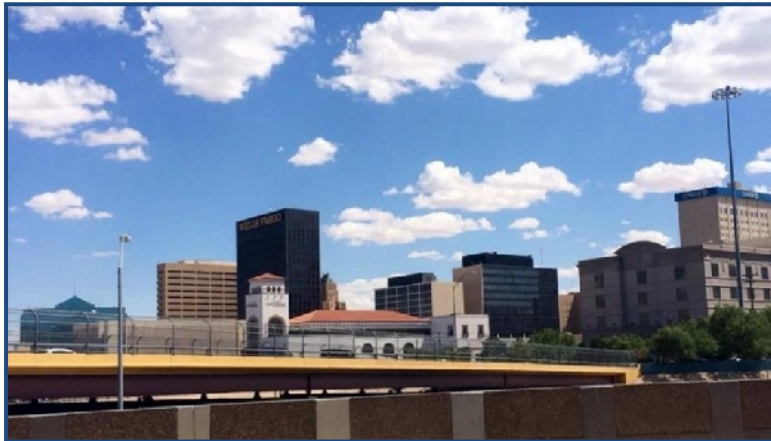
“This isn’t something where we can reduce emissions for two months and everything be fixed,” added Stevens. “This is going to take long term changes and changes in the way our society views how we produce and consume energy.”

But here’s the rub, even though emissions have fallen, the concentration of CO₂ in the atmosphere is still prominent. Think of it like this – we’ve slowed down how fast we’re pouring our cup of coffee, but there’s still coffee in the cup. To make any sort of dent in our

warming globe, CO2 emissions would have to be this low, if not lower, consistently for the foreseeable future.

El Paso lands itself at the top of most polluted cities in the U.S., can this affect the COVID-19 cases?

Date:-9-May-2020, Source: ktsm.com



El Paso, Texas (KTSM) — For the last few years, El Paso has managed to reach some of the top ranks when it comes to air pollution. “In the U.S., cities with the highest average-annual particulate matter levels include Fresno, California, El Paso, Texas, and Montgomery, Alabama,” according to data from Plume

Labs.

In a new study released by the World Bank Group, it was found that areas with more air pollution have a higher number of confirmed COVID-19 cases and related hospital admissions than densely populated areas.

While many may believe this is all due to high population, the study explains otherwise.

“The fast spread of severe acute respiratory syndrome coronavirus 2 has resulted in the emergence of several hot-spots around the world. Several of these are located in areas associated with high levels of air pollution,” stated in the World Bank Group study.

The study estimates suggest that expected COVID-19 cases increase by nearly 100 percent when pollution concentrations increase by 20 percent.

“Combined, the regressions thus provide strong evidence that PM2.5 plays a role in COVID-19 case incidence that cannot be attributed to demographics or health pre-conditions,” the study adds.

Particulate matter is fine dust in the air that’s nearly invisible, but it can travel into the lungs. Even without the threat of the virus, this form of air pollution can cause cardiovascular disease and respiratory illnesses.

Of course, there are other large factors for the rise in COVID-19 cases, but all studies suggest, the public stays at home as much as possible.

COVID-19 lockdowns significantly impacting global air quality

Date:-11-May-2020, Source: sciencedaily.com



Beijing

Two new studies in AGU's journal *Geophysical Research Letters* find nitrogen dioxide pollution over northern China, Western Europe and the U.S. decreased by as much as 60 percent in early 2020 as compared to the same time last year. Nitrogen dioxide is a highly reactive gas produced during combustion that has

many harmful effects on the lungs. The gas typically enters the atmosphere through emissions from vehicles, power plants and industrial activities.

In addition to nitrogen dioxide, one of the new studies finds particulate matter pollution (particles smaller than 2.5 microns) has decreased by 35 percent in northern China. Particulate matter is composed of solid particles and liquid droplets that are small enough to penetrate deep into the lungs and cause damage.

The two new papers are part of an ongoing special collection of research in AGU journals related to the current pandemic.

Such a significant drop in emissions is unprecedented since air quality monitoring from satellites began in the 1990s, said Jenny Stavrakou, an atmospheric scientist at the Royal Belgian Institute for Space Aeronomy in Brussels and co-author of one of the papers. The only other comparable events are short-term reductions in China's emissions due to strict regulations during events like the 2008 Beijing Olympics.

The improvements in air quality will likely be temporary, but the findings give scientists a glimpse into what air quality could be like in the future as emissions regulations become more stringent, according to the researchers.

"Maybe this unintended experiment could be used to understand better the emission regulations," Stavrakou said. "It is some positive news among a very tragic situation."

However, the drop in nitrogen dioxide pollution has caused an increase in surface ozone levels in China, according to one of the new studies. Ozone is a secondary pollutant formed

when sunlight and high temperature catalyze chemical reactions in the lower atmosphere. Ozone is harmful to humans at ground-level, causing pulmonary and heart disease.

In highly polluted areas, particularly in winter, surface ozone can be destroyed by nitrogen oxides, so ozone levels can increase when nitrogen dioxide pollution goes down. As a result, although air quality has largely improved in many regions, surface ozone can still be a problem, according to Guy Brasseur, an atmospheric scientist at the Max Planck Institute for Meteorology in Hamburg, Germany, and lead author of one of the new studies.

"It means that by just reducing the [nitrogen dioxide] and the particles, you won't solve the ozone problem," Brasseur said.

Worldwide emissions

Stavrakou and her colleagues used satellite measurements of air quality to estimate the changes in nitrogen dioxide pollution over the major epicenters of the outbreak: China, South Korea, Italy, Spain, France, Germany, Iran and the United States.

They found that nitrogen dioxide pollution decreased by an average of 40 percent over Chinese cities and by 20 to 38 percent over Western Europe and the United States during the 2020 lockdown, as compared to the same time in 2019.

However, the study found nitrogen dioxide pollution did not decrease over Iran, one of the earliest and hardest-hit countries. The authors suspect this is because complete lockdowns weren't in place until late March and before that, stay-at-home orders were largely ignored. The authors did see a dip in emissions during the Iranian New Year holiday after March 20, but this dip is observed during the celebration every year.

Air quality in China

The second study looked at air quality changes in northern China where the virus was first reported and where lockdowns have been most strict.

Brasseur analyzed levels of nitrogen dioxide and several other types of air pollution measured by 800 ground-level air quality monitoring stations in northern China.

Brasseur and his colleague found particulate matter pollution decreased by an average of 35 percent and nitrogen dioxide decreased by an average of 60 percent after the lockdowns began on January 23.

However, they found the average surface ozone concentration increased by a factor of 1.5-2 over the same time period. At ground level, ozone forms from complex reactions involving nitrogen dioxide and volatile organic compounds (VOCs), gases emitted by a variety of household and industrial products, but ozone levels can also be affected by weather conditions and other factors.

Urban air quality improves as coronavirus empties U.S. highways: NOAA

Date:-13-May-2020, Source: in.reuters.com



The Flatiron Building stands next to Madison Square Park as streets remain less busy due to the continuing outbreak of the coronavirus disease (COVID-19) in the Manhattan borough of New York U.S., May 5, 2020. 5, 2020 at 3:38PM.

WASHINGTON (Reuters) - U.S. air quality has improved since the coronavirus crisis emptied the roads of traffic, giving the country a futuristic glimpse of the clearer skies that could come with an electric vehicle fleet, according to preliminary findings by National Oceanic and Atmospheric Administration labs.

Using satellites, airplanes and ground monitors, NOAA researchers say they have observed a 25% to 30% reduction in smog-causing nitrogen oxide emissions along with big cuts in volatile organic compounds and greenhouse gases in both the heavily populated U.S. Northeast and in Colorado's urban cluster.

The so-called COVID Air Quality Study, which focuses on those two disparate regions of the country, "offers a glimpse into a potential future of urban air quality, due to the ongoing electrification of the U.S. transportation fleet," NOAA said.

"We can learn lessons from this shutdown," said Xinrong Ren, a researcher at the NOAA Air Resources Laboratory in Maryland, who added he expected urban areas of the United States would see similar improvements in air quality if half the U.S. car fleet was electrified and more people continued to work from home.

Other parts of the world have also recorded improvements in air quality since the coronavirus outbreak, including the notoriously smog-filled Indian city of New Delhi and industrialized parts of northern China, a thin silver lining to a health crisis that has killed almost 290,000 people.

NOAA researchers said they were comparing their U.S. pollution measurements to data recorded in previous years to come up with the estimated cuts.

Along the I-95 corridor from Boston to Washington, for example, NOAA researchers found a decrease in nitrogen oxide emissions of 25% to 30% and a cut in carbon dioxide emissions of 15% to 20%, as traffic dropped by about half from typical levels.

Transportation is the source of around 43% of the nation's nitrogen oxide emissions, and 29% of its carbon dioxide emissions, according to according to the U.S. Emissions Database for Global Atmospheric Research (EDGAR).

Preliminary findings from NOAA's Earth System Research Laboratory in Boulder, Colorado, showed that concentrations of volatile organic compounds measured during the month of April in Colorado's Front Range – home to the state's most-populous cities - were half what they were in April 2018, said Jessica Gilman, a NOAA research chemist. Carbon monoxide and nitrogen oxides also decreased by about 30% when compared with the median monthly observations from 2010 to 2019, she said.

Nitrogen oxide and volatile organic compounds are the main ingredients of ozone and particulate matter that create urban smog, a human health hazard.

NOAA said it would continue to monitor emissions into the summer, as states and cities reopen businesses, in the hopes it can further isolate the contribution of road travel to air quality.

Air quality and prevents thousands of premature deaths

Date:-14-May-2020, Source: publichealth.yale.edu



Improved air quality in China during the coronavirus quarantine significantly improved the country's air quality and, in turn, prevented thousands of pollution-related deaths.

Soon after coronavirus appeared, an all-encompassing quarantine put into effect by the Chinese government slowed the spread of the disease and saved lives, but the quarantine also produced another unanticipated health benefit.

A new study led by researchers at the Yale School of Public Health and published in the journal *Lancet Planetary Health*, finds that China's countrywide ban on traffic

mobility from February 10 to March 14 greatly limited automobile emissions and sharply reduced the country's often severe air pollution.

The improved air quality, in turn, prevented thousands of pollution-related deaths. More premature deaths were avoided by cleaner air—an estimated 12,125—than lives lost from the pandemic—4,633 as of May 4, the study finds.

“This is a very surprising result. The pandemic continues to be a terrible thing for China and the rest of the world, but the decrease in emissions that accompanied it has actually conferred some positive health results,” said Kai Chen, assistant professor at the Yale School of Public Health and the study’s first author. “The question is, how can we have one without the other?”

Although the findings cannot be directly applied to other countries due to different severity of and responses to COVID-19, as well as differing air pollution levels and population characteristics, reduced air pollution levels have been detected in other Asian and European countries and the U.S. after their own lockdowns, Chen said. He notes that this reduction in pollution has likely conferred similar health benefits.

The study found that ground-level air pollution levels dropped remarkably throughout China, with nitrogen dioxide (NO₂) dropping by 12.9 µg/m³ (or 37% compared with before the quarantine period) and fine particulate matter (PM_{2.5}) dropping by 18.9 µg/m³ (30%) across 367 Chinese cities. The decline in NO₂ across China during the quarantine period was so dramatic that it was detected by satellite measurements.

NO₂ is a gaseous air pollutant, which is mainly produced from fuel burning in vehicles and power plants. NO₂ level before the quarantine (January 5 to 20) was as high as 40.5 µg/m³ in Wuhan, where the outbreak began in China. During the quarantine (February 10 to March 14), those levels had fallen to 18.8 µg/m³ (micrograms per cubic meter).

Particulate matter includes all solid and liquid particles suspended in air, many of which are hazardous when inhaled. This mixture includes both organic and inorganic particles, such as dust, pollen, soot, smoke, and liquid droplets. Before the quarantine, PM 2.5 (fine inhalable particles with diameters of 2.5 micrometers or smaller) levels were measured at 62.5 µg/m³ in many Chinese cities. During the quarantine, the fine particulate matter reading has been 36.5 µg/m³ in those same locations.

The authors then calculated the number of avoided deaths attributable to these decreases in NO₂ and PM_{2.5} across China based on the short-term association between these pollutants and daily mortality using data from a previous epidemiological study of 272 Chinese cities, and mortality data from the China Health and Family Planning Statistical Yearbook 2018. The authors found that among the more than 12,000 avoided deaths, about two-thirds were from avoided cardiovascular diseases (hypertensive disease, coronary heart disease and stroke) and chronic obstructive pulmonary disease.

The findings illustrate the substantial human health benefits related to cardiovascular disease morbidity and mortality that can be achieved when aggressive air pollution control measures are put in place to reduce emissions from vehicles, such as through climate mitigation-related traffic restrictions or efforts to accelerate the transition to electric vehicles, the authors said.

“This unexpected health benefit suggests that if we were to address the climate crisis as aggressively as we are combating the COVID-19 pandemic with strong political will and urgent action, we could prevent the enormous health burdens associated with climate change,” said co-author Paul T. Anastas, professor at the Yale School of Public Health and the Teresa and H. John Heinz III Chair of Chemistry for the Environment.

The authors said that they want to further identify whether climate or weather-related factors and air pollution could influence population susceptibility to COVID-19.

The paper was written with researchers from the University at Buffalo School of Public Health and Health Professions and Boston University School of Public Health.

Oxford city centre has seen a historic 59% drop in toxic air pollution following the coronavirus lockdown – new data

Date:-15-May-2020, Source: [oxford.gov.uk](https://www.oxford.gov.uk)

Oxford city centre has seen a historic 59% drop in air pollution as a direct result of the coronavirus lockdown, new data has revealed.

Independent experts from Ricardo Energy and Environment modelled what air quality would have been like without lockdown measures in place and compared this with the actual measurements obtained at sites across the UK.

The assessment found a 59% reduction in toxic nitrogen dioxide in Oxford as a direct result of the lockdown measures.

In Oxford, 75% of nitrogen dioxide comes from transport and, with roads clear of congestion, levels are now below the legal limit in Oxford city centre for the first time in generations.

To put the historic reduction into perspective, over the decade to 2019 air pollution levels in Oxford had decreased by 36.8%.

Oxford City Council is keen to maintain the historic reduction in air pollution after the lockdown eases, and is in discussions with Oxfordshire County Council, the transport authority, to achieve this.

Earlier this week, the City Council announced that it was exploring a range of measures – including reallocating road space for walking and cycling, and pedestrianising Broad Street – to protect public health, and provide pedestrians and cyclists with more space, as the city centre reopens.

Uncongested, safe roads and clean air could see an increase in cycling and walking as alternatives through recovery and beyond.

Halfords, Britain's biggest cycle retailer, said sales of some cycling equipment had risen 500% at the start of the lockdown, while bike sales this month have been double normal levels.

The City Council and County Council will introduce a Zero Emission Zone, which will see diesel and petrol vehicles discouraged from entering Oxford city centre in stages between 2021 and 2036.

Although it was previously thought that emissions were responsible for around 40,000 deaths in the UK every year, new figures (European Heart Journal, March 2019) suggest it is closer to 64,000 – just 18% less than the 78,000 deaths annually caused by tobacco.

Health experts have also warned that there is no safe level of air pollution.

Historic air pollution reduction

Environmental consultancy firm Ricardo Energy and Environment carried out the research by using live air pollution data from across the country, including from the monitoring station in St Aldate's, Oxford.

The company modelled the expected change in air pollution between 16 March – before the start of the coronavirus lockdown on 23 March – and early May, and compared this to actual data from the monitoring site.

By removing the influence of weather on air pollution it was possible to identify the fall that can be directly attributed to the coronavirus lockdown.

Highest percentage reduction in UK

As part of the assessment, Ricardo Energy and Environment utilised data from 29 sites across the UK, including in London, Edinburgh, Glasgow, Birmingham, Bristol, Southampton and York.

Oxford had the highest percentage reduction in nitrogen dioxide across the sites (59%), followed by Glasgow (55%), Leeds (54%), York (54%), Edinburgh (47%) and Manchester (46%).

The average fall in nitrogen dioxide across the 29 sites was 34%.

Zero Emission Zone

The City Council and County Council will introduce the Zero Emission Zone and Connecting Oxford transport proposals.

In March, the City Council and County Council announced that the launch of the zone would be postponed for six months from late 2020 until summer 2021 as a result of the pandemic.

The Government has suspended all Clean Air Zones, including in Birmingham, Leeds and Bath, until at least January 2021 due to the impact of the pandemic. Oxford was introducing a Zero Emission Zone voluntarily, rather than at the instigation of Government, and requiring higher emissions standards than the Clean Air Zones.

This delay was in recognition that businesses and residents across the city, and particular in the Red Zone, need to focus their attention on managing the current and potential impacts on their trade and way of life during the coronavirus pandemic.

Following consultation with the taxi trade and bus providers, in May both councils also updated the emission standards for Hackney Carriage taxis in Oxford and the timeline for buses to be compliant in the Oxford Zero Emission Zone.

There have been no changes to the timeline for introducing Connecting Oxford.

History of tackling air pollution

The City Council has secured or helped secure around £84m of Government funding in recent years to tackle air pollution and the climate emergency.

Specifically to tackle air pollution in the city centre and help introduce the Zero Emission Zone, the City Council has secured £1.7m to upgrade buses to be ultra-low emission or fully electric, £800,000 to install electric vehicle charging points for residents with on-street parking, and £500,000 to install charging points for taxi owners and operators.

Oxford City Council was named as the number one local authority in the UK for tackling air pollution by Government Business, and ClientEarth named the City Council as one of the best local authorities in the UK for tackling air pollution.

The City Council declared a climate emergency in January 2019, which was followed by the Oxford Citizens Assembly on Climate Change in September and October.

One of the key findings of the assembly, which was put together by Ipsos MORI and was broadly demographically representative of the city's population, was: "Encouraging behaviour change with a shift away from private car use was seen as key."

China sees post-lockdown rise in air pollution: study

Date:-18-May-2020, Source: in.reuters.com

BRUSSELS (Reuters) - China's levels of some air pollutants have risen back to above last year's levels after dropping when the government imposed strict lockdown measures to contain the coronavirus pandemic, according to a study published on Monday.



People wearing protective masks ride bicycles in Wuhan, the Chinese city hit the hardest by the coronavirus disease (COVID-19) outbreak, in the Hubei province, China. May 14, 2020.

The rebound was likely due to industrial activity, the researchers said, adding there were concerns that after months of unusually low pollution levels, a drive to kickstart economic activity was causing emissions to spike.

“There are early warning signs that China’s recovery from the COVID-19 crisis is reversing air quality gains,” the Helsinki-based Centre for Research on Energy and Clean Air (CREA), which produced the study,

said.

Average levels of some air pollutants in China dropped in February to significantly below levels for the same period in 2019, as lockdown measures shuttered factories, curbed electricity demand and slashed transport use as swathes of the population stayed home.

But average levels of some pollutants have since rebounded, and were higher in the 30 days ended 8 May compared with the same period in 2019, CREA said in its analysis of data from 1,500 air quality monitoring stations in China.

This was true of nitrogen dioxide, sulfur dioxide, and fine particulate matter, suggesting a rebound in industrial activity drove the trend, CREA said.

Regions with factory clusters reported bigger increases in nitrogen dioxide emissions. Densely populated urban areas - where emissions of the gas are mostly from vehicles, rather than factories or power plants - showed smaller increases.

After months of lockdowns, China is reopening its economy as the outbreak comes under control, although some cities - such as Shulan, in the north east - have reimposed lockdown measures after reporting clusters of new coronavirus infections.

Overall passenger transport use in China remains lower year-on-year, but CREA said concerns about catching the coronavirus had led people to choose private cars over public transport as lockdowns eased, contributing to the rise in air pollution.

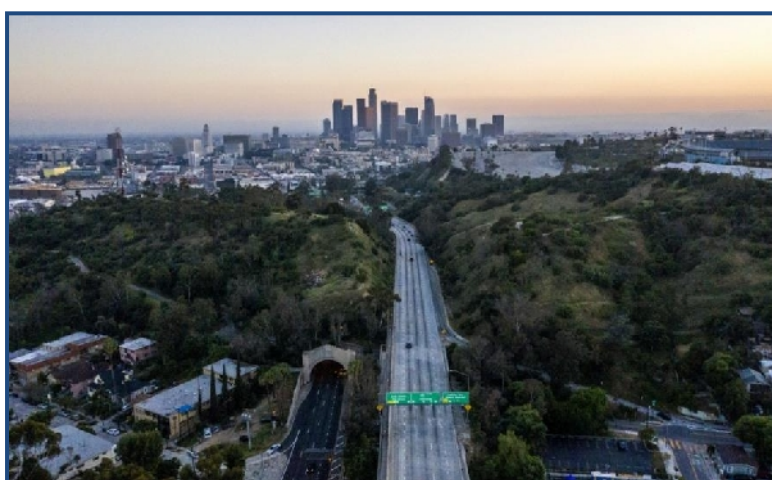
In Europe, cities including London, Milan and Brussels have expanded cycle lanes to encourage people to choose bikes over cars as containment measures start to lift.

But many emissions-intensive sectors are desperate to return to work. Public health campaigners said the China study showed governments would need to take tougher measures to clean up industries, to avoid a sustained surge in health-damaging air pollution.

“There is no reason to think that going back to normal would not have the same consequences - namely, pre-crisis pollution levels,” Zoltan Massay-Kosubek, policy manager for clean air at the non-profit European Public Health Alliance, said of easing lockdowns in Europe.

Carbon emissions dropped 17 percent globally amid coronavirus

Date:19--May-2020, Source: nbcnews.com



The 110 freeway toward downtown Los Angeles on April 28, 2020.

The coronavirus pandemic has forced countries around the world to enact strict lockdowns, seal borders and scale back economic activities. Now, an analysis published Tuesday finds that these measures contributed to an estimated 17 percent decline in daily global carbon dioxide

emissions compared to daily global averages from 2019.

It's a worldwide drop that scientists say could be the largest in recorded history.

At the height of coronavirus confinements in early April, daily carbon dioxide emissions around the world decreased by roughly 18.7 million tons compared to average daily emissions last year, falling to levels that were last observed in 2006, according to the new study, published in the journal *Nature Climate Change*.

Drastic changes in transportation, industrial activities and air travel in nations under lockdowns could also fuel a decrease in this year's annual carbon emissions of up to 7 percent, the study found. Though significant, scientists say these declines are unlikely to have a long-term impact once countries return to normal unless governments prioritize investments and infrastructure to reduce harmful emissions.

“Globally, we haven’t seen a drop this big ever, and at the yearly level, you would have to go back to World War II to see such a big drop in emissions,” said Corinne Le Quéré, a professor of climate change science at the University of East Anglia in the U.K., and the study’s lead author. “But this is not the way to tackle climate change — it’s not going to happen by

forcing behavior changes on people. We need to tackle it by helping people move to more sustainable ways of living.”

The study found that the sharpest decline in carbon emissions — making up 43 percent of the total decrease — came from reduced traffic from cars, buses and trucks. Emissions from industrial activities, which were ramped down substantially in the hardest-hit nations, fell by 19 percent.

Emissions from air travel, which experienced a staggering 75 percent drop in daily activity in early April, fell by 60 percent. That decline, however, made up a much smaller portion of the overall decrease because air travel typically accounts for only 2.8 percent of yearly global carbon emissions.

“Air traffic was down two-thirds, but surface transport — cars and trucks — is almost 10 times bigger in terms of emissions,” said Rob Jackson, a professor of Earth system science at Stanford University and a co-author of the study.

The pandemic will likely also cause this year’s annual carbon emissions to drop by between 4 percent to 7 percent, depending on how long strict social-distancing measures remain in effect and how quickly economies rebound.

In early April, the deepest decreases in daily global carbon emissions — 17 percent declines compared to daily averages last year — lasted for about two weeks, according to Jackson. Individual countries saw an average drop in emissions of 26 percent at the peak of their lockdowns, which occurred earlier for several countries in Asia, where the coronavirus emerged in late December, and more recently for parts of Europe and North America.

The study did not account for how global emissions could be affected by new outbreaks and subsequent wave of infections, but it’s likely that such events could lead to steeper declines in emissions this year and possibly into 2021.

“If the outbreak lasts longer, we’ll have more depressed economic activity in 2021,” said Zeke Hausfather, a climate scientist at the University of California, Berkeley, who was not involved with the new study. “It’s likely at this point that 2021 emissions will be below 2019 emissions but higher than 2020, unless things take a turn for the worse.”

In the new analysis, the researchers examined lockdown measures in 69 countries that are responsible for 97 percent of global carbon dioxide emissions. Since there is no way to measure carbon dioxide emissions in real time, the scientists used data on how six key economic sectors, including industrial activities, ground transportation and air travel, were affected in each country from January through April. They then calculated how emissions in these sectors, and their contribution to yearly emissions, changed based on the severity of each nation’s social-distancing restrictions. The scientists did estimate a 2.8 percent increase in emissions from residential buildings during this time, likely from people working

from home and consuming more electricity in households, Le Quéré said. It's possible, she added, that this bump could increase if the pandemic lingers through the summer and homes in the U.S. and elsewhere in the Northern Hemisphere ramp up use of air conditioning.

Though declining emissions make for unexpected good news against the backdrop of the pandemic, these reductions have come at a high societal cost. The changes are also unlikely to last once restrictions on people's movements and daily lives are lifted. And though these declines are largely unparalleled in modern history, they also demonstrate how difficult it is to make significant dents in global emissions.

"Despite all of the changes that are happening around the world to our lifestyle and consumption behaviors, we're only going to see a reduction of 7 percent this year," Hausfather said. "It goes to show just how big a challenge decarbonization really is."

Before the pandemic, global carbon dioxide emissions had been increasing by approximately 1 percent a year over the past decade. A drop in emissions in one year is something, but it's not enough to slow the accelerated pace of climate change.

"Carbon dioxide stays in the atmosphere for a very long time, so climate change is driven more by the total amount we've ever emitted than any amount we emit in a single year," Hausfather said. "From a climate standpoint, what really matters is long-term systemic changes that can drive emission declines over decades."

Decreases from 4 percent to 7 percent are roughly in line with how much global emissions would need to fall each year to keep global warming below 1.5 degrees to 2 degrees Celsius, as outlined under the 2015 Paris climate agreement.

"We would have to have the same speed of reduction that's happening in 2020 every year for the next decade," Hausfather said.

But Le Quéré said she hopes the study's findings will encourage countries to think about solutions that promote economic recovery without sacrificing climate action.

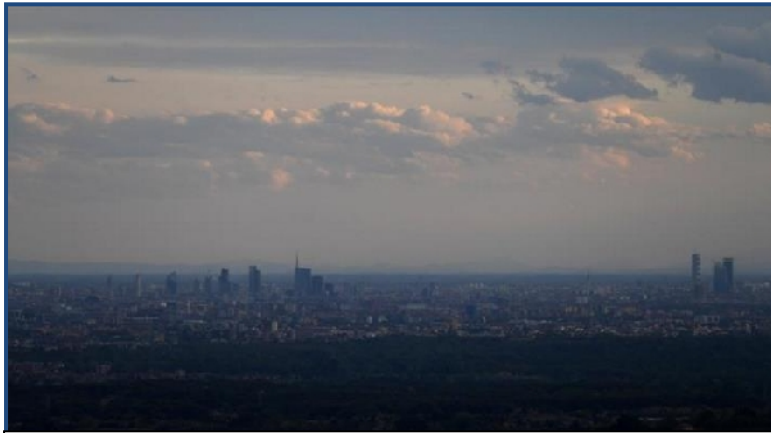
"We're at a crossroads," she said. "It's about governments having vision and being forward thinking. What society do we need to build tomorrow to reduce the risks of more disasters?"

There is cause to be optimistic, Jackson said, because some of the environmental changes from the coronavirus pandemic could be readily seen or felt.

"The most obvious change was the beautiful blue skies we saw from India to Indiana," he said. "People can relate to that more than abstract discussions about greenhouse gas emissions — you could just see that skies were clear."

Carbon pollution fell 17 percent during coronavirus lockdown peak

Date:-20-May-2020, Source: *aljazeera.com*



The skyline of Milan is seen at sunset following a pollution reduction caused by the lockdown across the country.

The world cut its daily carbon dioxide emissions by 17 percent at the peak of the coronavirus pandemic shutdown last month, a new study has found.

But with life and heat-trapping gas levels inching back towards normal, the brief pollution break will likely be "a drop in the ocean" when it comes to climate change,

scientists said in the study released on Tuesday in the *Nature Climate Change* journal.

In their study of carbon dioxide emissions during the pandemic, an international team of scientists calculated that pollution levels were heading back up and, for the year, would end up between four and seven percent lower than 2019 levels.

The figure will be seven percent if the strictest lockdown rules remain all year long across much of the globe, and four percent if they are lifted soon. That is still the biggest annual drop in carbon emissions since World War II. For a week in April, the US cut its carbon dioxide levels by about a third.

China, the world's biggest emitter of heat-trapping gases, sliced its carbon pollution by nearly a quarter in February. India and Europe cut emissions by 26 percent and 27 percent respectively.

The biggest global drop was from April 4 through 9 when the world was spewing 18.7 million fewer tonnes of carbon pollution a day than on New Year's Day. Such low global emission levels have not been recorded since 2006. But by April 30, the world's carbon pollution levels had grown by 3.3 million tonnes a day from its low point earlier in the month. Carbon dioxide stays in the air for about a century.

Outside experts praised the study as the most comprehensive yet, saying it shows how much effort was needed to prevent dangerous levels of further global warming.

"That underscores a simple truth: Individual behaviour alone ... won't get us there," Pennsylvania State University climate scientist Michael Mann, who was not part of the study, said in an email. "We need fundamental structural change."

If the world could keep up annual emission cuts like this without a pandemic for a couple of decades, there was a decent chance Earth could avoid warming another 1C (1.8F) of warming from now, authors of the study said. But getting the type of yearly cuts to reach that international goal is unlikely, they said.

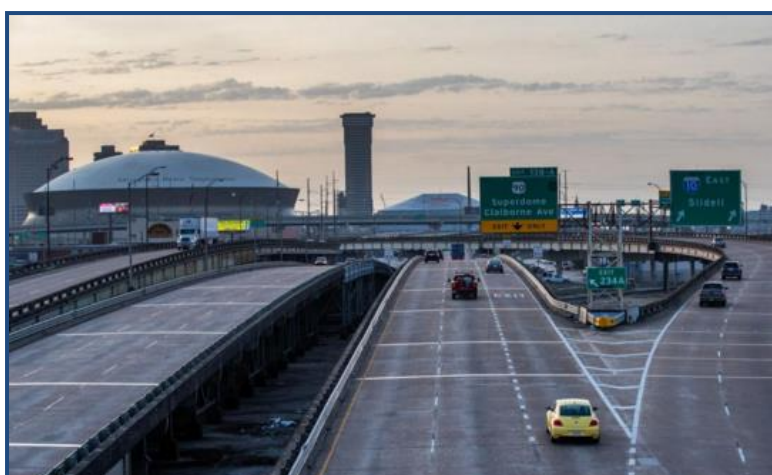
The study, carried out by Global Carbon Project, looked at 450 databases showing daily energy use and introduced a measurement scale for pandemic-related societal "confinement" in its estimates.

Nearly half the emission reductions came from less transportation pollution, mostly involving cars and trucks, the authors said.

By contrast, the study found that drastic reductions in air travel only accounted for 10 percent of the overall pollution drop.

New Orleans air pollution plummeted during coronavirus shutdown, but how long will it last?

Date:-21-May-2020, Source: nola.com



Morning traffic in New Orleans was very light in March 23,2020, after the state stay-at-home order took effect.

The coronavirus lockdown resulted in a sudden and steep plunge in air pollution across much of south Louisiana. Satellite measurements have found that emissions from fuel-burning sources, including cars and airplanes, declined in the New Orleans-Baton Rouge area by about 40% during the

first two weeks after the state's March 22 stay-at-home order. But the downward trend in air pollution started earlier, around when the state's first presumptive coronavirus case was confirmed on March 9.

"When I looked at the New Orleans (air pollution) data, it gave me a bit of a pause because it was such a big drop in early March," said LSU meteorologist Paul Miller, who has been assessing recent trends in air pollution in Louisiana and China. "We don't normally see drops like that, and it seemed a little early because schools in Louisiana and other places hadn't closed yet."

Miller found that the levels of nitrogen dioxide, a harmful pollutant produced by cars and other sources, remained at about 40% the normal level until the first week of April, when pollution concentration began to rise but remained well below the 15-year average.

Such a reduction in pollution over the course of a few weeks is unprecedented in a region with some of the highest air pollution in the country. It is evidence of how profoundly the virus has altered daily life.

“This is a delightfully unexpected side-effect of this horrible pandemic,” said Marylee Orr, executive director of the Louisiana Environmental Action Network. “That our air quality could improve so much in such a short amount of time -- I hope we learn something from that, maybe about how much we drive and how much (pollution) we produce.”

Instead, the region appears to be racing back to normal. After the first week of May, nitrogen dioxide levels began closing in on the 15-year average and were on track to meet it or exceed it this week.

Other measures of air pollution, including particulate concentrations and smog, also appeared to dip in March and then ease back to normal in recent weeks, according to the state Department of Environmental Quality. One of the steepest declines was noted in Kenner, where an air monitoring station registered a 50% reduction in smog during April.

Similar air quality improvements have happened in several major cities, including Los Angeles and Boston, and across regions. In the Northeast, nitrogen dioxide levels fell by 30 percent. In the Southwest, the drop was closer to the 40 percent.

Pollution decreases over the past three months are largely the result of greatly reduced road and air traffic. Louisiana’s motorists reduced the miles they normally drive by 60 percent in April, according to data science company Descartes Labs, and passenger traffic at Louis Armstrong New Orleans International Airport fell by 97 percent.

The coronavirus pandemic had almost no effect on activity in the industrial corridor between New Orleans and Baton Rouge. DEQ officials said there's been little change in pollution from chemical and other industrial facilities, and the Louisiana Chemical Association reported business as usual since February.

“Facilities have been allowed to continue their normal level of operations throughout the pandemic,” said LCA public affairs manager Rob Landry. “Any change in production that may be found at an individual facility is a function of business and is not COVID-19 related.”

St. James, St. John the Baptist and other parishes in the industrial corridor have suffered some of the highest per-capita death rates among U.S. counties from the virus, according to an analysis by The Times-Picayune and The Advocate. Residents suspect, and recent research appears to show, that long-term exposure to air pollution can increase the likelihood of serious illness or death from coronavirus.

It's unclear whether the weeks of cleaner air will mean much for the environment or human health. The reduction in pollution was dramatic, but probably too short to do much good, said LSU air quality expert Slawo Lomnicki.

"Cancer doesn't develop overnight," he said. "Human health problems are usually from prolonged or chronic exposure. Having the short break I'm not sure it will make a difference."

But he and other scientists say the last few months have few or no parallels in the modern age. Air quality improved somewhat after the 9/11 terrorist attacks, when air travel was temporarily halted. Pollution often drops during economic recessions, but a nosedive this deep, fast and widespread is unheard of.

"This offers us a unique setting to test some hypotheses," Miller said, noting potential research into short-term human health impacts, temperature changes and climate engineering. "Mostly what we are studying are gradual increases in pollution. This is one of the only times we get to see a big decrease."

Why a 17% emissions drop does not mean we are addressing climate change

Date:-22-May-2020, Source: airqualitynews.com



The global COVID-19 quarantine has meant less air pollution in cities and clearer skies. Animals are strolling through public spaces, and sound pollution has diminished, allowing us to hear the birds sing.

But these relatively small and temporary changes should not be mistaken for the COVID-19 pandemic actually helping to

fix climate change. Quite the contrary: the pandemic that made the world stop offers a glimpse of the deep changes in lifestyles and economic structures that we need to implement if we are to effectively mitigate the worst of climate change.

The short-term effects are not in doubt. A new study in *Nature Climate Change* led by scientists from the University of East Anglia and Stanford has found that daily global CO₂ emissions in early April 2020 were down 17% compared to the mean level of emissions in 2019.

This finding backs up an earlier report from the International Energy Agency (IEA) which found that CO₂ emissions from fossil fuel combustion – globally, the main source of greenhouse gas emissions – in the first three months of 2020 were 5% lower compared to the same period last year.

But the short-term and long-term effects of pollution are different things, and a few months without driving or flying will do little in the long run. Climate change is caused by rising concentrations of greenhouse gases in the atmosphere. Quarantine measures have affected emissions of these gases in the short term, and many places have seen a drop in air pollution. But these measures were not enough to curb the overall concentration in the atmosphere, which is still increasing. Why? Because molecules of these gases stay in the atmosphere for a long time: methane for around 12 years, for instance, and carbon dioxide for up to 200 years.

Emissions declined, but it won't last

The new Nature climate change study predicts that if some restrictions are kept throughout the whole of 2020 annual emissions reductions would reach 7.5%.

This would, in theory, be great news for the environment, especially if we could maintain it for years to come. After all, in order to meet the Paris Agreement target of limiting global warming to 1.5°C, we need to reduce global CO₂ emissions by 7.6% per year between 2020 and 2030.

But this level of emissions reduction will not last unless economic activity remains depressed. And as lockdowns end and people return to work, emissions will inevitably rise once again – this happens as activity resumes after every economic downturn, including the financial crisis of 2008.

Keeping economic activity depressed to April 2020 levels is not a feasible long-term strategy. But we could use this opportunity productively to steer our societies towards a new paradigm that truly addresses the core issue of the climate conundrum.

We need to restructure our economies

Fossil fuels are the basis of our economies. Our energy systems are built around them and surprisingly little has changed since the first oil shocks in 1973. Back then, coal, oil and gas accounted for 87% of the world's total primary energy supply, while in 2017 these fossil fuels still accounted for 81%. Over that same period, the total amount of energy supplied more than doubled.

Yes, there is lots of new renewable energy, but this has been deployed alongside fossil fuels, rather than replacing them. All over the globe, there are still plans to build new coal-fired power plants and oil & gas infrastructure. Even countries like Norway, where fossil fuels count for only about 30% of the total energy supply and almost all electricity comes from

hydropower, still often rely heavily on fossil fuel profits to fund welfare systems and pension schemes.

If we are to truly progress towards a low carbon economy, we must address the roots of the problem. For instance, how can we encourage further divestment from fossil fuels if the sector is still among the most secure and profitable investments? Or how can we build clean energy systems if we keep subsidising fossil fuels? Despite promises to phase out these tax breaks and other incentives, the richer G20 countries still provided US\$127 billion in subsidies to coal, oil and gas in 2017 (remarkably, that figure excludes Saudi Arabia).

And how can we resume activity without “going back to normal”? We need long-term recovery strategies that value nature as the overarching framework within which we all exist, not a mere economic resource. To date, several post-pandemic recovery plans include generous help to the fossil fuel sector with no strings attached.

The pandemic is no climate change panacea. We now know that we can act collectively and adopt measures that significantly curb emissions – in the short term at least. But long-term change does not come about directly as a result of a crisis, but from consistent action changing what caused the crisis in the first place. The COVID-19 pandemic is only a wake-up call: we still have a lot of work to do.

Pollution levels in Musselburgh dropped to zero as people stay at home during lockdown

Date:-23-May-2020, Source: edinburghlive.co.uk



Musselburgh beach

Pollution levels in the centre of Musselburgh fell to zero last weekend with people remaining at home under lockdown. The Scottish Air Quality website monitors pollution in places identified as air quality management areas by local authorities for SEPA. And it recorded no nitrogen dioxide presence between

11pm on Saturday, May 16 and 8am on Sunday, May 17. By comparison, the same period last year saw 26 micrograms per cubic metre (ug/m³) of nitrogen dioxide recorded at 11pm on the Saturday evening, dropping gradually to a low of 4ug/m³ at 6am and rising to 11ugm by 8am.

The peak pollution level recorded last week was 16 ug/m³ on Wednesday, May 13, at 4pm. During the same week last year it peaked at 56 ug/m³ on the Tuesday, May 14 at 6pm.

The level of particle matters PM₁₀ also fell below recording status with a low of 3ug/m³ on Tuesday, May 12, the last recording detected last week.

Musselburgh MSP Colin Beattie said the impact of lockdown on pollution in the town during the difficult lockdown period showed it is possible to reduce it permanently.

He said: "It has been a truly unique time that led to this drop in NO₂ and PM₁₀ and the circumstances that have led to these reductions have been difficult for everyone. It has been our duty to stay home and save lives, which means we are not making those car journeys that lead to these higher emissions.

"But this has proven the point that it is possible to significantly lower our emissions when we are only making journeys that are absolutely essential and think more about how and when we travel.

"Although the circumstances of lockdown are in no way sustainable, it has shown that with a shift in our thinking we can substantially reduce our carbon footprint and tackle climate change.

"Going forward we need to look at how we make electric cars cheaper, how we make public transport more accessible and affordable, and how we reduce the use of heavily polluting, diesel vehicles. In doing this, we not only help to tackle climate change, but we protect our communities from pollution and worsened health as a result of these fumes."

Musselburgh was declared an Air Quality Management Area seven years ago amid concern about high levels of Nitrogen Dioxide caused by heavy traffic through the centre of town.

Councillor Norman Hampshire, East Lothian Council's environment spokesperson said: "We know from national measurements that the current lockdown measures in place to control the spread of the Covid-19 pandemic has resulted in a dramatic drop in road traffic. As it's well established that road traffic is the main source of oxides of nitrogen (NO_x) within urban areas these levels have reduced with resulting air quality improvement.

"East Lothian Council has already identified a number of measures to tackle air pollution concerns particularly within the Air Quality Management Area in Musselburgh which will include the development of greater opportunities for active travel including walking and cycling." Ward councillor John Williamson said he hoped people would look at alternative transport in the future

He said: "Here in Musselburgh there is the stark contrast of pre-lockdown air quality readings of 56 compared with zero last weekend due to less vehicle use.

“One positive which will hopefully emerge post-lockdown is that individuals will have realised that they do not need to use cars all the time, something that I hope will continue post lockdown.

“If this happens then we can potentially look forward to continued and sustained improvements in the air quality which will benefit us all.”

As lockdown clears the air, Cairo looks to keep pollution low

Date:-24-May-2020, Source: reuters.com

CAIRO (Thomson Reuters Foundation) - It is a Thursday evening in downtown Cairo, usually a crowded and noisy time as the weekend gets underway. But today the streets are quiet, and the air is noticeably clean.

“It has been a long time since I breathed such fresh air here and saw the sky clean like that,” observed Fathi Ibrahim, a 52-year-old resident of downtown Cairo.

Thick pollution - from vehicles, factories and power plants - usually makes breathing a suffocating effort in the heart of the city, he said. But a lockdown to slow the coronavirus pandemic has helped cleared the smog.

“We even started to listen to the sounds of birds early in the morning and the weather is also getting much better,” Ibrahim told Thomson Reuters Foundation.

Since mid-March, Egypt has imposed a night curfew and a partial lockdown as a part of precautionary measures to protect public health in a nation with more than 16,000 cases of the virus and more than 700 deaths.

But the slowdown also has cut air pollution by more than a third in Cairo, a city once ranked as one of the world’s 10 dirtiest.

Now Egyptian officials hope to hold onto those improvements by expanding clean transport networks - including using more electric buses - encouraging more cycling and potentially shifting business hours.

“We have already started plans to reduce air pollution in Egypt. But coronavirus is giving us an opportunity to accelerate these plans, expand them and think about other solutions,” Egyptian Minister of Environment Yasmine Fouad told Thomson Reuters Foundation in a telephone interview.

CLEANER TRANSPORT

The minister said that the government is moving forward with plans to expand the Greater Cairo subway network to accommodate 6 million passengers a day by 2025, up from 3.5 million today.

It also plans to give grants to private car owners to help them convert their vehicles to run on natural gas, which creates less pollution, Foad said.

“It is an opportunity to solve a decades-long problem that Cairo has been suffering from,” the minister said.

However, she said that cutting economic activity to cut pollution - as has happened during the lockdown - could not be the answer.

“We have to continue production at factories and other industrial institutions while applying high environmental standards. That is the right message we have to deliver,” she said.

According to data released by the Ministry of Environment, air quality has improved in Greater Cairo by 36% and in coastal cities and the Nile Delta by more than 40% since the lockdown and curfew went into effect.

Both climate-changing carbon dioxide emissions and other pollutants from cars, factories and machinery have fallen, ministry data showed.

Fouad said the government is now expanding to more areas a bicycle-sharing project that started in Fayoum city, north of Cairo, in February.

The project, backed by the U.N. Development Program, the Global Environment Facility and the Dutch government, so far gives students who commute to university classes access to a stand of a dozen shared bicycles at four locations in the city.

Over the next four years, the city will work towards providing a shared bicycle system accessible to every student in the country to encourage cycling and reduce traffic, Fouad said.

DIRTY AIR IMPACTS

Cairo Traffic Department data indicates that more than three million cars, trucks and buses crowd the streets of Cairo each day.

Bassant Fahmi, an economist and a parliamentarian, said that turning to clean mass transit and encouraging more cycling would not only reduce traffic and air pollution but also boost the economy, which loses billions of dollars each year to traffic congestion and air-pollution-related health problems.

According to the health ministry, about two million Egyptians end up in chest and respiratory clinics each year, often because of air-pollution-related ailments. About 90% of Egyptians breathe air dirty air, most of them in Greater Cairo and other cities, the ministry said.

Meanwhile, traffic congestion in Cairo costs the economy up to 50 billion Egyptian pounds, or \$8 billion, each year - about 4% of Egypt's Gross Domestic Product, according to a 2012 World Bank study.

"That is a lot of money that can be used instead in developmental projects or even ... on health and education," Fahmi told the Thomson Reuters Foundation.

Fahmi suggested that reviving legislation from the 1970s that obliged owners of shops, workshops and commercial centers to close early to limit traffic and pollution could also help preserve air quality gains made during the pandemic lockdown.

"That would reduce a lot of energy used by those shops as well as reduce traffic in night hours, therefore lessening the harmful effect on the environment," she said.

Air Quality Improves Across the Province During the COVID-19 Crisis

Date:-26-May-2020, Source: news.viu.ca

Restrictions imposed to help save lives during the COVID-19 pandemic have led to less people driving and flying, which has created a rare opportunity for Vancouver Island University (VIU) researchers and students to study the impacts of automobile and plane traffic on the environment.

Student researchers taking Krogh's atmospheric environmental chemistry class discovered that there was a dramatic improvement in air quality levels around British Columbia when they compared BC Air Quality Data from the first two weeks of March to the second two weeks in 2020. Students also examined data from previous years in the comparison. They discovered that fine particulate matter and nitrogen dioxide, which can come from a variety of sources including vehicle emissions, decreased significantly.

"By the end of March, levels of these pollutants dropped by 30-60% in most areas," says Krogh, adding that similar results have been observed elsewhere and can depend on local conditions and the composition of the transportation sector.

Before the pandemic, students in this class were working on group projects that involved collecting their own data, but needed to adapt their efforts because of physical distancing restrictions. Many students pivoted to an examination of publicly available air quality data from various locations across the province and the potential impacts on public health using the British Columbia Air Quality Health Index.

One of the students in the class, Annika Bouma, an alum who was completing her fourth year in a math and chemistry double minor at the time, chose to examine nitrogen dioxide levels at the Vancouver International Airport. Bouma says what she found most exciting about the project was interpreting the results, which included a decrease in nitrogen dioxide levels.

Bouma didn't see a dramatic difference between March 2020 and 2019, but she discovered a 67% decrease in the average levels of nitrogen dioxide when comparing the first two weeks to the last two weeks of March 2020.

"I think that COVID-19 can tell us a lot about air quality improvements as there is so much less air travel and vehicle travel occurring due to social distancing," she says. "With this reduction we could possibly see how this affects our air quality and use the information to help improve air quality in the future." Krogh says the research data allows scientists to assess how much air quality improves when vehicles are taken off the road.

"There's a social and public health benefit to knowing that answer, whether it's in terms of promoting electric vehicles, which don't produce either particulate matter or nitrogen oxides, or public policy to fund public transit or pollution control measures," he says.

Krogh says scientists around the globe have seen pollution levels dropping dramatically but noted that Nanaimo's air quality is very good most of the time.

"People around the world are noticing for the first time how clean the air is. There are communities in Northern India that are seeing the Himalayas for the first time. Usually there is too much particulate matter that creates haze and poor visibility. I like to call this '2020 vision' because it allows us to see what we have been missing," he says.

Krogh and researchers from VIU's AERL are also collecting air quality data of their own on the Nanaimo campus with the University's Mobile Mass Spectrometry Facility, equipped to detect a range of air quality parameters including volatile organic compounds that are not routinely monitored but are known to play an important role. Researchers have been taking measurements since COVID-19 restrictions were put in place and Krogh says they will continue to collect readings throughout the summer to see the impacts on air quality as restrictions start to ease and people start travelling more.

Poor air quality is associated with poor health outcomes, including respiratory and cardiovascular disease. Improved air quality reduces stress on the health care system generally and has been "correlated with better COVID related health outcomes," says Krogh.

Dhaka's air quality improves after rain

Date:-27-May-2020, Source: unb.com.bd

Bangladesh's capital Dhaka saw improvement in its air quality on Wednesday after a nor'wester coupled with rain lashed the city in the early hours of the day .

Dhaka's air was catagorised as 'moderate' in the Air Quality Index on Wednesday noon and it ranked 26th among the most polluted cities in the world. The megacity had an AQI score of 67 at 12:32pm.



When the AQI remains in between 51 and 100, the air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.

Mexico's Mexico City, Saudi Arabia's Riyadh and India's

Delhi occupied the first three spots in the list of cities with the worst air quality with AQI scores of 119, 1113 and 104 respectively.

A nor'wester accompanied by rain and gusty wind with 78kph speed swept the capital early Wednesday.

The AQI, an index for reporting daily air quality, informs people how clean or polluted the air of a certain city is, and what associated health effects might be a concern for them.

In Bangladesh, the AQI is based on five criteria pollutants – Particulate Matter (PM10 and PM2.5), NO2, CO, SO2, and Ozone (O3).

Dhaka has long been grappling with air pollution. Its air quality usually improves during monsoon.

The Worst U.S. Cities for Air Pollution

Date:-28-May-2020, Source: thestreet.com

Depending on where you live in the United States, you may be breathing in air filled with pollution. According to the American Lung Association's State of the Air 2020 report, 150 million people in the U.S. live in counties that received an F for either ozone or particle pollution. That's nearly half of America's 328 million people. This year's report found 8.8 million more Americans living in counties with unhealthy air compared to last year's report. One big cause of air pollution is climate change, as warmer weather, wildfires, changing rain patterns create new challenges for fighting and reducing air pollution.

And despite the obvious lures of California, like beaches and sunny weather, it turns out the state isn't doing well in terms of air pollution. Of the U.S. cities with the worst air pollution, the top six are in California (Los Angeles ranks first). Las Vegas, Nevada ranks 9th and New York City places 12th.

Of note, 2020 also marks the 50th anniversary of the Clean Air Act, a law that works to improve air quality. In recent years, the Clean Air Act has been threatened by President Donald Trump as his administration seeks to weaken clean air regulations.

June 2020

COVID-19 lockdown has a significant impact on air quality

Date:-1-June-2020, Source: digitaljournal.com



France has been told by the European Commission to come up with a plan to improve air quality

New research is demonstrating that during the time of the COVID-19 lockdown, there has been a change in environmental conditions. The lockdowns are significantly impacting global air quality.

The lockdowns put in place as part of the COVID-19 measures have had an impact upon air

pollution levels, leading to significant decreases in pollutants. This is in relation to nitrogen dioxide. Figures relating to China, Europe and the U.S. show up to a 60 percent decrease in levels.

A further reduction in pollutants relates to a fall in the levels of particulate matter (classed as particles smaller than 2.5 micrometers). This has dropped by 35 percent in China (China stands as a common benchmark for pollution levels, given that parts of China - the big industrial cities - are the worst areas for air pollution in the world. These types of particles have the ability to penetrate into the lungs and cause long-term damage.

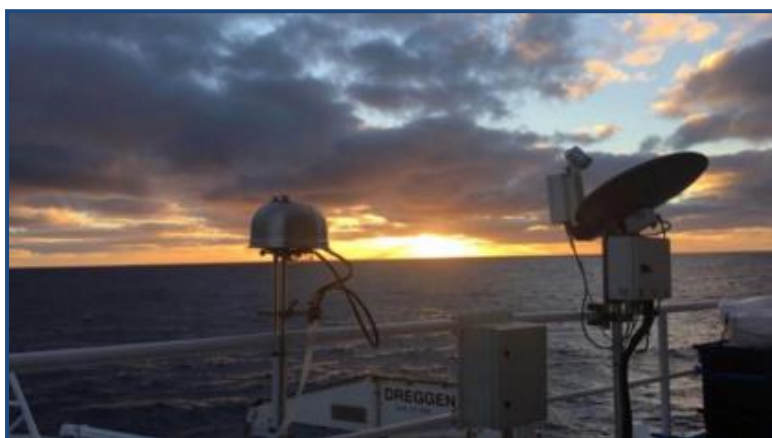
Reductions in this pollutant are significant. Nitrogen dioxide is a reactive gas generated during combustion. The impact of this pollutant is of potential danger to human lungs. The major sources are emissions from vehicles, power plants and other industrial activities.

There is one downside, however. A secondary pollutant -- ground-level ozone -- has increased in China. Ozone is formed when sunlight and high temperature trigger chemical reactions in the lower atmosphere. There are risks to people from pulmonary and heart disease when levels are high.

The research has been published in two journals. The first is in Geophysical Research Letters, with a paper titled: "Impact of coronavirus outbreak on NO₂ pollution assessed using TROPOMI and OMI observations. Geophysical Research Letters." The second research paper is from the same journal, and it is titled "The Response in Air Quality to the Reduction of Chinese Economic Activities 1 during the COVID-19 Outbreak."

Scientists From Colorado Say They Have Found The Cleanest Air On Earth

Date:-2-June-2020, Source: [denver.cbslocal.com](https://www.denver.cbslocal.com)



Aerosol filter samplers probe the air over the Southern Ocean on the Australian Marine National Facility's R/V Investigator ship.

(CNN) – Scientists believe they have identified the world's cleanest air, free from particles caused by human activity, located over the Southern Ocean, which surrounds Antarctica. In a first-of-its-kind study of the bioaerosol composition of the

Southern Ocean, researchers from Colorado State University identified an

atmospheric region which remains unchanged by human activity.

Weather and climate are closely linked, connecting each part of the world with other regions. As the climate changes rapidly because of human activity, scientists and researchers struggle to find a corner of the Earth unaffected by people.

However, Professor Sonia Kreidenweis and her team suspected that the air over the Southern Ocean would be least affected by humans and dust from the world's continents.

Researchers found that the boundary layer air, which feeds the lower clouds over the Southern Ocean, was free from aerosol particles produced by human activity — including burning fossil fuels, planting certain crops, fertilizer production, and wastewater disposal — or transported from other countries around the world.

Air pollution is caused by aerosols, which are solid and liquid particles and gases that are suspended in the air.

Researchers decided to study what was in the air, and where it came from, using bacteria in the air as a diagnostic tool to infer the properties of the lower atmosphere.

Research scientist and co-author of the study Thomas Hill explained that "the aerosols controlling the properties of SO (Southern Ocean) clouds are strongly linked to ocean biological processes, and that Antarctica appears to be isolated from southward dispersal of microorganisms and nutrient deposition from southern continents," he said in a statement.

"Overall, it suggests that the SO is one of very few places on Earth that has been minimally affected by anthropogenic activities," he added.

Scientists sampled the air in the marine boundary level — the part of the atmosphere that has direct contact with the ocean — while aboard a research boat traveling south to the Antarctic ice edge from Tasmania, Australia. Scientists then examined the composition of airborne microbes, which are found in the atmosphere and often dispersed thousands of kilometers by the wind.

Using DNA sequencing, source tracking and wind back trajectories scientist and first author Jun Uetake found that the microbes' origins were from the ocean.

From the bacterial composition of the microbes, researchers concluded that aerosols from distant land masses and human activities, such as pollution or soil emissions caused by land use change, were not traveling south and into the air.

Scientists say that the results show a stark difference to all other studies from oceans both in the northern hemisphere and subtropics, which found that most microbes came from upwind continents.

In the study, published Monday in the Proceedings of the National Academy of Sciences journal, scientists described the area as “truly pristine.”

Air pollution is already a global public health crisis, and kills seven million people each year, according to the World Health Organization.

Studies have shown that air pollution increases the risk of heart disease, stroke and lung cancer.

More than 80% of people living in urban areas that monitor air pollution are exposed to air quality levels that exceed WHO guideline limits, the health organization said, and low- and middle-income countries suffer from the highest exposures.

However, as studies have shown, air pollution can cross geographical boundaries, and affect people hundreds of miles away from where it originated.

Air pollution in China back to pre-Covid levels and Europe may follow

Date:-3-June-2020, Source: theguardian.com

Air pollution in China has climbed back to pre-pandemic levels, and scientists say Europe may follow suit. Air pollution causes at least 8m early deaths a year, and cleaner skies were seen as one of the few silver linings of Covid-19. Experts have called for action to help retain the air quality benefits of lockdowns, and measures taken to date have included expanding cycle lanes and space for walking in cities.



Traffic in Beijing. Air pollution had dropped during the lockdown but is back to pre-pandemic levels.

Data from the Centre for Research on Energy and Clean Air (Crea) shows concentrations of fine particles (PM2.5) and nitrogen dioxide (NO₂) across China are now at the same levels as one year earlier. At the height of the country's coronavirus response in early March, NO₂ levels were down by 38% from 2019 and levels of PM2.5 were

down by 34%.

"The rapid rebound in air pollution and coal consumption levels across China is an early warning of what a smokestack industry-led rebound could look like," said Crea's lead analyst, Lauri Myllyvirta. "Highly polluting industries have been faster to recover from the crisis than the rest of the economy. It is essential for policymakers to prioritise clean energy."

The energy consultancy group Wood Mackenzie predicts China's oil demand will recover to near normal levels in the second quarter of 2020.

In Wuhan, the city at the centre of the epidemic, NO₂ levels are now just 14% lower than last year, having briefly dropped by almost half. In Shanghai, the latest levels are 9% higher than last year.

European cities have also seen a big dip in air pollution during the virus outbreak. Data from the Copernicus Atmosphere Monitoring Service (Cams), which tracks pollution in 50 European cities, shows that 42 of them recorded below-average levels of NO₂ in March. London and Paris had 30% reductions in NO₂, a pollutant that is mostly produced by diesel vehicles.

"We do expect pollution to rebound, but we have not been able yet to show that," said Vincent-Henri Peuch, the director of Cams. He noted that the Cams data showed average air pollution levels across cities. "Next to a busy road, the effect of traffic reduction will be higher – up to 70% or 80% [reduced pollution] in places," he said.

Distinguishing the pollution changes caused by the lockdowns and their subsequent relaxations from other factors, such as weather and chemical interaction of pollutants, is complex. Spring is the most polluted season in western Europe in normal years, owing to the start of the agriculture cycle which causes ammonia emissions that go on to form particles over cities.

The Cams team is now working with the Barcelona Supercomputing Centre to untangle these factors and produce robust estimates of the coronavirus effect.

Peuch said what happens next to air quality in European cities remained to be seen. “We do not know how people’s behaviour will change, for example avoiding public transport and therefore relying more on their own cars, or continuing to work from home.”

Gary Fuller, an air pollution expert at Kings College London, said: “Rather than let this time be forgotten, the United Nations and environmental campaigners are urging governments to ‘build back better, to invest in the future not the past’, to ensure that our global recovery has sustainable legacy.”

Air pollution has been linked to heart and lung damage and many other conditions including diabetes and damaged intelligence. It is likely to affect virtually every organ in the body.

There is growing evidence linking exposure to dirty air to increased risk of death from Covid-19, prompting calls to keep air pollution low to help avoid the dangers of a second wave of infection.

Air pollution falls nearly 40% in some Canadian cities amid COVID-19 lockdowns

Date:-4-June-2020, Source: theweathernetwork.com

Some of the most polluted cities in Canada have seen dramatic improvements in air quality since social distancing regulations were implemented to slow the spread of COVID-19.

Chris McLinden and Deobra Griffin are scientists in the air quality research division at Environment and Climate Change Canada and have monitored the changing levels of pollution by using satellite sensors to track the presence of pollutants such as ozone, carbon monoxide and nitrogen dioxide.

The levels of these pollutants began dropping mid-March when many provinces implemented work from home policies and stay at home orders. McLinden and Griffin say that the decline in nitrogen dioxide, a compound released when fossil fuels are combusted in vehicles and buildings, is particularly pronounced and is likely related to fewer motorists commuting to work as well as office and factory closures.

Nitrogen dioxide has a shorter atmospheric lifetime than other compounds, such as carbon dioxide, and it does not travel far from the emission source. This makes it easy for satellites to track and measure the day-to-day changes of nitrogen dioxide levels.

Toronto and Montreal saw nitrogen dioxide levels fall by more than 30 per cent during the latter half of spring, which McLinden says was caused by fewer drivers and factories closing or slowing production. According to the traffic analysis firm Inrix, Toronto was the most

congested city in Canada in 2019 and the 19th most congested in the world, but COVID-19 has left many GTA highways eerily empty during the typical rush hours.

Edmonton and Calgary saw the greatest reductions that were close to 40 per cent. Minimal reductions were recorded in Atlantic Canada because nitrogen dioxide emissions levels were relatively low before the pandemic.

FEWER HEALTH RISKS WITH IMPROVED AIR QUALITY

In 2019 Health Canada estimated that over 14,000 Canadians die each year because of exposure to air pollution. Miriam Diamond, a professor of earth sciences at the University of Toronto, says that even minor reductions in air pollution can have positive impacts on human health.

Nitrogen dioxide can cause a haze that reduces visibility in urban cities as well as irritation of the eyes, nose, throat, and lungs. Acid rain, reduced terrestrial plant growth, oxygen-depleting algal blooms and corrosion of building materials are other negative effects of nitrogen dioxide emissions.

Dr. Sandy Buchman, president of the Canadian Medical Association, says that the decreasing pollution levels will likely lead to fewer hospital admissions from patients susceptible to heart attacks and asthma. Lower pollution levels also have the potential to drive policies that address standards for air pollution permanently.

Falling emissions were the result of a global pause in the economy. But old status quo behaviours will eventually resume, so what will happen to the progress Canadians have made during this time? Will emissions return to their pre-pandemic levels or will we learn from this?

Dr. Courtney Howard, an Emergency Physician and Board President of the Canadian Association of Physicians for the Environment, suggests that this break from routine could be what we need to start moving in a better direction for the health of the planet and for ourselves.

"I think we have realized that there are different ways of living and certainly we don't want to be staying at home as much as we are right now, but I suspect that if the choice is to take a virtual meeting or battle traffic for 45 minutes, I think a lot of people are going to choose to just stay at home."

Emissions from the transportation sector are just one piece of the puzzle and Howard says if we really want to reach our emissions goals, we need help.

"It's essentially impossible for us all to reduce emissions by ourselves to get us to where we need to go. We need to change the system. In the medical world, we have a big history with the tobacco lobby, for years and years and years doctors were losing to the tobacco

company because we were asking patients to stop smoking instead of putting warning labels on the packages and making them harder to purchase, so we need to look at fossil fuels in the same way because air pollution kills more people than cigarettes."

GLOBAL DECLINE IN AIR POLLUTION

A study published in *Nature Climate Change* found that global daily carbon dioxide emissions plummeted by 17 per cent during the height of the COVID-19 lockdowns in early April.

Carbon dioxide emissions are typically reported as annual values, so the researchers calculated the daily emissions by changes in activities that release these emissions, such as the decline in traffic, aviation and energy usage. Sources for the data included electricity companies in Europe, the U.S. and India, smart metres that provided data on the residential sector and changes in the coal and steel sectors in the U.S. and China.

The study reports that regions that are typically responsible for nearly 90 per cent of all global emissions experienced reduced activities that release greenhouse gases, which temporarily caused daily emissions to fall to levels last seen in 2006.

The global aviation sector saw the greatest decline in carbon dioxide emissions as daily activity decreased by roughly 75 per cent when nations implemented policies to restrict the daily routine for the general public, excluding essential workers.

Climate scientists say that the lockdowns implemented during the COVID-19 pandemic can provide insight into how greenhouse gas emissions would fall if national policies were implemented to reduce the consumption of fossil fuels.

It is difficult to predict when the lockdown policies will be lifted. Given this uncertainty, the study states that annual global carbon dioxide emissions will fall by 4.2 to 7.5 per cent in 2020. This will break the trend of the 1 per cent annual global increase per year that was seen during the previous decade, excluding 2019 when the growth was flat.

The study states that the projected annual decrease is comparable to the amount that emissions should fall year-on-year over the next decades to limit climate change to a 1.5°C warming from pre-industrial levels.

"These numbers put in perspective both the large growth in global emissions observed over the past 14 years and the size of the challenge we have to limit climate change in line with the Paris Climate Agreement," the researchers state.

Significant Drop in Air Pollution During COVID-19 Pandemic

Date:-5-June-2020, Source: nbconnecticut.com

Preliminary research on air pollutants showed a significant drop from mid-March to mid-April and while there are a lot of influences on pollution levels, one of the biggest driving factors is drivers on the road.

"It usually ends up from 3 hours to 3 hours and 45 minutes in the car," says Jessica Hynes, of West Hartford. "That's my normal day."

Between commuting from West Hartford to Quinnipiac in Hamden and shuttling her twin daughters to and from practices, Jessica Hynes has seen a big drop in her drive time amid the COVID-19 pandemic.

"Before this, I fill up my car - I would fill up my car with gas every other day and now I think I've filled twice since March maybe," Hynes said.

And the atmosphere is taking notice. Since stay at home orders went into place, we have seen significant reductions in air pollution - on the order of a 30% to 40% drop.

"We're seeing these positive results and it's definitely a combination of the dramatic reduction we're seeing in fossil fuel combustion and that's from the transportation sector as well as commercial and industrial facilities," said Tracy Babbidge, Chief of DEEP Bureau of Air Management.

The Department of Energy and Environmental Protection measures air pollution through a statewide air quality monitoring network that consists of 14 monitoring stations throughout the state that provide real-time data. They also rely on satellite data to analyze pollutants. It's important to look at this data over an extended period of time for a number of reasons - one of which is seasonality.

Nitrogen dioxide naturally drops off in the springtime. But keeping seasonal factors in mind, satellite data still recorded the lowest March nitrogen dioxide values since 2005. Other big drop-offs include black carbon, which was 23-34% lower than average and carbon monoxide which was 7-21% lower than average.

"These are pollutants that can exacerbate respiratory conditions," says Babbidge. "It can be a trigger for asthma they can contribute to bronchitis so it's really important that we keep an eye on what's happening from an air pollution standpoint."

Connecticut suffers from some of the worst air quality in the country, and while the emission reductions are showing positive short term effects, DEEP is working hard to create strategies to not only sustain the cleaner than average air but also mitigate climate change.

"We're going to need to implement change strategies," Babbidge said. "And we have a playbook for that. We've implemented some of these strategies and I think it's going to be important that we continue to move forward with many of them."

Strategies like the newly released electric vehicle road map to demonstrate how we can accommodate more electric vehicles as the state works towards a goal of 100% decarbonization by 2040.

This data is preliminary and DEEP will continue to monitor trends in air pollution – especially as more residents head back to work. But it has given us an idea of what the future environment could look like.

Sunny and warm today; Air Quality Advisory starts Sunday night

Date:-6-June-2020, Source: daytondailynews.com



There is an Air Quality Advisory in effect beginning midnight Sunday night until midnight on Tuesday night for Montgomery, Miami, Greene, Clark, Preble and Darke counties, issued by the Miami Valley Regional Planning Commission and the Regional Air Pollution Control Agency.

During this advisory, levels of ozone in the area may approach or exceed unhealthy standards, so residents are asked to help reduce air pollution by:

- Taking the bus, carpooling, biking or walking instead of driving alone
- Refueling vehicles after 8 p.m.
- Avoiding idling vehicles
- Mowing the lawn in the evening hours and avoiding using gas-powered lawn equipment

Today, it will be sunny during the day and clear at night with a breeze, according to the National Weather Service in Wilmington. Temperatures will rise to around 87 degrees during the day, and fall to around 59 degrees at night. Tomorrow will be just about the same, with sunny skies during the day and a high near 82 degrees, then mostly clear skies at night with a low of around 57 times, all with a light breeze. The Air Quality Advisory begins at midnight. On Monday, though, the NWS predicts that the wind will still, while

temperatures climb to around 85 degrees during the day under sunny skies. During the night we will see more clouds, but it will remain calm with a low of around 64 degrees.

Blue-sky thinking: how cities can keep air clean after coronavirus

Date:-7-June-2020, Source: theguardian.com



Copenhagen ... the world's most ambitious carbon-cutting plan.

For those not directly affected, the ability to breathe more easily and see further has perhaps been the greatest consolation amid the trauma of the coronavirus pandemic.

As city after city begins to emerge from lockdown, urban planners and environmental campaigners are grappling with how to keep the clean air and blue skies that have

transformed our view of the world. “Citizens around the world can see change is possible,” says Zoe Chafe, an air quality specialist with the C40 group of global megacities. “Just put yourself on the rooftop and imagine seeing mountains for the first time, and thinking how amazing it feels to realise this is possible.”

That rooftop could be in Kathmandu (where residents were astonished to make out Mount Everest for the first time in decades), Manila (where the Sierra Madre became visible again) or dozens of other cities across the world.

Not everywhere has seen air quality improvements in recent months. In some Asian cities, such as Hanoi and Jakarta, pollution has become worse. But, for the most part, people across the world are experiencing a healthier alternative to the smoke and smog that are responsible for an estimated 3 million deaths a year.

Having seen the shroud lift, there is a growing clamour not to let it fall again. Cities across the world are exploring ways to permanently reduce pollution. Chafe says there is no quick, one-case-fits-all solution, but there are lessons – on environmental justice, community activism, urban design, climate ambition, technological innovation and municipal leadership – that can be learned from the cities and states that were making progress even before the lockdown. Here are three.

Copenhagen

Copenhagen has the world's most ambitious plan to cut emissions: carbon neutral by 2025. This is pushing the Danish capital to go beyond the existing model of smart, clean urban

design and cycle-centred transport that has turned it into one of the cleanest cities in the world.

Grassroots activism, pragmatic government and high taxes have been the drivers for change. Old photographs prove the city had as much of a car culture as any European city in the 1970s, when more than 100,000 citizens demonstrated in Rådhuspladsen (City Hall Square) to demand their streets back. Since then, town planners have steadily reduced parking spaces and widened areas for pedestrians and bicycles.

Jeppe Juul, of the Danish Eco Council, says it is a question of priorities. “It feels good to walk around Copenhagen,” he says, adding that in some areas of the city “pedestrians have more space than bikes, and bikes have more space than cars.” The city now vies with Amsterdam for being the most bicycle-friendly city in the world. This means traffic lights with resting bars that riders can hang on to without touching the ground, take-away coffee containers designed for bikes, and groups that organise parent’s shifts for schools runs on “minibus-like” bicycles that can take up to six children at a time.

Copenhagen’s 2025 target depends largely on replacing coal-fired heating with biomass, wind and geothermal energy. A new district-heating infrastructure will allow neighbourhoods to scrap home boilers. Urban planners aim to use carbon capture and storage technology to trap emissions from the main municipal waste incinerator.

Some still doubt the city will be zero-carbon within five years, but Mikkel Krogsgaard Niss, from the mayor’s office, says sceptics have been proved wrong in the past. “From 2014-20, we reduced carbon dioxide by more than 50%, so we are on our way,” he says.

These shifts will create up to 35,000 jobs, with most of the money coming from public coffers. Residents already pay some of the highest rates of tax in the world, but this is seen as an investment in health and quality of life. The city’s wastewater plant was also expensive, but now that it is operational, residents can swim in the harbour – something unthinkable in urban waterways elsewhere. Danes are consistently ranked among the world’s healthiest and happiest people.

The municipality also wants to completely phase out combustion engines by electrifying the bus fleet and banning petrol and diesel cars within five years. After that plan ran into opposition from the national government, local environmental NGOs lobbied for a revolutionary new traffic management scheme that hugely decreases the convenience of car use. The “distribution plan”, which was pioneered in the Belgian town of Ghent, divides the urban centre into a handful of zones and prohibits drivers from going directly from one to another. Instead, they have to go via the suburbs. “It means there is no such thing as a short drive to the bakery or wherever in this system,” says Jens Müller, the air quality manager of the Transport & Environment NGO. As a result, walking, cycling and public

transport become more appealing. “It’s the most radical thing you can do apart from creating a no-car zone,” says Juul.

Copenhagen is in a group of European cities, including Amsterdam, Paris, London and Oslo, that are trying to set the global pace for air quality improvements. Müller says London is a leader on ultra-low emission zones, Oslo on promoting use of electric cars, while Paris is exploring radical plans for “a city of 15 minutes” that aims to ensure every resident can get the shops and services they want within a short walk or bicycle ride. Cities in Germany are pioneering pop-up infrastructure and tactical urbanism that allow communities to block roads at certain times for certain events. In Brussels, residents now have a say in when to close roads for children’s parties and barbecues. Müller says this reduces pollution because people spend more time outside their homes.

The foundation, he says, is community activism by previous and current generations. Amsterdam may now be aiming for zero-carbon boats and yet more bikes, but – like Copenhagen – the origins of its strong air-quality ambition was the parents’ movement in the 1970s, which campaigned against the number of road traffic accidents with banners demanding: “Stop murdering our children.” More recently, Madrid has seen a fierce political contest for control of the streets, with 20,000 people rallying last year to oppose plans by the ruling rightwing coalition to reopen the city centre to cars. The “Madrid Central” zone in the Spanish capital had achieved more nitrogen dioxide reductions than any city in Europe. So far, people power has kept the cars out.

California (Oakland and Los Angeles)

The importance of grassroots activism has recently been enshrined into law in California, where campaigners have persuaded the government that if it wants to improve air quality it needs to empower low-income BAME neighbourhoods, which are worst affected because they often live closest to pollution sources.

California has made impressive strides since the 1980s, when Los Angeles, Oakland and San Jose were notorious for a toxic haze that blanketed the city for more than 200 days of the year. These days, thanks to tighter regulations, higher petrol standards and less reliance on coal, there are usually fewer pollutants in the air and about 60 more days of blue skies a year. Several cities have also launched “green new deals”. Even the car capital of the world, Los Angeles, is trying to nudge commuters on to an upgraded public transport system.

But perhaps the most impressive work is being done at the community level by local activists in hotspots of pollution. The leading light in this initiative is Margaret Gordon, who has spent almost 30 years campaigning for environmental health and social justice in her West Oakland neighbourhood, a part of the San Francisco Bay Area that sits between two highways, a busy port, factories and the proposed site of a coal terminal.

She first realised how badly her mostly black and Latino community was affected in 1992 when she started working part-time at a local school where she saw shoeboxes full of asthma inhalers, each with the name tag of a different child. “That was the start,” she recalls in a Zoom chat interrupted by her coughing. “After that, I went to a local meeting to express my righteous outrage about the conditions in the neighbourhood.”

Gordon began monitoring the numbers of trucks that passed through on their way to the port. She later received training and funding to measure levels of fine particulate matter known as PM2.5 that can enter the bloodstream and cause respiratory disease. Even inside her home, the readings were unhealthily high.

She founded the West Oakland Environmental Indicators Project, and worked with scientists, who collected data to prove what she had long believed – that low-income minority communities are far more likely to suffer the ill effects of air pollution (later including higher vulnerability to Covid-19) than other sectors of society.

The pressure has reaped results. The California Air Resources Board ordered the port to take action. There is now stricter regulation of trucks, the port has electrified its facilities and the planned coal terminal has been blocked. Air pollution is 74% lower than in 2008, according to the port. Gordon wants more. “The windowsills have gone from black to grey. But there is still a long way to go. We still have hotspots.”

Her biggest achievement, however, may have been to help draft state law AB617, which passed in 2017 and put local communities at the centre of emissions reductions planning. West Oakland is now one of three Californian neighbourhoods that have drafted their own action plan for dealing with pollution sources. Air quality activists hope this will also address the tendency for wealthy white communities to go low carbon by offloading pollution towards poorer black and Latino areas. Of the two north-south highways in Oakland, it is no coincidence that trucks are banned only on the 580, which passes through a more affluent part of the city. Gordon says the goal is environmental equality.

Mexico City

Among air quality wonks and urban planners, perhaps the greatest buzz of excitement is about Mexico City. The Latin American megalopolis was named the world’s most polluted capital in 1992, but it has since managed to improve air quality despite the pressures of an extra 5 million inhabitants.

Today it has perhaps the most environmentally savvy mayor in the world. Claudia Sheinbaum Pardo, the first woman to hold the office, is an energy scientist who won the Nobel peace prize in 2007 for her work on the UN Intergovernmental Panel on Climate Change.

In a previous stint as the director of the city's environment department, she oversaw the introduction of the Metrobus, a rapid-transit bus with dedicated lanes. Now she is aiming higher. Last year, she announced a six-year environmental plan, including a 30% cut in air pollution, a 40bn-peso (£1.5bn) modernisation of the metro and a campaign to plant 15m trees. Her government has banned the use of single-use plastic bags and plans to gradually phase out other single-use items, such as straws, cups and balloons.

The city's biggest challenge is traffic. Cars must be off the road for part of the week under the city's widely replicated Hoy No Circula system, which restricts when vehicles can be on the road based on their number plates. But this has had mixed results because wealthier people simply buy more vehicles to get round the restrictions. The number of vehicles almost doubled between 2006 and 2016, and now account for about 70% of emissions and most nitrogen dioxide pollution in the metropolitan area. Previous administrations have lessened the impact by tightening gasoline standards, expanding monitoring and restricting access to the central corridor in the heart of the city.

There are still dreadful smog spikes, particularly when forest fires in the surrounding hills add to exhaust fumes. Last year, the air was so unhealthy that the government closed schools, temporarily banned tens of thousands of cars from the road and forced professional football games to be rescheduled. But, overall, there have been long-term gains. Since 1988, ozone is down 46% and the amount of larger PM10 particles has fallen by 74%, according to Marco Balan, an adviser to the city's air quality general director. "The view out of my window has improved," he says. "But we have a long way to go."

Sheinbaum wants to go further by raising emissions standards for new vehicles, promoting use of hybrid and electric vehicles and investing more in the metro system, cleaner buses, light railways and cable cars so that people no longer have to rely on informal – and often dirty and overcrowded – minivans. Campaigners say a more important step would be to end fuel subsidies. Without that, the cycling scheme, known as EcoBici, will always seem like an afterthought and the Via Verde – a project to plant vertical gardens on the pillars of elevated roads – will inevitably be dismissed as window dressing.

"Mexico City is a stunning example of air quality improvements," says Chafe. "They are dealing with it in a holistic way. They know they have many sources and realise it has a huge impact on life expectancy and quality of life. The situation is not perfect, but they have made really impressive progress."

Building on that – here and elsewhere – will be the key after lockdown, she says. "We have seen an improvement in air quality in the past few months. It has been happening for the wrong reasons and in a sad situation. I hope we can now find a way to achieve the same results in a socially fair and feasible way."

- This article was amended on 9 & 16 June 2020 to clarify that the quote from Jeppe Juul about pedestrians having more space than bikes only applies to some areas of Copenhagen, not the whole city as an earlier version had implied; and to remove the reference to Mexico being a Central American country.

COVID-19 is bad. Dirty air makes it worse

Date:-8-June-2020, Source: connpirg.org

Several recent studies have suggested that air pollution may make COVID-19 infections more severe. These findings fit with previous research documenting how air pollution damages our bodies and makes us more vulnerable to infectious diseases. This new research should spur us to redouble our efforts to reduce air pollution. Evidence from several countries suggests that exposure to air pollution increases the death rate from COVID-19. A Harvard study found that areas of the U.S. with higher levels of fine particulates had higher death rates from COVID-19. The study's authors estimate that even moderately higher long-term levels of fine particulate pollution correspond to an eight percent higher death rate from COVID-19. A study in England observed a correlation between levels of nitrogen oxides and ozone and COVID-19 mortality. (Neither of these two studies has yet been peer reviewed.) Researchers studying COVID-19 in Italy observed that regions where COVID-19 has been most lethal are also places that suffer from some of the worst air pollution in Europe. They point out that air pollution inflames the lungs, which may leave patients more vulnerable. Based on observations like these, the World Health Organization has cautioned countries that polluted areas may be hit harder by the COVID-19 outbreak, and to prepare accordingly.

Findings that air pollution increases COVID-19's severity are in line with existing information that air pollution generally increases vulnerability to respiratory infections. A 2003 study found that patients from regions of China with higher levels of air pollution were more likely to die from SARS, another disease caused by a coronavirus, than were patients from regions with better air quality. More generally, common air pollutants like particulates, ozone, nitrogen dioxide, carbon monoxide and sulfur dioxide make people more susceptible to catching respiratory viruses and make infections more severe.

Other research shows that people with health conditions that may be caused or worsened by air pollution seem to experience worse COVID-19 outcomes. An analysis of COVID-19's impact on patients in China found that people with severe cases were more than three times as likely to have cardiovascular disease than people with mild cases. Patients with severe cases were also more than twice as likely to have respiratory disease. Both cardiovascular and respiratory disease can be caused by or exacerbated by air pollution.

Even before the novel coronavirus was a threat, a deep body of research confirmed that air pollution has devastating impacts on our health. Fine partic

ulate matter from sources such as vehicles and power plants was responsible for an estimated 107,000 premature deaths in the U.S. in 2011. Air pollution is linked to health problems including respiratory illness, heart attack, stroke, cancer and mental health problems.

We also have known for years that burning fossil fuels produces air pollution, and that to reduce pollution we need stronger emission rules and cleaner sources of energy. Though car traffic fell dramatically at the start of the coronavirus pandemic, ozone pollution hasn't dropped nearly so much. According to an analysis of air pollution data by NPR, that's because of fossil fuel combustion from other sources. Trucks, industrial facilities and power plants have continued to operate at close to normal levels, contributing to air pollution in communities across the country.

Unlike so many aspects of the threat from coronavirus, air pollution is a problem we know how to solve. Passenger vehicles today are as much as 99 percent cleaner than they were in the 1960s, because policymakers have insisted that automakers produce cleaner cars. Similarly, emissions from buses are dropping as leaders require that diesel buses be replaced with electric buses. Renewable energy standards, energy efficiency improvements and falling prices for wind and solar energy have helped to hasten the retirement of coal-fired power plants, reducing the amount of pollution released for electricity generation. Comparable policies can cut air pollution from other sources.

There were already plenty of reasons to seek to improve air quality. The coronavirus has just provided one more reminder of why we must do so urgently.

Spain sees rise in air pollution as corona virus lockdown eases

Date:-9-June-2020, Source: english.elpais.com



"Only justified travel allowed between regions," reads this sign on the S30 highway to Seville on Monday.

There has been a historic fall in air pollution as a result of the coronavirus crisis, just as there has been a historic global shutdown of economic activity. In Spain, pollution levels plummeted almost overnight when the government declared a state of alarm on March 14 and introduced strict confinement

measures in a bid to curb the coronavirus outbreak.

In the first three weeks of the lockdown, the concentration of nitrogen dioxide – which is closely linked to car fumes – fell more than 50% in the air-monitoring stations across the country.

But as Spain began to deescalate the confinement measures, more traffic has returned to the roads, and nitrogen dioxide levels are once again on the rise. This increase was calculated by EL PAÍS based on the data from air-monitoring centers from the 15 most populous cities in Spain, which are home to more than 10.7 million people, or around one fourth of the total population.

Since the beginning of the coronavirus crisis, the European Environment Agency (EEA) has been compiling and sharing the weekly evolution of several pollutants as recorded by around 3,000 air-monitoring centers in the European Union. Thanks to the work of the EEA, it is possible to follow the changes in air-pollution levels during the crisis.

These changes are most apparent in the fluctuating levels of nitrogen dioxide, a harmful composite that can cause respiratory, circulatory and immunological problems. Given the pollutant is closely linked to traffic in cities, it is easy to see the connection between the fall in emissions and the coronavirus lockdown. But, as with all pollutants, meteorological conditions also affect its concentration. According to the EEA, air pollution causes 400,000 premature deaths in Spain every year.

During the first four weeks of confinement, there was a sudden drop in the level of nitrogen dioxide in Spain. Emissions of the pollutant fell to their lowest level in the week between April 6 and 12. The average concentration of nitrogen dioxide, as recorded in the 15 Spanish cities, plummeted nearly 65% compared to the average of the same week from the last four years (2016-2019). After that week, levels began to plateau, before rising again during May 11 and 17.

Despite this increase, the concentration of nitrogen dioxide in Spain remains well below average and far from what was recorded before the coronavirus lockdown was introduced. In the first week of June, with all of the country deescalating the confinement measures, the average concentration of the pollutant was 14.4 micrograms per cubic meter, based on the records from the 15 air-monitoring stations. This is 32% less than the average from the same period over the last four years.

Adrián Fernández, the head of mobility at Greenpeace Spain, explains that while the entire country began easing the lockdown measures on May 25, most schools and educational facilities remain closed and many employees continue to work remotely, meaning there has been less traffic on the roads.

“This crisis should not mean that measures against the most polluting forms of transportation are held back,” he warned.

Miguel Ángel Ceballo, an air-quality expert at the environment group Ecologists in Action, adds that the coronavirus crisis has also “stigmatized public transportation,” with many fearing contagion.

Financial aid for automobile sector

On May 31, Spanish Prime Minister Pedro Sánchez of the Socialist Party (PSOE) announced a plan to provide financial aid to the automobile sector. But according to Carlos Bravo, an expert in energy from the conservation association Salvia, this initiative could encourage the sale of gasoline and diesel cars.

Salvia, and other environmental groups including the Renewable Energy Foundation (FR), have come together to call for the “efficient and responsible use” of public funds and for the government plan to focus “primarily on boosting electromobility.” According to Bravo, “the true transformation will happen by supporting electric and hybrid cars, which are the ones that really reduce pollution and carbon dioxide emissions.”

The expert, who also expressed concern about the “uptick in the use of private vehicles” in Spain, said that Germany is leading the way with a multimillion-euro recovery plan that only includes direct aid for the purchases of electric cars. “If Spain wants to have a future in this industry, it must back electromobility,” explains Bravo.

When Sánchez announced the plan, he did not specify whether it would include aid to buy gasoline cars. But one top official in the Industry Ministry has said that the plan should be extended to these types of vehicles, as has been requested by the Spanish Association of Automobile and Truck Manufacturers (Anfac). Before the prime minister’s announcement, the Ecological Transition Ministry was finalizing the approval of a €65-million aid plan exclusively for electric cars.

Green recovery must focus on the local variations in air pollution

Date:-10-June-2020, Source: airqualitynews.com

The report highlights that although decarbonisation does deliver a reduction in air pollution, this still falls short of the targets made in the National Emissions Ceilings Directive.

The authors have suggested that in order to achieve any meaningful changes to air pollution the government should consider significant changes to the energy system design.

The cost of damage caused by poor air quality means the transition to net-zero may differ significantly between areas across the UK. For example, faster decarbonisation is needed in cities, particularly in the shift to electric vehicles and public transport.



According to the report, this very localised nature of air pollution highlights the importance of taking a local approach to green recovery.

The authors of the report have also highlighted that some air pollution issues will not be solved through decarbonisation, for example, the particulate matter (PM2.5)

pollution from brakes, tyres and road wear will still exist as we transition to more electric vehicles.

Energy innovation research office manager at Energy Systems Catapult, Dr Adam Thirkill said: 'Many cities have benefitted from cleaner air as an unintended consequence of lockdown measures – although this is balanced against the threat of infection, economic downturn and an impact to our general sense of freedom – it has nonetheless provided a glimpse of what could be achieved with respect to air quality with the right policies in place.

'Exposure to air pollution has been linked to an estimated 40,000 deaths per year in the UK.

'More recently, scientists have made links between long term exposure to air pollution and an increased risk of death from COVID-19. And, whilst the contribution to the spread of the virus remains unclear, coronavirus has been discovered attached to airborne particulate matter.

'Our analysis shows that while cutting carbon emissions also reduces air pollution, these reductions are not enough to meet air quality targets laid out in the National Emissions Ceilings Directive.'

Air pollution remains low across Europe

Date:-11-June-2020, Source: airqualitynews.com

Despite many European countries beginning to ease lockdown, data from the Copernicus Atmospheric Monitoring Service (CAMS) has revealed that air pollution still remains relatively low.

Air pollution is predominately determined by emissions from human activities, following the outbreak of COVID-19 countries across the world went into lockdown, meaning that these human activities came to a halt, and naturally, air pollution went into decline.



As rates of infection are beginning to decline, lockdown in many European countries is beginning to ease and with that air pollution is expected to rise.

However, according to the CAMS regional maps of air quality which is updated daily and compared against 2017-2019 averages, air pollution still remains relatively low

with no signs of any dramatic increases yet.

Mark Parrington, a senior scientist at CAMS said: 'Between January and April, we have seen a decrease in pollutants like NO₂, and to a lower extent PM_{2.5} and PM₁₀, in many European areas that coincided with the introduction of strict lockdown measures in those countries due to Covid-19.'

'Now, we are expecting to see some increase again as lockdown measures are loosened, but it is not apparent yet in our data.'

Vincent-Henri Peuch, director of CAMS added: 'There are differences in the way lockdown and easing of lockdown manifest itself between different parts of the world.

'In Europe, the easing of lockdown measures currently appears to be cautious and progressive, which means ongoing reduced commuting and business-related transport to take just one example.

'This is very important because some of the health benefits, which we have experienced during the lockdown period from improved air pollution, could be kept permanently.

'Certain pollutant emissions reduction objectives, that may have appeared previously seen as too ambitious or even counter-productive, can now be targeted with confidence and backed with evidence. With combined efforts, like those proposed in the European Green Deal initiative, we can make a change.'

Arctic pollution: Air quality monitoring at 40°C below zero

Date:-12-June-2020, Source: roboticsandautomationnews.com

Most people think of the Arctic as a highly pristine clean environment, but this is not always the case. During the long dark Arctic winter, the urban atmosphere can become extremely polluted.



Indeed, at some point during the year, the remote Alaskan city of Fairbanks turns into the most polluted city in the whole of the US.

This is due to the very cold Arctic winter when emissions of gases and particles (such as from wood-burning stoves, traffic, power stations) can become trapped locally at

ground level due to the very stable meteorological conditions, with poor vertical mixing.

Concentrations of gases and particles thus become very high, exceeding air quality limits as set out in The Clean Air Act and managed locally by the Alaska Department of Environmental Conservation.

Fairbanks, Alaska is currently designated as a non-attainment area for PM_{2.5} and a Maintenance Area for Carbon Monoxide.

In order to better understand these conditions, a research team was established to quantify air pollution in Fairbanks throughout the Arctic winter.

Scientists Tjarda Roberts, Kathy Law, and Bill Simpson plus other experts from CNRS France research laboratories (LPC2E, LATMOS, and so on) and the University of Alaska Fairbanks USA are pursuing several objectives that can inform effective decision making to improve air quality.

Specifically, to characterise local emission sources, understand the atmospheric processing of gases and particles and correlate the measurements of the atmospheric pollutants with observations of the local meteorology and boundary-layer conditions.

Tjarda Roberts explains: “For this, we needed reliable, automated instruments that could withstand the harsh Arctic winter conditions. We deployed two Praxis instruments from South Coast Science throughout the whole winter season (November 2019 to April 2020) to characterise gas and particle pollution at various sites across Fairbanks.”

“The instruments measured CO, NO, NO₂, Ozone, and size-resolved particles and operated autonomously throughout delivering high-resolution air quality data in real-time (via SIM card). The Praxis proved to be highly reliable under the extreme Arctic conditions, even as temperatures reached as low as -40 C.”

This work by Roberts et al. has an important contribution to make towards improving air quality and human health in the region. This isn't a new problem.

Back in 2018, the American Lung Association identified Fairbanks as the number one most polluted city for year-round particle pollution. This problem was compounded further last year by raging forest fires, reportedly degrading the air quality across most of the state.

Last winter's air measurement campaign precedes a bigger international-effort on arctic wintertime atmospheric chemistry that is planned for this coming Winter in Fairbanks (unless delayed by Covid19), to which the US has committed significant funds in a project called ALPACA (Alaskan Layered Pollution And Chemical Analysis).

Where significant funds have been committed to assisting the understanding of air pollution, it is important that the outcomes provide value for money and support real, positive change.

The high reliability of devices and measurements in this challenging environment creates robust data outputs. It also allows the researchers to concentrate on more sophisticated modelling.

The incentives for change are made visible resulting in increased possibilities for action on air quality

Last winter's air measurement campaign was funded by the French National program LEFE (Les Enveloppes Fluides et l'Environnement), IPEV, Paris-OVSQ and Orléans Labex Voltaire.

Review: Pakistan's feeble fight against filthy air

Date:-13-June-2020, Source: dawn.com



Low-quality fuel is one of the reasons behind air pollution in Pakistan's cities.

air pollution in cities dissipated.

The days of remarkably blue skies over South Asian cities are ending. Countries in the region have started to restart their economies after months of lockdown to contain the spread of Covid-19. Since late March, with industries shuttered and hardly any vehicles on the roads, emissions have dropped

significantly across South Asia, and the typically high levels of

The pandemic-forced shutdown and the return of breathable air over cities have driven home an important point: the simple pleasure of breathing clean air that people living in cities in Pakistan, India, Nepal and Bangladesh have almost forgotten in recent decades. There have been calls across nations that we should draw lessons from this and do our best not to return to business as usual, which would mean a return to the toxic hazes that hang perpetually over our cities.

It is in this context that the environmental documentary, *Out of the Smog: Pakistan's Plea*, has to be viewed. Produced by Naveen Rizvi and Sahar Abbass and directed by Shahrugh Bhatti, the documentary is a deep dive into Pakistan's climate crisis and the links between air pollution and high carbon emissions. Featuring detailed interviews with environmental lawyers Sara Hayat and Rafay Alam, and air quality activist Abid Omar, the documentary is an excellent introduction on the challenges Pakistan faces, particularly for audiences outside the country who are not familiar with the issues.

The interviews are clearly structured, with Alam speaking mainly on emissions and air pollution, Omar focussing on air quality monitoring issues, and Hayat linking Pakistan's smog problem with its carbon footprint and climate change.

Dirty fuel

For international audiences, and those in India and Nepal, it will come as a shock that Pakistan is still using Euro II fuel standards — emission norms that were discontinued in the developed world more than 10 years ago. India has recently leapfrogged to Euro VI standards along with Nepal, which imports all its fossil fuel from its southern neighbour.

Both Alam and Omar point to this import of cheaper but dirtier fuel as one of the main reasons for the terrible air pollution in Pakistan's cities, especially in Lahore and Karachi, and vigorously argue that authorities need to move to more stringent standards. In South Asia, Bangladesh is the only other country that lags behind in imposing tighter fuel norms but it has a clear roadmap to transition to Euro VI. Pakistan, unfortunately, is yet to have an official policy on this.

Alam provides a detailed view of Pakistan's air pollution problem that is intimately linked with the nation's carbon footprint. He also points out that piecemeal approaches to clean air in Lahore, the most polluted of Pakistan's cities, are unlikely to work. He says there has to be regional and cross-border cooperation to tackle the crisis due to the unique characteristics and common issues cities in the northern Indian plains face, from Peshawar to Lahore to Delhi to Kolkata to Dhaka.

Monitoring blues

Pakistan also lags behind in monitoring air pollution, which has prompted Omar to start a citizens' initiative to record air quality using privately owned machines. This is a problem

often spoken about in India — how inadequate the air quality monitoring system is in South Asia's largest nation.

However, the situation is much worse in Pakistan. For instance, the non-profit World Air Quality Index (AQI) project shows data from only four monitors in Pakistan, located in the US embassy in Islamabad and US consulates in Lahore, Karachi and Peshawar. This compares with more than 400 AQI monitors in India, with the more than 40 in the national capital region alone.

This serious lack of data also stalls any discussion on improving air quality in Pakistan, Omar says in the documentary. To address this, Omar has started Pakistan Air Quality Initiative, which provides crowd-sourced, community-driven air quality data to increase social awareness. One is forced to wonder: is this enough? Shouldn't the government and the country's pollution control authorities be doing something about this?

Climate crisis

The documentary, its makers say, was inspired by the climate marches in Pakistan in 2019, which were attended in large numbers by ordinary citizens, particularly young people and schoolchildren. It is heartening to know that awareness of the climate crisis is increasing in Pakistan, which was quite ably described by Hayat. However, although public opinion is in favour of taking action on this front, she says the government is yet to wake up to the reality.

Out of the Smog is an essential addition to the cinéma vérité documentaries that are emerging from the developing world. More than finding audiences within Pakistan, it is useful for international viewers to be more informed about the broad environmental problems that Pakistan faces.

Having said that, there are a few rough edges to the documentary that could have been smoothed out by tighter editing. At more than an hour and 20 minutes, it will struggle to retain viewers for its entire length. The documentary could have been shorter, with less time given to talking heads and more footage of the ground situation in various cities.

Overall, it is an informative and in-depth view of Pakistan's climate change challenges and its problems with filthy air. It remains to be seen whether its promoters can market the documentary so that influential audiences, particularly policymakers, view it. Whether they take action is entirely another matter.

Lockdown: Hope Street sees biggest drop in air pollution in UK

Date:-13-June-2020, Source: glasgowtimes.co.uk

A Glasgow street has seen its air quality transformed during lockdown pollution dropped drastically.



Hope Street sees biggest reduction in air pollution in UK during lockdown

Hope Street is known for its high levels of air pollution and was ranked as Scotland's most polluted street in 2019.

However, nitrogen dioxide levels in the city centre street have dropped from 56.6 micrograms per cubic metre to 18.7, BBC Scotland reports. The change in air quality in Hope Street marked the biggest improvement across

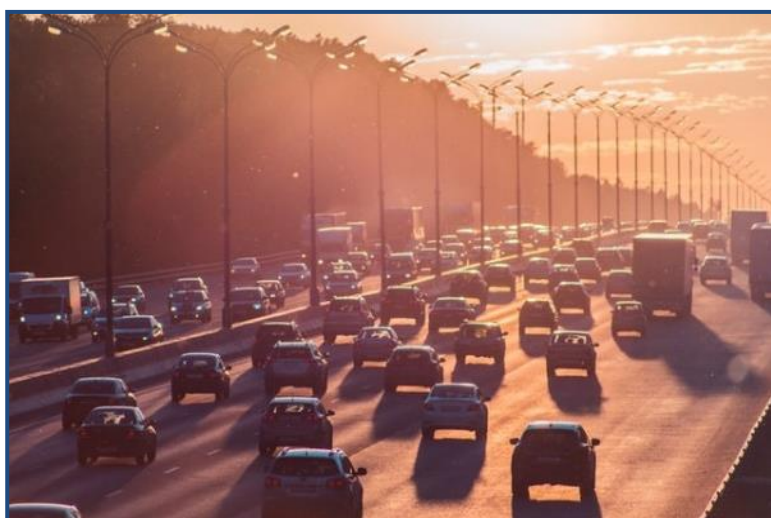
the UK. Researchers studied 32 sites across Britain and compared them to their usual figures before lockdown forced a fall in traffic and industrial activity.

The study was carried out by environmental consultancy firm Ricardo, and found that Hope Street was followed by Nicholson Street in Edinburgh. Glasgow city convener for sustainability and carbon reduction Anna Richardson told BBC Scotland: "The link between vehicle traffic and pollution is well understood and there has been an obvious reduction in vehicles moving around the city during lockdown. "Making sure the gain in air quality made in recent months is not lost is part of the considerable challenge the council faces as we emerge from the covid-19 crisis."

Pandemic Aftermath: Worst Air Pollution and Extreme Traffic Congestion Expected After Lockdown as Private Cars Increase

Date:-14-June-2020, Source: techtimes.com

The coronavirus pandemic may still affect the world after its peak since it will create a new



Worst Traffic Congestion and Extreme Air Pollution After Lockdown is Expected as Private Vehicles Rise

normal that people across the globe will have to adjust with. According to The Independent's latest report, since commuters are swapping public transport for cars in fear of the coronavirus in public transportation, the worst air pollution and extreme traffic congestion should be expected

once the lockdown is fully lifted.

It was reported that the clean air in the United Kingdom is likely to deteriorate these coming weeks as the lockdown is lifted on Monday, June 15. It will also trigger a surge in road traffic. Restrictions enforced during the height of the coronavirus pandemic have been eased by many countries across the globe to revitalize economies. The number of road accidents will likely increase and air pollution levels are expected to climb as many workplaces and shops open for the first time on Monday, June 15.

In China, for example, air pollution is now overtaking previous levels before the global pandemic occurred, as the travel industry resumed in the country. Meanwhile, car use in Stockholm, Sweden, is currently hitting levels higher than before the pandemic, just like in Wuhan, China. Authorities have warned people that a second wave of coronavirus infections will likely occur since people have begun crowding onto public transportation and visiting public spaces with little to no social distancing.

The survey's result showed that personal cars will be used even more even by those individuals who usually opt for public transportation.

"The problem is going to be that all these forms of transportation are competing for the same amount of finite space," said transit consultant and former New York City traffic commissioner, Sam Schwartz in the report of Business Insider. "Even at 50 or 60 percent of a full reopening of a city... what we're going to see is perhaps 100 percent or more of automobile traffic."

Detroit Free Press conducted a global survey in 11 countries, involving more than 11,000 drivers. The survey's results showed that overall increased interest in car ownership, including among younger buyers and even those who have never owned a car before, was caused by the global pandemic.

On the other hand, a spike in traffic congestion may happen once the lockdowns are eased completely, as indicated in the study by academics at Vanderbilt University titled "The Rebound: How COVID-19 could lead to worse traffic."

"Cities that depend on transit are at risk for extreme traffic unless transit systems can resume safe, high throughput operations quickly," according to the paper.

The lockdowns imposed around the world in response to the coronavirus crisis have resulted in a dropped of global carbon dioxide emissions by as much as 17%. Daily CO2 emissions on April 7 dropped temporarily, at the peak of the lockdown, to levels last seen in 2006.

Air pollution down by one third thanks to lockdown

Date:-15-June-2020, Source: henleystandard.co.uk



AIR pollution at a monitoring site in Henley decreased by 35 per cent during the coronavirus lockdown period

Data released by South Oxfordshire District Council, which monitors air quality in Duke Street, showed the level of nitrogen dioxide fell from 20.9 micrograms per cubic metre in March, when the lockdown began, to 13.5µg/m³ in May.

The figures also show a drop of more than 52 per cent from

January when the level was recorded as 28.7µg/m³.

In Watlington, where air quality is recorded at the town hall in Couching Street, there was drop of more than 42 per cent from 21.4µg/m³ in March to 12.3 µg/m³ in May. The district council published its findings on World Environment Day on Friday.

Air quality campaigner David Dickie, of St Katherine's Road, Henley, said the figures were not a surprise and added: "The challenge is how can you keep it low?"

"The numbers have gone down but they could have gone down further. I would just hope that when proposals come forward for keeping it low in Henley, both the district council and Oxfordshire County Council smile at these requests. A lot of families have been taking to their bikes on the road but as soon as there's traffic it will be too frightening for the children to continue to do that so we must do something about the volumes."

The council's environmental protection team has been monitoring the effect of the lockdown and the lack of traffic on the levels of pollution, focusing on the areas designated as Air Quality Management Areas.

When the AQMA in Henley was declared in 2003 the level of NO₂ was 45.1µg/m³ but this had fallen to 39.6µg/m³ in 2018.

When the AQMA was declared in Watlington in 2009, the NO₂ level was 51.3µg/m³ but had fallen to 39.2µg/m³ in 2018.

The council said the lack of traffic and the increase in walking and cycling had helped improve air quality across southern Oxfordshire.

There had been a “marked reduction” in nitrogen dioxide, which can cause breathing difficulties, especially for those with existing respiratory conditions such as asthma.

David Rouane, cabinet member for housing and the environment, said: “We have always suspected that traffic is the main contributor to air pollution in certain areas and this reduction in traffic followed by the marked reduction in air pollution seems to bear this out.

“It is important we act on this information to ensure this improvement in our air quality continues and is not just during lockdown.”

Mr Dickie said: “It doesn’t seem to me that he has any proposals, he’s just saying ‘we have got to look at it’. I’m sure Henley will be only too happy to furnish him with some thoughts and I hope he supports the town.”

Free parking at the district councils car parks, which was introduced during the lockdown, ended on Monday.

Mr Dickie said this was a “cruel” decision by the council which could have given a month’s leeway to support the businesses, many of which will re-open next week after being shut for almost three months. The data also showed the difference in air quality in 2020 compared with the same time last year. In Henley the readings for March, April and May were 22, 39.9 and 29µg/m³ respectively, while in Watlington they were 35.1, 28.3 and 30.5 µg/m³

The council monitors air quality using a mixture of static automatic analysers and diffusion tubes.

Static analysers are fixed next to the roadside. They monitor the air quality and send data analysis every minute to the Oxfordshire air quality website.

The 135 diffusion tubes measure air quality across the district. The 8cm long plastic tubes are attached to lamp posts and are used for monitoring nitrogen dioxide.

The analysis of the diffusion tubes can only be reported on an annual basis but it is anticipated they will show a reduction in nitrogen dioxide for 2020. The national objective is to ensure nitrogen dioxide levels do not exceed an annual average of

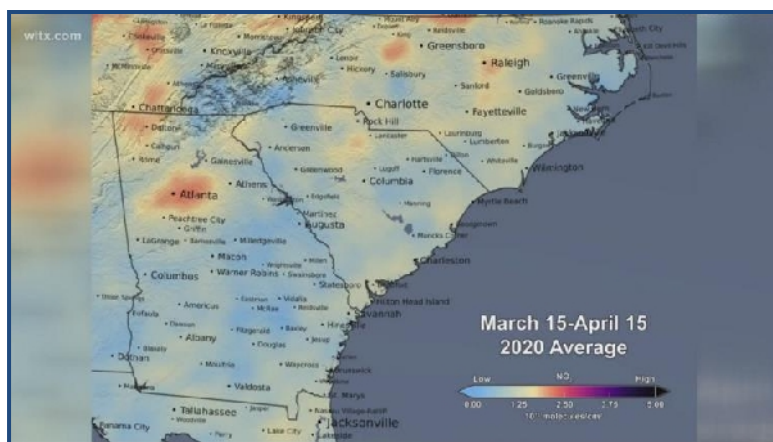
40 µg/m³.

The council says its active communities team is working with partners to increase cycling and walking throughout the district.

The Government has promised to work with councils across the country to increase walking and double the amount of cycling by 2025.

Air quality improved in Southeast during height of Coronavirus

Date:-16-June-2020, Source: wltx.com



COLUMBIA, S.C. — As the coronavirus spread across the world, international and domestic travel drastically slowed.

With less cars on the roads, planes in the sky, and some industries slowing down, the amount of air pollution also dramatically decreased.

Images from India to Los Angeles showed smog free skies, while in Venice, Italy, fish were swimming in canals that were more clear than they have been in years.

A report from Climate Central shows that the percent distance in travel decreased in South Carolina by 60 percent in March and April.

One of the pollutants that is a good tool in measuring human and economic activity is nitrogen dioxide.

NASA satellites measured a 30 to 40 percent drop in nitrogen dioxide over the past few months according to NASA scientist Bryan Duncan.

“We’ve definitely seen cleaner air, that’s been confirmed by monitors, air quality monitors on the ground, as well as satellites, they’ve all verified that.”

Duncan told WLTX that nitrogen dioxide is a good indicator of human and economic activity because it has such a short lifespan.

The changes in travel were felt across the Midlands, especially at the Columbia Metropolitan Airport.

All three major carriers, American, Delta, and United, had a significant reduction in their flights according to Kim Jamieson, the Director of Marketing and Air Service Development at the airport.

The improved air quality is beneficial for human health, however the decreased emissions are not expected to last very long. Travel is already starting to increase as restrictions across the state and country are lifted. The Columbia Metropolitan Airport has noticed that the number of passengers flying has increased through the month of May and into June.

"Toward the end of May we saw about 2500 passengers the week of May 24, the very next week we saw about 2900 passengers. And just last week, June 8, we saw a little over 3500 passengers," Jamieson tells WLTX.

The brief decrease in air pollution is a good reminder of what a cleaner world could look like. As the economy picks back up, it's important to continue looking for better ways to decrease emissions and air pollution. Some solutions include using more efficient fuels, switching to electric vehicles, and creating more energy efficient appliances.

Half of the world's population exposed to increasing air pollution

Date:-17-June-2020, Source: sciencedaily.com

A team of researchers, led by Professor Gavin Shaddick at the University of Exeter, has shown that, despite global efforts to improve air quality, vast swathes of the world's population are experiencing increased levels of air pollution.

The study, carried out with the World Health Organisation, suggests that air pollution constitutes a major, and in many areas increasing, threat to public health.

The research is published in leading journal *Climate and Atmospheric Science* on Wednesday, June 17th 2020.

Professor Shaddick, Chair of Data Science & Statistics at the University of Exeter said: "While long-term policies to reduce air pollution have been shown to be effective in many regions, notably in Europe and the United States, there are still regions that have dangerously high levels of air pollution, some as much as five times greater than World Health Organization guidelines, and in some countries air pollution is still increasing."

The World Health Organization has estimated that more than four million deaths annually can be attributed to outdoor air pollution.

Major sources of fine particulate matter air pollution include the inefficient use of energy by households, industry, the agriculture and transport sectors, and coal-fired power plants. In some regions, sand and desert dust, waste burning and deforestation are additional sources of air pollution.

Although air pollution affects high and low-income countries alike, low- and middle-income countries experience the highest burden, with the highest concentrations seen in Central, Eastern Southern and South-Eastern Asia.

For the study, the research team examined trends in global air quality between 2010 and 2016, against a backdrop of global 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 individual countries, regions and globally.

This methodology constitutes a major advance in the ability to track progress towards the air quality-related indicators of United Nation's Sustainable Development Goals, and to expand the evidence base of the impacts of air pollution on health.

Professor Shaddick added: "Although precise quantification of the outcomes of specific policies is difficult, coupling the evidence for effective interventions with global, regional and local trends in air pollution can provide essential information for the evidence base that is key in informing and monitoring future policies."

Pollution watch: air quality benefits of lockdown continue

Date:-18-June-2020, Source: theguardian.com



Empty traffic lanes on the A102 in Greenwich, south-east London

The start of the UK lockdown brought news of reduced air pollution. Did it last?

Measurements from London show that initial improvements in nitrogen dioxide from traffic continued into April and May. Compared with the first 11 weeks of 2020 before lockdown, there was an average decrease of 31% on the capital's roads. Greatest

reductions were in central and inner London and followed improvements from the Ultra-Low Emission Zone.

Spring is often the worst season for particle pollution across western Europe. Just six years ago Paris banned half of traffic to control a springtime smog. These are caused by air pollution from traffic and industry mixing with ammonia from farm fertilizer.

This year was no different. London had five springtime smogs between the start of UK lockdown and mid-May, but reduced traffic and industry across the UK and Europe meant that maximum concentrations were around two-thirds of those in previous springs.

Spring and summer are peak periods for ground level ozone; a pollutant synonymous with Los Angeles smogs. Nowadays, many of the pollutants that cause summer smogs come from solvents, inks and cleaning materials that we use in our homes. Unsurprisingly, the UK had several smog events in the sunny lockdown weather.

Air pollution reduced amid pandemic in Washington state

Date:-19-June-2020, Source: yaktrinews.com



YAKIMA, Wash. (AP) — Reduced traffic and work commutes have likely lowered nitrogen dioxide pollution and improved people's quality of life during the COVID-19 pandemic, Washington state experts said.

"Certainly commuting is a big way we spend our time and burn fossil fuels," said Kristi Strauss, an environmental lecturer at the University of

Washington. "The reduced traffic has not only improved carbon emissions, but also quality of life. I don't know anyone who values their time spent in traffic."

But the National Oceanic and Atmospheric Administration reports that reducing greenhouse gas emissions for the short period of time "is not a sustainable way to clean up our environment," the Yakima Herald-Republic reported.

A report on how the state's "Stay Home, Stay Healthy" order affected air quality in the state tracked fine particulate matter and included observations from four stations in Yakima County.

Graduate student Bujin Bekbulat found that the air was dirtier than expected in April, cleaned up in May and decreased in quality again in June when the state order was lifted, following trends.

It was also noted that city concentrations in Seattle were 30% lower than expected since the stay home order went into place.

Strauss believes people will continue at least some of their practices established by COVID-19: flying less, gardening and cooking and exercising more, and embracing telework.

"I can't imagine people will go back easily to the frenetic pace of life, of always wanting more, more, more," she said.

Strauss recommended some of the ways to contribute to bettering the environment include eating less meat, gardening and cooking more, flying less, and buying local or not at all.

Bekbulat said reducing consumption rather than reusing or recycling items makes the most difference for the planet.

“Everything we buy and throw away after a couple of uses ends up in a landfill here or in developing countries, and all of that comes with an enormous carbon and water footprint,” she said.

For most people, the new coronavirus causes mild or moderate symptoms, such as fever and cough that clear up in two to three weeks. For some, especially older adults and people with existing health problems, it can cause more severe illness, including pneumonia, and death. The vast majority of people recover.

Pandemic has silver lining: Improved air quality

Date:-20-June-2020, Source: orilliamatters.com

Lying in a relatively remote area in the countryside between Cookstown and Canadian Forces Base Borden, Egbert would make an ideal commuter’s home; only a 45-minute jaunt to Toronto’s Pearson International Airport, but far from the madding crowds.

And that’s what makes it an ideal location for scientists.

Just as the world slowed down, seeing a sudden dramatic drop in the number of people using planes, trains and automobiles, cities across the world saw a drop in greenhouse gases. Scientists reported daily emissions falling by about 17 per cent.

And the International Energy Agency reported that lower emissions, largely as a result of the health pandemic, are expected to reduce harmful greenhouse gas emissions that lead to climate change by nearly eight per cent this year — the largest decrease ever recorded.

“It’s obviously an extremely unusual time,” said Environment and Climate Change Canada climate, chemistry measurements and research scientist, Felix Vogel. “It’s a very unusual test case for us to be able to actually say: we turn off all the cars and reduce cars by ‘X’ amount, what would happen in the atmosphere?”

While data monitored in urban centres, such as Toronto, provides a picture of the highs and lows and information related to specific local emissions, Egbert’s Environment Canada’s Centre for Atmospheric Research Experiments (CARE) serves as a baseline, helping to round out the bigger picture.

Just how the impact of COVID-19 is affecting greenhouse gas emissions where we live is still being monitored and analyzed, with results expected in coming weeks. And while dramatic changes have been recorded worldwide, the overall impact is considered moderate.

In fact, National Geographic reported that the concentration of carbon dioxide in the atmosphere actually crept up in May to the highest ever recorded in human history.

“We’ve turned the tap down by 10 or 20 per cent, but the tap is still running; there's still lots of carbon being used,” explained Vogel. “We might not see any change in some of the other greenhouse gases during the situation right now.

“From a long-term perspective, any short-term (changes) that we would see right now could be compensated very quickly once everything goes back to normal,” Vogel added. “This short-term cut in emission that people predict based on reduced traffic and everything else is not really giving us any additional time.”

But time will only tell, he says, and efforts are still ongoing to meet international greenhouse gas emission reduction targets set through the 2016 Paris Agreement.

So the work to monitor the human impact on the environment continues. Egbert, a fairly undisturbed location, provides scientists with a baseline of how the atmospheric conditions affect concentrations of air pollutants and greenhouse gases compared to more populated areas being monitored, such as in Downsview.

The Egbert location, says Vogel, provides a reference for all of Ontario of what undisturbed air should look like, reflecting large-scale continental atmospheric signals of carbon dioxide, which is very long-lived.

Vogel is among an array of scientists who monitor data collected at CARE on a sprawling field, up on a bit of a rise, in Egbert. The centre was established in 1988 to monitor Canada’s changing atmosphere and serves as a testing site for new methods to measure air pollution, climate, and weather conditions.

Through laboratories and state-of-the-art monitoring equipment of all sizes located throughout the property, it serves as a platform for measurements of acid deposition, air quality, tropospheric ozone, greenhouse gases, and aerosols.

With about a dozen people working onsite, it allows atmospheric observation programs and intensive long-term field studies with national and international partners, according to information provided by Environment Canada.

But the Egbert facility also allows for other projects including:

The Canadian Air and Precipitation Monitoring Network’s master station for measurements of pollutants both in the air and deposited to the surface of the ground;

The Greenhouse Gas Master Station, a regional station for the World Meteorological Organization Global Atmosphere Watch;

Canadian Brewer Spectrophotometer Network’s instruments monitoring the state of the ozone layer and measurements of ultraviolet radiation used to calculate the UV Index;

Remote sensing instruments to measure particles or gases;

Global Atmospheric Passive Sampling Network's investigations of toxic chemicals in the air including pesticides, flame-retardants, surface protectors such as fluorinated chemicals and new and emerging compounds of concern;

The Canadian Atmospheric Mercury Measurement Network continuously monitors the levels of mercury in air;

The Meteorological Service of Canada also has an upper air site from where it launches weather balloons;

A wind profiler array used for the prediction of tornadoes along with a weather station at the facility.

For Vogel, the facility allows for precise measurements up to the parts per billion to gauge the most important greenhouse gases influenced by human activity, such as carbon dioxide, methane and nitrous oxide.

The measurements also zero in on carbon isotopes to figure out the kind of carbon dioxide molecule they're examining that points to specific sources.

Measurements for methane gathered in Egbert are also examined against a wider data set. The scientists were able to see that the methane in the air is less than what was predicted in emission maps provided by U.S. and European researchers, for instance.

"It's very important to be able to sort out if the increases we see here in the city are actually local or if it is something that is actually transported to us. And Egbert is actually the key," said Vogel.

The bottom line, he says, is developing better information through cutting-edge research and translate that into information that policymakers and others can use to make decisions.

And with concerns about greenhouse gas emissions ever increasing, interest in the results produced from the Edgar facility are an important part of the bigger picture, says Vogel, even if only to show what shutting off our cars for a couple of months can produce.

"I hope by the summer or fall we will know much more... how much it has changed," he said.

Emissions, natural gas use down at UMD amid COVID-19 shutdown

Date:-21-June-2020, Source: dbknews.com

Since students left the campus in March, the University of Maryland has seen a 27 percent reduction in electricity use due to reduced heating, cooling and other electrical demands, according to Facilities Management.



The combined heat and power plant on the University of Maryland campus.

As states began operating under stay-at-home orders, fewer people were driving nationwide, which led to a decrease in emissions. And Maryland was no exception, according to a statement from Ben Grumbles, the state's environment secretary.

"The silver lining to this crisis is with so many people staying at home[,] less traffic has meant less air pollution,

including fewer greenhouse gas emissions from transportation, and more opportunities for science to drive positive environmental change," the statement read.

The university's power plant saw a 24 percent reduction from last year in natural gas use in March and April, according to a report from Facilities Management.

All of these changes have led to this university's greenhouse gas emissions being reduced by the equivalent of burning 12 million pounds of coal, according to the report.

The changes in energy use at the university fall in line with the findings of a report released May 29 from the Maryland Department of the Environment. Researchers estimated that carbon monoxide and carbon dioxide emissions decreased by about 30 percent in Baltimore and Washington, D.C., following restrictions enacted to suppress the spread of COVID-19.

Russell Dickerson, a professor in the university's atmospheric and oceanic science department, contributed to the report. Along with a team of other university faculty, undergraduates and graduate students, Dickerson helped the department analyze data collected from satellite images, air samples taken from aircraft and ground-based measurements.

A decline in car travel played a role in the drop in greenhouse gas emissions, according to the report. Using a traffic counter set along Interstate 95, researchers found that the total number of vehicles on the road during weekdays decreased by as much as 51 percent after Gov. Larry Hogan issued a stay-at-home order on March 30.

This period of restrictions serves as a sort of natural experiment for evaluating the benefits that would come along with promoting telework and transitioning to electric vehicles, Dickerson said. He added that results so far have suggested trucks are a major source of pollutants that cause smog episodes, which could bring about new rules on truck pollution control devices.

The negative effects of air pollution are far-reaching. Some researchers recently found a positive relationship between an area's exposure to fine particulate matter, a type of air pollution, and its COVID-19 death rate. More broadly, other research has shown that diseases caused by pollution are responsible for three times more deaths than AIDS, tuberculosis and malaria combined — and they have disproportionate effects in minority communities.

On June 2, the multi-state Ozone Transport Commission, which advises the EPA on regional environmental issues, approved a recommendation from the MDE that requires Pennsylvania power plants to reduce harmful emissions that are carried into Maryland by the wind. The MDE estimates that 70 percent of air pollution generating ozone in Maryland originates from other states.

In his statement, Grumbles stated that an upside to the coronavirus pandemic is that it has offered “more opportunities for science to drive positive environmental change.”

“We can use technology and policy to boost teleworking and transportation electrification dramatically to reduce pollution and help us meet our aggressive climate change goals for a zero emission future,” Grumbles’ statement read.

London pollution: How has lockdown affected the city's air quality?

Date:-22-June-2020, Source: standard.co.uk

As the coronavirus pandemic spread across the globe and nations went into lockdown, there were also reports of air pollution dropping significantly and resulting health benefits. But to what extent has that been the case in London — and what does it mean for those of us who live here?

Google traffic data released last month found that across London, there had been a 77.6 percent drop in road traffic, with both central London and the M25 far quieter than usual. Breathe London, which maps pollution by collecting data through monitors across the city, assessed pollution levels in the capital in the weeks after lockdown.

By looking at pollution levels from 17 March to 13 April, and comparing them to pre-confinement data, the team identified a 9-17 per cent drop in nitrogen dioxide.

Elizabeth Fonseca, senior air quality manager of Environmental Defense Fund Europe, which leads the Breathe London project, explains the potential impact of this reduction: “Nitrogen dioxide is a toxic pollutant, so a reduction in air pollution like this can mean fewer asthma flare-ups or symptoms of heart and lung disease, like coughing or shortness of breath when outdoors.”

This month, the British Lung Foundation reported that 16 per cent of people with lung conditions they surveyed said that they had noticed an improvement in their symptoms.

The drop in nitrogen dioxide was more pronounced in central London, where there was an average 20-24 per cent reduction in the pollutant, which is largely released by the burning of diesel and petrol in engines.

In some places there was an even more dramatic fall. Marylebone Road, which normally sees high levels of traffic, saw levels of nitrogen dioxide drop by 55 per cent, while concentrations of the pollutant were down 36 per cent on Euston Road, according to separate data collected by King's College London.

But the overall picture is complex. While levels of nitrogen dioxide have fallen during lockdown, the KCL data also shows that levels of tiny polluting particles known as PM10 and PM2.5 — which are the most dangerous to human health and have been found to settle in airways and get into the bloodstream — actually rose after lockdown was introduced in the UK, because easterly winds carried pollutants from northern Europe.

Gary Fuller, an air pollution scientist at King's College London and author of *The Invisible Killer*, explains: "Particle pollution has been worse during the lockdown than it was earlier in the year. This is largely due to emissions from agriculture and farming combining with those from traffic and industry to create springtime smog.

"There is some good news: less traffic and industry during lockdown has meant that this spring is less polluted than previous years."

With more people spending their free time gardening, the good weather last month and an increase in the use of barbecues and outdoor pizza ovens, Fuller says there have been some concerns about outdoor fires, which are responsible for releasing PM2.5.

Fuller says that some local authorities have seen a rise in complaints about bonfires. "Whether it's because there are genuinely more bonfires or because people are at home so noticing more, several local authorities have put out appeals asking residents not to have bonfires and to save their garden rubbish," he notes.

Nonetheless, taken in the round, the overall drop in air pollution during lockdown could still have had a positive impact on London's health.

It will take some time before researchers can draw concrete conclusions. But the British Lung Foundation (BLF) estimates that the drops in pollution levels could have contributed to better health during lockdown for almost two million lung patients in the UK — including those with asthma or chronic obstructive pulmonary disease.

The charity is now lobbying the Government to ensure levels don't rise to pre-Covid levels as lockdown loosens. Zak Bond, policy and public affairs officer at the BLF, says: "We have all

become aware of how important it is to look after our lungs, and the Government has a duty to ensure that as the country recovers from Covid-19, we can continue to keep air pollution levels down, and keep pushing them lower, with the rapid introduction of clean air zones, support for public and active transport, and tougher air quality laws.

“We want to see the Government commit to reaching World Health Organisation guidelines for fine particulate matter by 2030 at the latest.”

Fonseca also argues that the continuing risk of coronavirus should be a motivating factor in keeping pollution levels low. “Air pollution can hurt people’s health both in the short and longterm, with the power to result in — or worsen — serious medical conditions. People suffering from some of these same conditions are at a higher risk for severe illness from Covid-19, so it’s critical to reduce pollution,” she says.

These organisations are not alone in hoping that the end of lockdown could mark the beginning of positive change for air pollution.

A survey conducted by YouGov this month for the Clean Air Fund found that 84 per cent of respondents in London wanted air quality in their area to be improved, and there were high levels of support for measures to limit air pollution after lockdown.

In May, a national Opinion survey of 2,000 people commissioned by environmental charity Global Action Plan found that many had become more concerned about clean air and the impact of air pollution on their and their family’s health. This shift in attitude was apparent in London, where 72 per cent of respondents said they had noticed an improvement in air quality since lockdown.

The survey also recorded a 40 per cent increase in Londoners who viewed air pollution as a greater concern. “Air pollution has improved in many places during lockdown, and people have been appreciating this,” says Larissa Lockwood, head of health and air quality at Global Action Plan. “As coronavirus restrictions are lifted, we can choose to create a ‘new normal’ where clean air is normal.

“As unwelcome as the current situation is, we must use this step back as an opportunity to bring the life and business back to our streets, without the pollution.”

The Streets Cleared; The Air Did Not

Date:-23-June-2020, Source: wknofm.org

During the height of Shelby County’s coronavirus lockdown in late March and into April, Dr. Chunrong Jia, an air quality researcher with the University of Memphis, heard a common refrain.



A reduction in traffic didn't impact local air quality, according to a new study.

"Oh, I feel fresh air because I see much fewer cars on the street," he says.

That may have appeared true, especially as traffic vanished from busy streets. But, in reality, Jia says, overall air pollution in the Memphis metro-area did not noticeably drop as a result of local "Shelter-In-Place" orders.

His recently published study on air quality compared concentration levels for air pollutants—ground-level

ozone and fine particulate matter—during Shelby County's lockdown to the same period from the past three years. The study accounted for major variables that impact air quality, such as weather patterns and climate conditions.

It identifies several reasons why the Memphis-area's air quality remained stable during the onset of the pandemic even as other COVID-19 shutdowns in large cities around the world resulted in some drastic, albeit temporary, reductions of air pollution.

Typically, traffic emissions are a lesser contributor to local pollution—between 10-15 percent, Jia says. This indicates that other larger industrial sources of pollution might have dwarfed the impact of fewer cars on the road. While residential travel dipped as much as 60 percent, highway traffic only fell about 20 to 30 percent, suggesting that commercial vehicles—often some of the dirtiest polluters—were still largely in operation.

Another explanation is that Memphis' air quality is already relatively clean for a metro area. Its pollution levels meet national standards, which is why, Jia says, smaller improvements in air quality are harder to detect than in mega-polluted cities such as in China.

China's shutdown was also broad reaching. Unlike here, where essential business and industries remained open, major factories in China went offline for a time.

"They could cause an almost 50 percent, [or a] 40 percent reduction from the already high pollution levels," Jia says.

Still, Michael Vandenberg, a law professor at Vanderbilt University who studies energy and the environment, says the amount of time people spend in their vehicles still matters when it comes to both climate change and keeping air clean.

But, he adds that in a major transportation hub like Memphis, environmental policies should focus on reducing the pollution footprint from this sector through measures such as using more electric trucks and delivery vehicles.

“There is no one solution to the problem. Individual behavior is part of the problem, corporate behavior is part of the problem. Government is part of the problem,” he says. “We shouldn’t expect a solution just from people reducing the amount of commuting they’re doing.”

Breakdown: Why COVID-19 may have improved global air quality

Date:-24-June-2020, Source: wmcactionnews5.com

MEMPHIS, Tenn. (WMC) -Corona virus has definitely altered our lives in unprecedented ways but there may be some positives when it comes to air pollution globally.

Some recent research found that nitrogen dioxide and PM2.5 which is fine particulate matter, dropped over parts of China, Europe and the U.S. The drop was UP TO 40% in some areas as compared to last year this time.

Nitrogen dioxide is a gas that can have harmful effects on the lungs. The gas usually enters the air by industrial activities, vehicles, and power plants. PM2.5. or particulate. Particulate matter is a type of pollution that consist of small drops that can get into the lungs and cause damage. It can cause lung disease, difficulty breathing and heart conditions.

Data from satellites, found that, for the Mid-Atlantic and Northeast, March 2020 had the lowest monthly atmospheric NO₂ levels of any March since at least 2005. Research found that nitrogen dioxide pollution dropped by around 40 percent on average over parts of China and by 20 to 38 percent over parts of Western Europe and the United States . This reduction happened during the lockdown. Results were way different when it was compared to this same time last year.

According to studies, parts of Los Angeles which is infamous for heavy traffic and smog, has seen some improvements in air quality that can be traced back to the shelter in place orders due to the coronavirus. Prior to the safer at home or stay-at-home orders, air pollutants, including NO₂ and PM2.5 (fine particulate matter), was in the medium category. Recent finding showed that air quality had improved by 20% in some places. The Los Angeles area also saw around a 30 percent decrease in particulate matter pollution. Particulate matter pollution also dropped by 35% in China. The weather may have also played a part in the drop as the weather patterns have been active and not so stagnant.

Atmospheric scientist, warn that these drops are huge and likely temporary. The last time that they saw a drop like this was the Olympics in Beijing in 2008. This was due to the strict regulations that were in place and it was very short-term. The only other comparable events

are short-term reductions in China's emissions due to strict regulations during events like the 2008 Beijing Olympics.

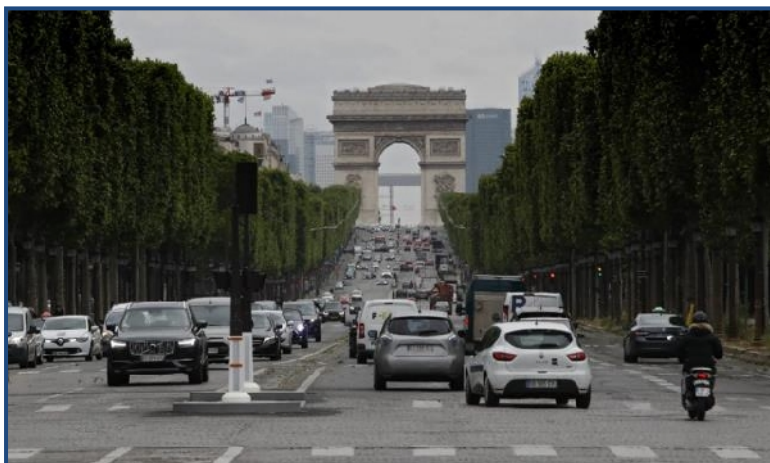
On the flip side a drop in nitrogen dioxide may not be all good news. Research found that pollution increased when it comes to surface ozone levels in China. Ozone is another pollutant secondary that forms when sunlight and high temperature produces a chemical reactions. Ozone at ground level is harmful and can cause pulmonary and heart disease. In the right conditions, ozone at the ground level can be destroyed by nitrogen oxides. So when there is a reduction in nitrogen oxide than ozone levels can increase.

One place they didn't see a decrease was Iran where lock-down orders weren't put into place until later.

Scientist say that while this improved air quality may only be temporary, it is a good indicator of how things can improve but more research needs to be done.

Paris region imposes driving restrictions as pollution levels spike amid soaring temperatures

Date:-25-June-2020, Source: thelocal.fr



Pollution levels in Paris were expected to spike on Thursday due to the soaring temperatures.

On Thursday, drivers in the Paris region will need to comply with stricter rules due to a spike in air pollution, as temperatures were expected to rise above 30C.

To reduce air pollution as temperatures soared in the capital, drivers in Île-de-France need to comply with new and stricter rules introduced by Paris police chiefs.

The rules entered into effect on Thursday June 25th from 5.30am to 20pm that same day. On Thursday, drivers will not be able to speed over 110 km/h on motorways (autoroutes), down from the usual 130 km/h.

Roads with a 110km/h or 80/90 km/h speed limit will be limited to 90 km/h and 70 km/h respectively.

Only vehicles with with a Crit'Air pollution sticker classified as 0, 1 or 2 are allowed to drive inside the A86 ring road, so those with number 3 and above will have to leave their cars at home.

AQI: Dhaka's air quality 'satisfactory'

Date:-26-June-2020, Source: thedailystar.net



The air quality in Dhaka showed a significant improvement this morning with the capital ranking 64th worst in the Air Quality Index (AQI).

It had an AQI score of 35 at 09:07am and its air quality was classified as 'satisfactory'.

When the AQI value is between 0 and 50, the air quality is satisfactory, and air pollution poses little or no risk.

Indonesia's Jakarta, India's Delhi and Iran's Tehran occupied the first three spots in the list of cities with AQI scores of 168, 157 and 151 respectively.

The AQI, an index for reporting daily air quality, informs people how clean or polluted the air of a certain city is, and what associated health effects might be a concern for them.

In Bangladesh, the AQI is based on five criteria pollutants – Particulate Matter (PM10 and PM2.5), NO₂, CO, SO₂, and Ozone (O₃). Dhaka's air remains mostly acceptable during monsoon from June to October.

Reduced air quality and isolated storms on Saturday

Date:-27-June-2020, Source: wrctv.com

Today will be cloudy to mostly cloudy and humid. You will notice the hazy air from the Saharan Dust. Today's overall air quality forecast is in the high-end of the Moderate category due to particulate matter with an Air Quality Index of 98. This level means "unusually sensitive" groups to air pollution should consider limiting outdoor activity, but overall, it is acceptable air quality.

Going one step further, individual readings this morning do indicate worse air quality in the Orange category with an Air Quality Index of 107, which is "unhealthy for sensitive groups." Please, take steps to reduce your exposure, especially during the morning hours.

Now, to precipitation, there will be some scattered light showers this morning. Then, a few isolated thunderstorms during the afternoon into the evening. Those, in NE Alabama and far NW Georgia (Dade, Walker, Chattooga Co.) need to be aware that a few storms may

become strong to marginally severe. The primary threat is damaging wind gusts and heavy downpours. Isolated small hail is possible, too.

Today's highs will be below normal in the low 80s.

We should see some clearing of clouds tonight to hopefully enjoy a nice and colorful sunset with the help of the scattering of light by Saharan dust. Sunset is at 8:59PM EDT. It will remain humid overnight with lows in the upper 60s to low 70s.

Poor air quality on London's tube network could act as a warning sign for serious Covid-19 outbreak

Date:-28-June-2020, Source: inews.co.uk



Closing the tube during period of high pollution could curb number of deaths from coronavirus, scientists say

Spotting a spike in air pollution on London's tube network could help prevent another deadly outbreak of Covid-19, according to scientists at the Universities of Birmingham and Cambridge. Armed with the right information, city officials could suspend parts of the underground transport network to prevent clusters of

serious cases, the scientists say.

City dwellers exposed to high levels of air pollution are more likely to suffer a serious case of Covid-19, previous research has shown. London is no exception, with the Birmingham and Cambridge scientists reporting that residents exposed to high levels of nitrogen dioxide and particulate matter pollution were more likely to catch Covid-19, and more likely to die from the disease.

"Short-term exposure to NO₂ and PM_{2.5} is significantly linked to an increased risk of contracting and dying from Covid-19," explained report author Dr Ajit Singh, from the University of Birmingham. "Exposure to such air pollutants can compromise lung function and increase risk of death from the virus."

London Underground

Air quality on London's underground tube network can be up to 15 times worse than on the average London street above ground, research from Transport for London revealed last

year. Commuters using the underground to get to work are “likely” exposed to a health risk from using the service, the researchers admitted.

Meanwhile, studies have shown that using public transport in the UK during a pandemic outbreak can increase the risk of catching an acute respiratory infection sixfold, in part because travelers are exposed to large numbers of potentially infected people.

Targeted closure

Dr Singh and his colleagues say city officials should use this information to deploy targeted closures of London’s Underground system when air pollution peaks, with people encouraged to use buses or cycle to their destination instead.

“Levels of airborne PM_{2.5} in the London Underground during summer are often several times higher than other transport environments such as cycling, buses or cars,” he said. “We recommend a strategy that tailors the level of public transport activity in cities like London according to Covid-19 vulnerability based on air pollution levels across the city.”

He added: “This could help decision-makers take the right measures to counter Covid-19 in London – for example deploying transport staff and arranging dedicated services for key workers.”

Get cycling

Efforts are already underway to encourage more people to walk and cycle around London rather than take the tube, over fears overcrowded trains will prove a breeding ground for a second wave of infections.

Measures such as temporary cycle lanes seem to be having an impact, with roadside air pollution rebounding more slowly in the capital as lockdown eases compared to other cities across the UK.

Cause of mysterious air pollution in Eastern China identified

Date:-29-June-2020, Source: earth.com

During the Chinese Lunar New Year of 2020, China was in a state of lockdown in an effort to contain the COVID-19 outbreak. Human activities slowed, and China’s emissions dropped dramatically. Meanwhile, however, a severe haze with high concentrations of fine particulate matter appeared over Eastern China.

A new study published by Wiley suggests that the mysterious pollution is linked to the interactions of secondary aerosols with long-range transport.



On January 23, 2020, the government in central China imposed a lockdown across Hubei province including Wuhan, the epicenter of the COVID-19 outbreak. One week later, the World Health Organization declared that the new coronavirus was a Public Health Emergency of International Concern (PHEIC).

Unfortunately, the travel restrictions came a little too

late in Hubei province. The coronavirus outbreak coincided with the country's Spring Festival, and it is estimated that about 5 million people left Wuhan – a major transportation hub – during the travel rush just before the shutdown.

With the virus spreading, all local governments responded and enforced restrictions. Studies estimate that during lockdowns, energy production was reduced by a third and transportation decreased by more than 70 percent. As CO₂ emissions dropped drastically, experts were puzzled by the appearance of a thick haze over Eastern China. The concentrations of fine particle pollution more than doubled in this region during the New Year Holiday (NYH-20) and the COVID-19 outbreak.

To investigate, a team of researchers including Professor Yunhua Chang and Professor Ru-Jin Huang analyzed the presence of aerosols at an urban site in Shanghai before, during, and after the New Year Holiday in 2019 and 2020.

“We compared the chemical composition and formation processes of the aerosols, as well as meteorological conditions, between the two periods in order to gain clues on the haze event puzzle in NYH-20,” wrote the study authors.

The analysis revealed that the persistent haze during the COVID-19 pandemic was likely caused by secondary aerosol formation that interacts with long-range transport.

“We show that particulate nitrate formation can be largely enhanced during lasting regional transport, suggesting that differential transport patterns, rather than local emissions, may be responsible for fluctuations in aerosol concentrations,” wrote the researchers.

“The results of this study highlight that regional joint management efforts and control strategies are required to effectively clear China's air.”

Professor Chang said the team hopes the findings will inform future regulatory policies to mitigate China's haze-associated problems.

"Additional studies are needed to pinpoint the role of atmospheric oxidation capacity – which is affected by emission reductions of air pollutants – in the formation of secondary aerosols," said Dr. Huang.

The paradox of air pollution in the Kathmandu valley

Date:-30-June-2020, Source: airqualitynews.com



Arriving at Tribhuvan International Airport in Kathmandu is an assault on the senses.

There is a heady concoction of both sights and sounds as taxi drivers line up patiently in their battered decades-old Nissans and Suzukis, while thick swirls of dust and exhaust fumes hang heavy in the air.

In the peak trekking seasons of April and October, visitors from all over the globe descend on Nepal in search of the natural wilderness of high mountains such as Annapurna, Machapuchare, Ama Dablam and of course Everest. In 2019, 1.17 million tourists entered the country.

The starting point for these adventures is always Kathmandu, a vibrant and densely populated capital city which, along with the neighbouring cities of Bhaktapur and Lalitpur, make up the Kathmandu Valley. The area has a growing population of 2.5 million.

A taxi ride from the airport to one of the tourist hotels proves an adventure in itself, winding through the many narrow streets on mainly dirt roads which are poorly constructed and incredibly dusty.

The causes of poor air quality are evident everywhere. Old motor vehicles, poor road construction, wood-burning fires, back street industries and brick kilns, all of which contribute to significant levels of particulate matter (PM10), (PM2.5), and gaseous pollutants like ozone (O3), nitrogen dioxide (NO2), along with volatile organic compounds like benzene, carbon monoxide (CO) and sulphur dioxide (SO2)

The impact of poor air quality is exacerbated by the natural amphitheatre surrounding the Kathmandu Valley with mountains, ranging from 2000 to 2800m, encircling the urban areas.

Largely protected from any winds, the pollutants are not dispersed and hang heavy over the local population and tourists alike.

The Nepalese are ingenious people. Their ability to keep vehicles operational, whatever the age, is truly remarkable.

That said, old diesel vehicles are contributing significantly to the poor air quality in the city. In 2000 / 2001 there were 24,003 vehicles registered in Kathmandu and this has increased dramatically to 79,822 in 2015 / 2016.

The World Health Organisation ('WHO') has reported that PM2.5 levels of particulate matter in urban areas of Nepal often reach up to 140 µg/m³ which is 10 times higher than the desired level.

A significant contributing factor to the poor air quality is the geographical location: as a landlocked country, Nepal is bordered by two industrial powerhouses – China and India. Both of those countries are struggling to manage their own air quality which has serious implications for the Kathmandu Valley and surrounding areas.

In May 2020, in response to a request for recent air quality data, the WHO provided us with data for 2017, in itself an indication of the lack of reliable and current information regarding pollution levels across the country. What the 2017 data did indicate was that some of the highest PM10 levels are recorded in monitoring stations closest to the Indian border (Lumbini).

Major cities in India such as Delhi, Raipur and Gwalior are among the world's most polluted urban areas. Indeed, Delhi is classed as the most polluted capital city in the world with air pollution levels recorded as 30 times higher than the WHO's recommended upper limit. To the East is China with cities such as Jingjinji, Beijing and Tianjin having high levels of PM2.5.

With air pollution not respecting international borders, this is a significant problem for the Nepalese government.

In a developing country such as Nepal improving air quality is a massive challenge but the government is developing strategies to meet it.

Perhaps surprisingly, in the 1990s Nepal was even ahead of its time as regards the adoption of EV vehicles. Kathmandu replaced a fleet of 640 Indian diesel-powered, 12-seater buses called Vikram Tempos with a vehicle known as a Safa Tempo which was powered by a lead-acid golf cart battery.

These new electric vehicles delivered emission-free journeys for 100,000 people every day and were supported by 38 charging points.

However, these early, forward-thinking attempts to use EV's did not catch on: the higher running costs of the Safa Tempo proved a barrier in a country where the average annual income has just passed the \$1,000 mark.

When tariff exemptions ended there was a rush to replace the Tempo with 15-seater Toyota diesel minibuses.

For a significant increase in electric vehicles to occur there also needed to be a larger infrastructure of charging points developed. Private owners needed to be re-educated as to the long-term benefits of EV vehicles. Prices remained prohibitively expensive and there was no subsidy scheme and perhaps most importantly there were also regular issues with the reliability of the electricity supply network.

In an attempt to improve air quality in the Kathmandu Valley and across the whole of Nepal the government has created a National Plan for Electric Mobility (NPEM). As part of the NPEM, the government has set out a number of ambitious targets which should have a positive impact on air quality. These include:

- By the end of 2020 to have increased the share of electric vehicles up to 20% from 2010 levels,
- By 2050 to have cut the use of fossil fuels in the transport sector by 50%,
- By 2040 to develop its electric (hydro-powered) rail network,
- To decrease the rate of air pollution through proper monitoring of sources of pollutants across waste, old and unmaintained vehicles and industries.

Arguably the key issue is the reliability and supply of renewable energy. If the Nepalese government could create a supply beyond that which is required by the country – Nepal would not only have the power it requires for the development of a coherent EV strategy but would also have a surplus to sell onto neighbouring countries.

This would be a positive step forward both environmentally and economically.

While 90% of the country's total electric generation capacity is via HEP (hydro-electric power) the amount of energy harvested from that which is available is relatively small.

USAID has a 5-year plan worth \$9.9 million which forms part of the NHDP (Nepal Hydro Development Project). Working with the Investment Board of Nepal and the Ministry of Energy, the project will look to facilitate and encourage private sector investment in hydropower in Nepal in an environmentally and socially sustainable manner.

The Nepalese government's white paper on energy and water resources states an aim to increase HEP capacity to 15,000 MW. They estimate that reliable 24 hours a day peak energy usage in Nepal will reach 5,371 MW by 2030; any surplus could then be exported to

other countries in Asia, generating significant funds for the further development of a green transport infrastructure.

While HEP remains the main source of energy generation in Nepal, other forms of renewable energy are also being developed. In April 2018 it began construction of its largest solar energy plant in the Nuwakot district. The project will have a capacity of 25 MW to serve the Kathmandu Valley upon completion.

Solar is becoming an increasingly viable option given the global fall in the costs of photovoltaic solar panels and the strong power purchase rate offered by the Nepal Electric Authority. Improving air quality in the Kathmandu valley is one complex puzzle. Solutions are interlinked with the wider development of the country's infrastructure – so easy wins are difficult to identify.

The need to increase the EV numbers and charging points is directly linked to the need for a reliable and renewable power supply. The financing of much of the infrastructure will require a surplus of energy to be harvested via HEP and solar and investors will need to be attracted to the new projects being developed.

The traditional source of energy of the local population also needs to change as, in the residential sector, around 77% of the energy consumed is via biomass (wood, agriculture residue and animal dung).

Since the Coronavirus pandemic and lockdown measures were imposed by the Nepalese government, a reduction in the number of car journeys has had a significant impact on the Air Quality Index rating in Kathmandu.

This illustrates that improvement in air quality is attainable and highlights the importance of building an EV infrastructure and managing a large population of ageing diesel vehicles.

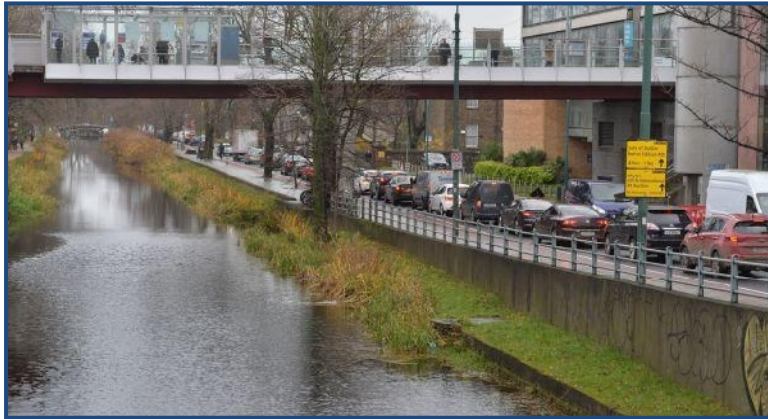
There are certainly some positive clean air and sustainable energy policies being established by the Nepalese government and their partners and hopefully, these will have a positive impact on air quality.

If effective, those living in the spectacular Kathmandu Valley and beyond may no-longer be endangered by the chronic levels of air pollution which engulf their cities and trekkers, arriving at Tribhuvan International Airport, may walk out of the terminal and breathe clean air.

July 2020

Towns and villages suffering from air pollution during Covid-19 pandemic

Date:-1-July-2020, Source:irishtimes.com



Backed-up traffic in Dublin. The reduction in car traffic flows caused by the lockdown led to a huge falls in the levels of harmful nitrogen oxides in city air, especially in Dublin.

The burning of peat, timber and coal remains the largest single source of pollution in a series of major regional towns, according to a two-year study conducted for the Environmental Protection Agency.

The reduction in car traffic flows caused by the Covid-19 lockdown led to a dramatic falls in the levels of harmful

nitrogen oxides (NOx) in the air in the State's cities, especially Dublin.

However, air quality in towns such as Killarney, Birr and Enniscorthy improved less since the majority of pollution there comes not from traffic, but, rather, the burning of solid fuels.

Such burning creates so-called PM2.5 particles in the air, which are 2.5 micrometres in size, or more than 100 times thinner than a human hair and cause difficulties with breathing.

Evening levels of PM2.5 in Killarney, Birr and Enniscorthy were multiples of day-time levels and even more significant spikes in pollution levels were found on evenings when wind speeds were low.

Real-time monitoring by the UCC team shows residential solid fuel burning was the dominant source, accounting for 72 per cent of PM2.5 in Killarney, 82 per cent in Enniscorthy and 60 per cent in Birr.

Peat burning

Using chemical fingerprints of particles generated from the combustion of different fuels, the team showed that peat burning is responsible for the majority of this pollution, followed by wood and coal.

In Dublin, the level of nitrous oxide in the air (NOx) fell sharply during lockdown, but particulate levels remained puzzling high, particularly as the city has a ban on smoky fuels.

However, Dublin City Council's air quality monitoring unit ultimately ascribed the high levels of PMs to dust that had been blown on to the city from north Africa, which then combined with particulate matter in the air.

"All of these pollutants are of concern, but if you want to see the impact of cars the NOx data is a key indicator and it fell very significantly in lockdown," said principal environmental health officer Martin Fitzpatrick.

The results of the two years of research by the UCC team, led by Prof John Wenger, were published this week on the Environmental Protection Agency website.

The European Environment Agency has identified air pollution as the single largest environmental health hazard in Europe, while PM2.5 pollution alone is blamed for 1,100 premature deaths in Ireland each year.

Ambient air quality impacts respiratory admissions

Date:-2-July-2020, Source: imt.ie



A change in ambient air quality (AQ) in Dublin appeared to impact on admissions of patients with cardiovascular and respiratory diseases, according to a recently published paper.

Writing in June's edition of the Irish Medical Journal, researchers said cardiovascular disease (CVD) and respiratory disease (RDS) were leading causes of morbidity and mortality in Ireland.

"Clear links have been demonstrated in the literature between poor air quality and these diseases," they added.

The detrimental effects of poor AQ on human health came to international public prominence in the early 1990s as a result of numerous high-profile pollution episodes in several countries, they wrote, and served as the catalyst for the introduction of the legislation to ban smoky coal in this country.

Their study, they said, aimed to use routinely available data to examine the relationship between air quality index for health (AQIH) and hospital admissions due to CVD and RDS in Dublin city and county between 2014 and 2018.

During the study, admission data were collected from the Health Service Executive's Hospital In-Patient Enquiry (HIPE) database.

Daily count of hospital admissions with Dublin city and county address with a primary diagnosis of CVS and RDS was performed. The daily AQIH were obtained from the Environmental Protection Agency for Dublin.

The results showed that AQIH distribution was good, 96 per cent (1,575/1,642); fair, 3 per cent (52/1,642); and poor, 1 per cent (11/1,642).

There were significant rises in admissions with change in AQIH (that is, from good to very poor) for asthma, chronic obstructive airways disease and heart failure.

There were also varying significant changes in short-term admission rates (i.e. up to 72 hours) following change in AQIH.

"This study suggests that in Dublin city and county, where the AQ is relatively good, that when the AQIH is not good, there is an impact of hospital admissions for individuals with asthma, chronic obstructive airways disease and heart failure," the researchers concluded.

Commuter hotspots in London recorded up to 50% drop in air pollution during lockdown

Date:-3-July-2020, Source: energylivenews.com



It also suggests 80% of Londoners would like to work remotely after lockdown to some extent and 73% of Londoners are happier not dealing with rush hour. Commuter hotspots in London saw up to a 50% drop in air pollution during the lockdown.

That's according to new research by Environmental Defense Fund Europe (EDFE) and Global Action Plan, which has found three commuter hotspots in London – Borough High Street, Cowcross Street and South Street in Mayfair – recorded an average decrease in nitrogen dioxide (NO₂) of 30% through the day, compared to a reduction of 9% to 17% across Greater London.

EDFE also specifically analysed pollution data from the Breathe London monitoring network during the morning and evening rush hours in the first four weeks of lockdown – it found a

37% reduction in air pollution at the base of London Bridge at Borough High Street in the morning and 47% in the evening.

The report also says Cowcross Street saw a 38% morning drop and 43% in the evening – the lockdown has also halved the air pollution in the evening at South Street decreasing it by 32% in the morning.

A recent survey by Global Action Plan, commissioned by urban health foundation Guy's and St Thomas' Charity, has also found 72% of Londoners have noticed cleaner air during lockdown while 70% of respondents want the government and local authorities to tackle air pollution more urgently than before the coronavirus outbreak.

It also suggests a staggering 80% would like to work remotely after lockdown to some extent and 73% of Londoners are happier not dealing with rush hour.

Shirley Rodrigues, Deputy Mayor for Environment and Energy, says: "Toxic air contributes to thousands of premature deaths in London every year and there is emerging evidence linking air pollution with an increased vulnerability to Covid-19."

Chris Large, Co-CEO at Global Action Plan, says: "These findings are clear: air pollution clears up rapidly when we stop driving polluting vehicles. Children in some London boroughs average 10% smaller lungs than the UK average, and this stunting stays for life."

Oliver Lord, Head of Policy and Campaigns, EDFE says: "Lockdown has made a huge difference and shown how much it is in our hands to build back better."

Air Quality Has Sharply Improved Around the World During COVID-19

Date:-4-July-2020, Source: itnewsafrika.com



While no person would choose to go through the Coronavirus (COVID-19) pandemic, researchers worldwide are keen to investigate the effects of this crisis global experiment.

Sustainability experts, Lerato Moja, deputy director for South Africa's department of environmental affairs and

Lungile Manzini, assistant director for the department, write about the impact of the COVID-19 pandemic on the quality of air, nature and environment.

Around half of the world's population is on lockdown in an attempt to stop the spread of COVID-19, a public health emergency that has claimed thousands of lives and sparked fears of the worst global recession since the Great Depression.

This has brought about a profound change in the quality of air, water as well as the environment.

Drastic changes in natural environments

Noticeably, many countries including South Africa have seen some positive change in terms of the natural environment, and other countries have seen a drastic reduction in air pollution as industries shut down with fewer cars on the road and flights suspended during this period.

Media reports also concur and point out that changes on the environment have been noticed in Northern Indian state of Punjab, where people have been able to see the Himalayan Mountain from more than 160 km away because of the reduced air pollution during the COVID-19 lockdown, a first in more than 30 years.

In South Africa, The Guardian reported that lions at the Kruger National Park have been seen sleeping and lying around on the road as people remain in their homes. Academic research journals state that satellites have shown cleaner air across Europe, North America and Asia.

In a study measuring air quality in Bangladesh, the results indicated that there was a notable reduction of 40%, 32% and 13% compared to the daily mean concentrations of previous dry seasons for PM2.5, PM10 and NO2 respectively during the COVID-19 shutdown.

The reduction in air pollution has been welcome as researchers from Harvard University's T.H. Chan School of Public Health found that dirty air makes COVID-19 more lethal.

This study found that the tiny pollutant particles known as PM2.5, breathed over many years, sharply raise the chances of dying from the virus. Additionally, the dangers of air pollution have been highlighted by the World Health Organisation (WHO). WHO estimates that more than 4.2 million people die worldwide due to the exposure of ambient (outdoor) air pollution.

We need to look to the future

These improvements in air quality are going to be temporary, write Moja and Manzini, however, it gives a glimpse into what air quality could look like should society commit to a cleaner and sustainable future.

Post-lockdown as economies open, the impact on the environment might be dire unless alternative sources of energy and public transport amongst other matters are adopted.

“As we look forward to the research findings and recommendations on the effects of the COVID-19 crisis, it is imperative to note that while no person chooses to go through this pandemic, the power to truly transform the environment and make the best decisions for the future generation begins and ends with us,” they conclude.

Dhaka’s air quality improves significantly

Date:-5-July-2020, Source: en.prothomalo.com



Dhaka’s air quality shows improvement

As Dhaka has started experiencing rains with the arrival of monsoon, the air quality in the capital improved significantly as it ranked the 15th worst polluted city in the world in the Air Quality Index (AQI) on Sunday morning, UNB reports.

The air in Dhaka was categorised as ‘moderate’ in the morning as the capital city had an AQI score of 76 at 09:50am.

When the AQI remains in between 51 and 100, the air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.

United Arab Emirates’ Dubai, USA’s New York City and South Africa’s Johannesburg occupied the first three spots in the list of cities with the worst air quality with AQI scores of 152, 142 and 1132 respectively.

The AQI, an index for reporting daily air quality, informs people how clean or polluted the air of a certain city is, and what associated health effects might be a concern for them.

In Bangladesh, the AQI is based on five criteria pollutants – Particulate Matter (PM10 and PM2.5), NO2, CO, SO2, and Ozone (O3).

Bangladesh has a subtropical monsoon climate characterized by wide seasonal variations in rainfall, high temperatures and humidity.

Generally, Dhaka’s air starts getting fresh when rain starts from mid-June. The air remains mostly acceptable during monsoon from June to October.

These are the best ways to tackle air pollution and climate change together

Date:-6-July-2020, Source: weforum.org

- Prevailing wisdom holds that measures to tackle air pollution will also tackle climate change, and vice versa - but this is not always the case.
- A new report has identified the most effective interventions for addressing both issues at once.



Electrifying public transport is one way to lower both air pollution and carbon emissions

When we look at air pollution and climate change, we see two dire situations:

1. People, especially in low- and middle-income countries (LMIC), are becoming ill and dying prematurely because of the poor quality of the air they breathe. Air pollution is linked to an estimated 4.2 million

premature deaths a year, according to the World Health Organization. When indoor air quality is considered, that number rises by an estimated 2.9 to 4.3 million deaths a year, according to The Lancet Commission.

2. Glacial ice is melting, droughts are becoming more prolonged, extreme weather events are more common, and cities around the world are reporting record-breaking heat, all against a backdrop of predictions from the International Panel on Climate Change of temperature increases between 2.5°C and 10°C over the next century.

Have you read?

Air pollution kills 7 million people a year - and probably makes COVID-19 more deadly: this week's World Vs Virus podcast

We know how to tackle it, but air pollution is still at deadly levels for much of the world's population

For years, the prevailing wisdom has argued that the same adverse conditions that propel climate change also are responsible for air pollution, and that by correcting one problem we can also solve the other.

Unfortunately, it's not as simple as that. Some interventions that can massively improve air quality and the health of people in affected communities, such as using lower-sulphur diesel fuel, have little or no impact on climate change. Others produce benefits for the climate but

do not significantly impact health. And still other popular and often costly interventions do little to improve air quality or slow the pace of climate change.

With our partners – AirQualityAsia, The Schiller Institute for Integrated Science and Society at Boston College, and with support from the Clean Air Fund – we set out to identify the most successful and practical actions that can improve health by reducing air pollution and impact climate change. Because very little analytical data is available about outcomes for specific interventions, our researchers and consultants went directly to those deeply involved in air pollution projects around the world to learn what had worked, what had not, and why.

The result of these efforts – a new report entitled *Air Pollution Interventions: Seeking the Intersection between Climate and Health* – is intended to help governments and policy-makers identify and implement the most effective interventions for their communities and particular situations.

When we talk about adverse health effects from air pollution, our report focuses primarily on particulate matter 2.5 microns and smaller in size (PM_{2.5}), which are largely produced by carbon burning. These microscopic particles, less than one-thirtieth the width of a human air, pass through the lungs and into the bloodstream where they are carried throughout the body to cause damage to respiratory, cardiovascular, and other systems, and according to the Institute for Health Metrics and Evaluation account for more than 85% of air pollution-related mortality.

With regard to climate change, the report mainly looks at activities that increase atmospheric concentrations of carbon dioxide and black carbon.

PM_{2.5}, black carbon and CO₂ are largely the byproducts of carbon burning. The three primary sources are:

1. Energy generation from coal and natural gas
2. Public and private transportation of people and goods using diesel or gasoline
3. Open fires, mostly crop burning and forest fires, but also uncontrolled waste incineration

Coal-fired power plants are the granddaddies of air pollution and climate change – and we've known this for some time. Likewise, the single most effective action governments can take to improve air quality and to impact climate change is to phase out the use of coal and other fossil fuels, such as tar and lignite, for power generation.

If you take a big coal-fired power plant in the middle of a city and replace it with renewable energy, that's huge. Converting coal-fired power plants to natural gas or installing scrubbers reduces PM_{2.5} emissions – and so benefits health – but the carbon-burning power plants are still producing CO₂ and climate-changing emissions. While moving that coal-fired power

plant outside the city may be politically popular with millions of city dwellers (less so, perhaps, with people near the new plant), the action is costly and does nothing to benefit health or climate change.

Other significant interventions that improve both health by reducing PM2.5 and impact climate change by reducing CO2 emissions include:

- Replacing diesel and gasoline-powered vehicles with electric vehicles. Shenzhen, China, for instance, has switched from diesel-powered public transportation to an electric bus fleet with an expected 48% reduction in CO2 emissions and significant reductions in particulate matter.
- Eliminating uncontrolled diesel emissions. Studies have found that reducing vehicle fleet levels from the equivalent of Euro I to Euro IV can reduce fleet emissions by about 80% and moving up to Euro V standards further reduces the remaining emissions by 80%.
- Preventing crop burning. Specific technologies and education can improve outcomes for farmers without burning – creating win-win situations. Education and support for agricultural extension programmes in developing countries are key to their success. Poland, for example, has largely phased out the practice of burning the stubble left after the wheat harvest. Government initiatives in Delhi to combat crop burning, a significant source of air pollution, include awareness and capacity building, technological interventions, and subsidies for farmers to purchase straw management machines. Still, the twice-annual traditional crop burning contributes significantly to Delhi's notorious haze.

Our team considered 22 interventions with dozens of supporting case studies with the goal of helping governments and policy-makers determine which interventions may be most practical and beneficial for their particular problems.

We know that exposure to PM2.5 makes people more susceptible to respiratory illnesses; preliminary studies and anecdotal reporting early in the COVID-19 pandemic suggest that infection rates initially were higher and illnesses more severe in cities with poorer air quality. We also know that increasingly the citizenry is demanding that its leaders take swift and sure action to combat air pollution, as underscored by a recent survey by the Clean Air Fund of people in the UK, Bulgaria, India, Nigeria and Poland. As The New York Times reports, the survey, which was conducted during the pandemic between 22 May 22 and 2 June, found overwhelming support for stricter air quality regulations and better enforcement of existing rules. In Nigeria and India, for instance, 90% of those surveyed said they wanted improved air quality.

The most important step for municipal and national agencies is to raise their level of ambition in achieving their air quality and climate objectives. The overall aim must be an economy where development is uncoupled from resource use and energy provision is de-

carbonized. Short-term actions can then be selected and implemented within that framework.

The solutions exist – and with technical support, strategic funding, and public and private initiatives, we can successfully improve public health and combat climate change.

Our future air quality at a crossroads?

Date:-7-July-2020, Source: airqualitynews.com

There has been much discussion about the significant effects that the global economic and travel restrictions, arising from the coronavirus disease 2019 (COVID-19) pandemic, have had on air pollution levels, notably nitrogen dioxide (NO₂).

Areas that have been affected by the virus have shown strong decreases in NO₂, primarily because of reductions in transport.

With the majority of the workforce either at home because they cannot work, or working from home, and with rules on social distancing and only essential journeys taking place, most daily journeys ground to a halt for several months.

There have also been reports linking the severity of COVID-19 with air pollution, providing further reasons why air quality is one of the issues coming under scrutiny as we come out of lockdown.

As we start to unlock the economy, many workers are returning to their workplaces, and the wider population are making more journeys, whether to visit friends and family, take children to school or visit newly opened shops.

However, the message from the government is clear that you must avoid public transport if you can.

Without wider adjustments in transport policy, this is bound to result in some people choosing to make journeys by car that they would have previously made on public transport.

Whilst the pandemic may lead, in the longer term, to increases in home working and less commuting overall, there are still grave concerns about the impact that increased private car use could have on air quality.

We have picked out a few recent developments that may inform the likely legal and policy direction of travel on air quality issues over the coming months:

- A number of major cities that were planning to introduce clean air zones (CAZ) in 2020, including Manchester, Birmingham, Bath and Leeds, have delayed their CAZ due to the virus crisis and its profound economic effect on their cities.

These schemes are likely to be delayed until well into 2021, if not 2022. Transport for London has also suspended its Ultra-Low Emissions Zone until further notice. One unintended consequence of the virus, in delaying the introduction of CAZ, may be a slower improvement in air pollution levels in our large cities, putting aside the very immediate but temporary effect that major transport restrictions have had on air quality.

- In late May 2020, the All Party Parliamentary Group on air pollution launched its Air Quality Strategy to Reduce Coronavirus Infection, a report written using evidence from scientists, businesses and local authorities about the links between COVID 19 and air quality.

It features twelve proposals including continuing home working, increasing spaces for pedestrian and cyclists, more frequent public transport services to avoid crowding, improvements in indoor air quality and the adoption of World Health Organisation (WHO) air quality targets.

- The Environment Bill, which includes new legislation on air quality, such as proposals to set PM2.5 targets, was making its way through parliament just before lockdown.

The Bill was suspended until further notice, and so the legislation has been delayed. The Bill is expected to resume its progress in parliament before the summer recess, and it will be interesting to see if there is stronger support for enhanced air quality provisions, including the adoption of the WHO PM2.5 target, which is not part of the current proposal.

- NGO's the Good Law Project and Mums for Lungs wrote to the Secretary of State for Environment, Food and Rural Affairs on 2 June 2020 to request an urgent review of the government's Clean Air Strategy, and other relevant policies relating to air quality, in accordance with the Air Quality Standards Regulations 2010, the Treaty on the Functioning of the European Union and the European Convention on Human Rights.

This request is made in light of the growing evidence of a link between poor air quality and both the incidence and severity of COVID-19.

There are, of course, many more pieces to the jigsaw, and wider concerns about how sustainability and environmental concerns are taken into consideration in the global recovery.

There are widespread calls, from business as well as citizens and NGOs, and not least from the Build Back Better campaign, for the post-COVID-19 economic recovery to be a green one and to promote the changes that we need to achieve those sustainability and decarbonisation goals. Improving air quality as we move forward will be a critical part of that green recovery.

Coronavirus has reduced air pollution from aviation, automobile industries – Professor

Date:-8-July-2020, Source: ghanaweb.com

Dr Jurgen Bode, a Professor of International Business and Deputy Vice-Chancellor for International Affairs & Diversity at the University of Applied Sciences, Bonn, Germany, has explained that COVID-19 has led to deglobalisation in which many countries are focusing on their strategies within.

He said in some cases, businesses are diversifying and innovating with 100% raw materials and inputs from within their respective countries.

Prof Bode said though the coronavirus pandemic has disrupted global marketing, logistics and supply chain, it has led to massive reduction in air pollution from the aviation and automobile industries.

He also explained that in Germany, COVID-19 stimulus packages are targeted to promote electric vehicles to sustain a reduction in air pollution and meet climate change expectations.

Prof Bode said COVID-19 has taught the whole world that countries, multinational companies, and other businesses can cut down on travel cost and still be productive and relevant.

He emphasised that COVID-19 has saved a lot of expenditure budgeted for business, conference and other related travels by organisations. Prof Bode challenged countries and organisations not to forget the core lessons when Coronavirus Pandemic is finally defeated.

He was speaking during the University of Cape Coast School of Business 6th and final session of the e-seminar series on the topic 'Coronavirus Pandemic: Global Marketing, Logistics and Supply Chain'.

The seminar was held on 1 July 2020 and was chaired by Prof Francis Amanquandoh, the Provost of the College of Humanities and Legal Studies.

He was happy to be part of the seminar series and praised the School of Business for organising the event and inviting experienced discussants to be part of it.

Prof Amanquandoh was particularly satisfied with the topics chosen for each session.

The Dean of the School of Business, Professor John Gatsi, in his brief remarks, thanked all the discussants, especially those from other universities in Ghana, Germany, United States of America and South Africa as well as professional bodies, for being part of the programme.

He said the blend of international and national academics on the one hand; and industry and professional bodies' representation on the other, demonstrates the strength of the School of Business in ensuring diversity and closer affinity with professional bodies in accounting, taxation, marketing, human resource, banking, corporate governance, procurement and supply chain.

Prof Gatsi called on businesses and employers to support the school in delivering its programmes through online learning platforms to be as effective as face-to-face delivering.

He said online teaching and learning require maximum discipline and a congenial learning environment for students, even though they are not congregating at a physical learning centre.

Prof Gatsi, therefore, appealed to institutions and employers not to deny their workers leave during this sandwich session merely because the programmes are delivered online.

He said granting leave to employees to participate in the online delivery mode or creating virtual learning spaces in offices to be used during scheduled lecture times, is a great contribution to the efforts of the Business School as this will allow the students to fully participate.

Prof Gatsi also appealed to businesses to create innovative engagement with students by creating virtual internship opportunities for those interested, to have their internship experience with them.

Air pollution remains low in parts of the UK

Date:-9-July-2020, Source: [airqualitynews.com](https://www.airqualitynews.com)



Air pollution remains low in parts of the UK despite many people starting to return to work and life beginning to become more 'normal.'

As the UK went into lockdown, Air Quality News reported on the sudden decline in air pollution across the country.

However, over 100 days have passed since then, and as more people are returning to work and with the public being advised to avoid public transport where possible, there is a growing concern over a sudden spike in air pollution.

To assess the situation, Air Quality News has analysed monitoring data from the Department for Energy, Food and Rural Affairs (Defra), in London, Leeds, Manchester, Edinburgh and Bristol, comparing the daily average nitrogen dioxide (NO₂) pollution yesterday (July 8) with the pollution levels on the same day last year (July 10).

Having analysed this data, we found that air pollution in London Westminster is still showing evidence of a decline, yesterday, NO₂ pollution measured in at 16µg/m³, below the World Health Organisation recommended safe level, whereas on the same day in 2019 NO₂ measured in at 23µg/m³.

Similarly, Edinburgh is still seeing a dramatic decline in pollution, yesterday the daily average NO₂ level was 10µg/m³ compared to 32µg/m³ the year before.

The same can be seen in Bristol with NO₂ measuring 11µg/m³ yesterday, compared to 34µg/m³ in 2019.

However, interestingly, NO₂ pollution in both Manchester and Leeds seems to be creeping back up, the daily average in Leeds yesterday was the same as in 2019, measuring in at 20µg/m³, and in Manchester, pollution was down just 2µg/m³ yesterday compared to the same time the year before.

Chicago air is dirtier in July than smog-choked Los Angeles. More bad air is forecast.

Date:-10-July-2020, Source: chicagotribune.com



Chicago seen from the South Shore neighborhood on a muggy, hot and humid afternoon July 9, 2020.

After missing out on cleaner air during the coronavirus lockdown, the Chicago area just suffered its longest streak of high-pollution days in more than a decade.

Nine consecutive days of bad air swept through the region amid an emerging scientific link between exposure to pollution and COVID-19 death rates.

Low-income, predominantly Black and Latino communities are being hit the hardest.

Air quality has been so poor, the entire Chicago area ended up dirtier than notoriously smog-choked Los Angeles during the beginning of the month, according to a Chicago Tribune review of federal data.

Satellites and land-based monitors tracked how unusually hot, sunny weather in the Midwest baked exhaust from automobile tailpipes, diesel engines and factory smokestacks into smog, also known as ground-level ozone.

Independence Day celebrations added to the problem. Stagnant air prevented soot pollution released by fireworks from dispersing, increasing the likelihood that even healthy people had trouble breathing during the holiday weekend.

Lake Michigan also played a role. Smog-forming pollutants — scientists call them precursors — collect over the lake on sunny days, then drift inland during late afternoons.

“If you have precursors cooking up in this sunny zone and then the lake breeze pushes all of that air back toward the shore, it can make for a really crummy day,” said Patricia Cleary, a University of Wisconsin at Eau Claire chemist involved in a federal study of smog sources and trends in Lake Michigan states.

The lake effect often leaves vacation spots like Door County, Wisconsin, and Saugatuck, Michigan, with more high-smog days than Chicago. But not so far this year.

Swells of lung-damaging, life-shortening pollution prompted the U.S. Environmental Protection Agency to classify seven of the first nine days of July as “unhealthy for sensitive groups” in Chicago and its suburbs, meaning children, older adults and people with lung or heart disease should limit outdoor activity.

Both days after the Fourth of July fell into the “unhealthy” category. Everyone is advised to cut back on being outside on those days.

Chronically dirty air is one of the consequences of extreme weather triggered by climate change.

“We are seeing an ever increasing number of warmer days where it is more likely to have larger ozone production and other air quality issues,” said Donald Wuebbles, an atmospheric sciences professor at the University of Illinois. “While emissions in some ways may be decreasing somewhat, the tendency of the changing climate is to produce more days where air quality can be an issue.”

The Trump administration agrees, on paper at least. Its 2018 National Climate Assessment concluded that “Midwestern populations are already experiencing adverse health impacts from climate change, and these impacts are expected to worsen in the future.”

At the same time, President Donald Trump has spent the past three years weakening clean air regulations. His political appointees have repeatedly brushed aside recommendations from independent scientists finding smog and soot are more dangerous than previously thought.

In April, for instance, the Trump EPA declined to tighten national standards for soot, siding with Republican lawmakers and industry lobbyists who for decades have fought regulations requiring progressively less pollution from vehicles, power plants, factories and oil refineries.

The administration also overruled career EPA staff and trimmed the number of counties in the Chicago area required to adopt smog-fighting measures such as more stringent limits on industrial pollution, tailpipe-emissions monitoring and vapor controls on gasoline pumps.

“Obviously Illinois isn’t doing enough to reduce ozone smog levels,” said Brian Urbaszewski, director of environmental health policy at the Respiratory Health Association of Chicago. “The problem persists year after year, and people’s lungs suffer the effects.”

Urbaszewski’s organization and other environmental groups are fighting back with lawsuits and political pressure. They often are joined by lawyers for Democratic-led city and state governments, including Chicago and Illinois.

One such legal challenge prompted a federal appeals court Friday to order the Trump EPA to reconsider its 2018 decision absolving all or part of 16 counties from joining their urban neighbors in fighting smog.

Among those affected are northwest suburban McHenry County, Porter County, Ind., Ottawa County, Mich., and ten Lake Michigan counties in Wisconsin. Smog concentrations in the counties either exceed federal standards or contribute to violations in downwind communities.

Documents in government files show Trump appointees dropped McHenry from its latest list of smog violators after a letter and phone call from Alec Messina, an industry lobbyist who at the time served as director of the Illinois EPA under then-Republican Gov. Bruce Rauner.

Three judges on the U.S. Court of Appeals for the District of Columbia noted the Trump EPA failed to defend why it relaxed smog-fighting requirements in McHenry. Monitoring data shows air pollution in the county is on the rise.

“This incongruity ... renders EPA’s explanation suspect,” the court concluded.

Under provisions of the federal Clean Air Act, more stringent regulation of industrial emissions will almost certainly be required in the Chicago area if current trends continue.

“It’s complicated, but the weather has been very conducive this year to smog,” said Zac Adelman, executive director of the Lake Michigan Air Directors Consortium, a group of state officials from Illinois, Indiana, Michigan, Ohio, Minnesota and Wisconsin.

Researchers eventually will be able to identify sources of recent smog and soot pollution by analyzing the chemical composition of particles collected inside filter-based monitoring equipment.

Similar to what occurred during the lockdown, likely culprits include buildings, factories and diesel engines that burn coal, oil or natural gas. Diesel emissions in particular remain a problem in Chicago, a racially segregated freight hub where rail yards, warehouses and intermodal facilities are concentrated in low-income, predominantly Black and Latino neighborhoods.

Those areas also are suffering disproportionately from the COVID-19 disease. A team of Harvard data scientists recently determined that a person living for decades in a county with high levels of soot is 8% more likely to die from the coronavirus than someone in an area with one microgram less of the pollution per cubic meter of air.

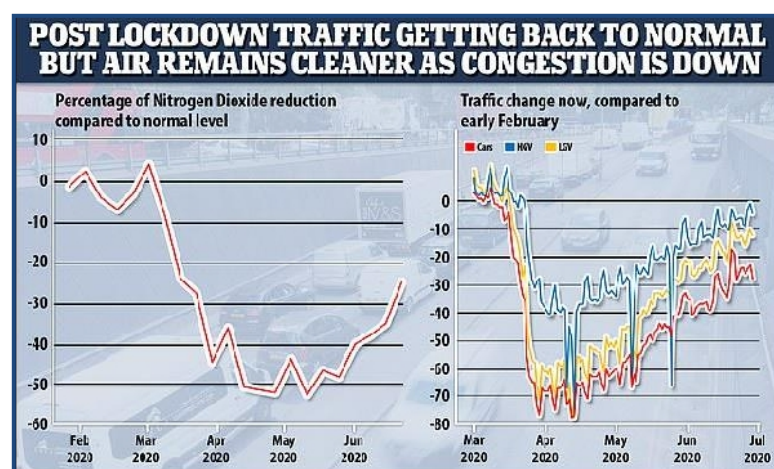
The Tribune reported in May that average daily soot concentrations in the Chicago area declined by only 1% the previous month compared with April 2019. By contrast, soot levels in New York City dropped 28%; Denver, Detroit, Los Angeles and St. Louis each saw a 16% decline in the tiny particles of pollution during the first full month of shelter-in-place orders.

Conditions worsened as summer arrived. Chicago recorded the most “unhealthy” days in June since 2012, the Tribune analysis found.

With more hot, sunny weather in the forecast, air quality likely will remain poor for the rest of July. High temperatures are expected to hover in the 90s starting again on Tuesday.

Free-flowing traffic is making it easier to breathe: Air pollution is at 30% of pre-lockdown levels in London and major UK cities because vehicles are spending less time stuck in queues

Date:-11-July-2020, Source: dailymail.co.uk



Graphs show how congestion is down and air is cleaner than usual, despite traffic returning to near-normal levels

Air pollution is lower than expected in UK town and cities, despite the easing of coronavirus restrictions sparking a return to near-normal traffic levels, new research shows.

Analysis of more than 100 roadside sites across the country by the University of York found nitrogen dioxide (NO₂) pollution levels were 30

per cent below normal on July 1 - despite the lifting of many lockdown rules.

At the height of the crisis, NO2 levels were some 56 per cent lower than normal nationwide, the study found.

Staggered commutes and homeworking are cited as factors in reducing congestion, which potentially contributes to air pollution.

Similarly, TomTom traffic data at the 5pm peak yesterday showed congestion was down 21 per cent from the average level in 2019.

It also showed this week's average congestion was at 25 per cent, compared to 38 per cent in late February and early March, before lockdown conditions were imposed.

This is despite there now being a similar number of vehicles on the roads as there was before lockdown, with HGV traffic being back at 95 per cent of normal levels, vans at 90 per cent and cars at 75 per cent, according to the Guardian.

Dr David Carslaw, who led the analysis, said: 'The data across the UK showed a deep plunge after lockdown for concentrations of nitrogen dioxide of around 50 per cent on average nationally and a slower recovery.

'Things are not back to normal according to the air quality data. It seems that while traffic levels look like they have mostly returned to normal, concentrations of some air pollutants are still quite a lot lower than expected.

'We think the reason is that congestion has not fully returned, and this has quite a large effect on emissions and hence concentrations.

'Trying to measure the impact on air pollution of congestion is very challenging as there are so many factors that affect emissions.

'The analysis of data gathered during lockdown and coming out of lockdown might give researchers an opportunity to better understand more about linkages between air pollution and congestion.'

NO2, primarily produced by diesel vehicles, has been at illegal levels in many towns and cities for the last decade and is thought to be responsible for some 23,500 early deaths every year.

Dr Carslaw's colleague at the university, Professor Alastair Lewis, suggested vehicles spending less time idling in queues was a key factor.

'The relatively modest rebound seen in NO2 is likely a complex mix of smoother flowing traffic and changes in commuting behaviour,' he told the Times.

'There may also be some less obvious influences, for example free-flowing traffic induces turbulence in the air and helps mix pollution away, whereas stationary traffic does not.

'This is on top of the more obvious effects of repeated stop-starts which are a critical cause of [vehicle] pollution.'

Scientists said last week 'it would not be surprising' if there was a link between exposure to air pollution, either past or present, and the number and severity of coronavirus infections.

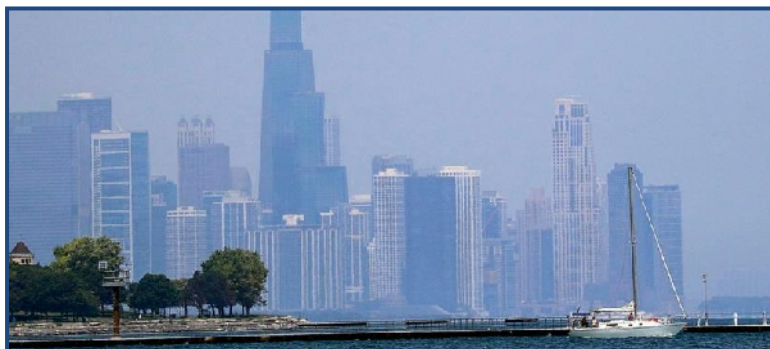
Given this, it would not be surprising if there was a link between exposure to air pollution - past or present - and the occurrence or severity of COVID-19 infection.

This has previously led lawyers to claim the government has a 'legal obligation' to review its strategy on air quality.

A select committee of MPs will also probe delays in cities rolling out clean air zones as a result of the pandemic.

Chicago suffering from poor air quality

Date:-12-July-2020, Source: leadertelegram.com



Chicago is seen from Thursday from the South Shore neighbourhood on muggy, hot and humid afternoon.

CHICAGO — After missing out on cleaner air during the coronavirus lockdown, the Chicago area just suffered its longest streak of high-pollution days in more than a decade.

Nine consecutive days of bad air swept through the region amid an emerging scientific

link between exposure to pollution and COVID-19 death rates. Low-income, predominantly Black and Latino communities are being hit the hardest.

Air quality has been so poor, the entire Chicago area ended up dirtier than notoriously smog-choked Los Angeles during the beginning of the month, according to a Chicago Tribune review of federal data.

Satellites and land-based monitors tracked how unusually hot, sunny weather in the Midwest baked exhaust from automobile tailpipes, diesel engines and factory smokestacks into smog, also known as ground-level ozone.

Independence Day celebrations added to the problem. Stagnant air prevented soot pollution released by fireworks from dispersing, increasing the likelihood that even healthy people had trouble breathing during the holiday weekend.

Lake Michigan also played a role. Smog-forming pollutants — scientists call them precursors — collect over the lake on sunny days, then drift inland during late afternoons.

“If you have precursors cooking up in this sunny zone and then the lake breeze pushes all of that air back toward the shore, it can make for a really crummy day,” said Patricia Cleary, a University of Wisconsin at Eau Claire chemist involved in a federal study of smog sources and trends in Lake Michigan states.

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Unhealthy air

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President Donald Trump’s administration agrees, on paper at least. Its 2018 National Climate Assessment concluded that “Midwestern populations are already experiencing adverse health impacts from climate change, and these impacts are expected to worsen in the future.”

At the same time, Trump has spent the past three years weakening clean air regulations. His political appointees have repeatedly brushed aside recommendations from independent scientists finding smog and soot are more dangerous than previously thought.

In April, for instance, the Trump EPA declined to tighten national standards for soot, siding with Republican lawmakers and industry lobbyists who for decades have fought regulations

requiring progressively less pollution from vehicles, power plants, factories and oil refineries.

The administration also overruled career EPA staff and trimmed the number of counties in the Chicago area required to adopt smog-fighting measures such as more stringent limits on industrial pollution, tailpipe-emissions monitoring and vapor controls on gasoline pumps.

Fighting smog

“Obviously Illinois isn’t doing enough to reduce ozone smog levels,” said Brian Urbaszewski, director of environmental health policy at the Respiratory Health Association of Chicago. “The problem persists year after year, and people’s lungs suffer the effects.”

Urbaszewski’s organization and other environmental groups are fighting back with lawsuits and political pressure. They often are joined by lawyers for Democratic-led city and state governments, including Chicago and Illinois.

One such legal challenge prompted a federal appeals court Friday to order the Trump EPA to reconsider its 2018 decision absolving all or part of 16 counties from joining their urban neighbors in fighting smog.

Among those affected are northwest suburban McHenry County, Porter County, Ind., Ottawa County, Mich., and 10 Lake Michigan counties in Wisconsin. Smog concentrations in the counties either exceed federal standards or contribute to violations in downwind communities.

Documents in government files show Trump appointees dropped McHenry from its latest list of smog violators after a letter and phone call from Alec Messina, an industry lobbyist who at the time served as director of the Illinois EPA under then-Republican Gov. Bruce Rauner.

Three judges on the U.S. Court of Appeals for the District of Columbia noted the Trump EPA failed to defend why it relaxed smog-fighting requirements in McHenry. Monitoring data shows air pollution in the county is on the rise.

“This incongruity ... renders EPA’s explanation suspect,” the court concluded.

Under provisions of the federal Clean Air Act, more stringent regulation of industrial emissions will almost certainly be required in the Chicago area if current trends continue.

“It’s complicated, but the weather has been very conducive this year to smog,” said Zac Adelman, executive director of the Lake Michigan Air Directors Consortium, a group of state officials from Illinois, Indiana, Michigan, Ohio, Minnesota and Wisconsin.

Sources sought

Researchers eventually will be able to identify sources of recent smog and soot pollution by analyzing the chemical composition of particles collected inside filter-based monitoring equipment.

Similar to what occurred during the lockdown, likely culprits include buildings, factories and diesel engines that burn coal, oil or natural gas. Diesel emissions in particular remain a problem in Chicago, a racially segregated freight hub where rail yards, warehouses and intermodal facilities are concentrated in low-income, predominantly Black and Latino neighborhoods.

Those areas also are suffering disproportionately from the COVID-19 disease. A team of Harvard data scientists recently determined that a person living for decades in a county with high levels of soot is 8% more likely to die from the coronavirus than someone in an area with one microgram less of the pollution per cubic meter of air.

The Tribune reported in May that average daily soot concentrations in the Chicago area declined by only 1% the previous month compared with April 2019. By contrast, soot levels in New York City dropped 28%; Denver, Detroit, Los Angeles and St. Louis each saw a 16% decline in the tiny particles of pollution during the first full month of shelter-in-place orders.

Conditions worsened as summer arrived. Chicago recorded the most “unhealthy” days in June since 2012, the Tribune analysis found.

With more hot, sunny weather in the forecast, air quality likely will remain poor for the rest of July.

Air quality improves with less cars on the road amid COVID-19 pandemic

Date:-13-July-2020, Source: ksat.com

San Antonio – The pandemic has led to improved air quality in San Antonio, according to data and evidence analyzed by local experts.

University of Texas at San Antonio professor Afamia Elnakat, with the Department of Environmental Science and Ecology, looked at the data from the Texas Commission on Environmental Quality from two different locations in San Antonio from the start of the year to now.

Elnakat looked at ozone, particulate matter and nitrogen dioxide pollutants as part of her assessment. The first two did not have a significant change, she said.

“In the nitrogen dioxide block, you can see January, February, March and here we go, a sudden drop in mid-March. That continues through out until today, and that drop could be attributed to less vehicles on the road,” she explained.

When compared to 2019 and other years, the drop is not unusual in the summer, when students are out of school.

“But what’s different this year is this drop didn’t happen in May and June. It happened back in March and April,” she said.

Allergist and Immunology Dr. Erika Gonzalez with South Texas Allergy & Asthma Medical Professionals said her patients saw improvements in their health during the pandemic.

“We’re seeing people not be as easily triggered for respiratory symptoms and particular asthma,” she explained.

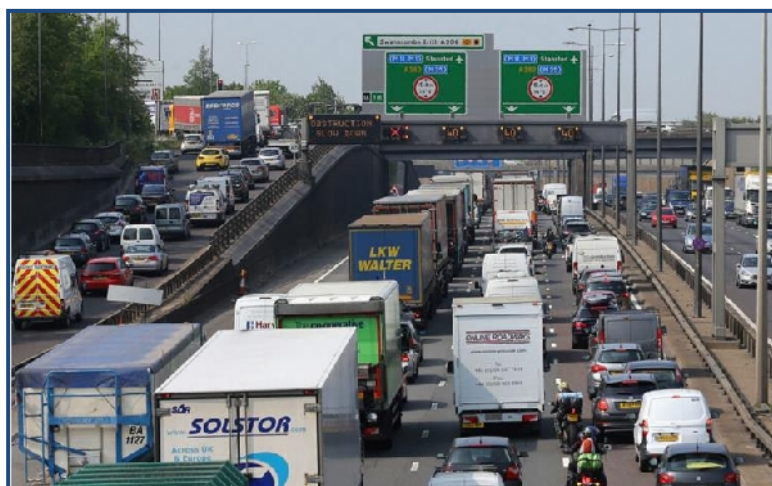
Since people started staying home at the peak of oak allergy season, patients saw improvements.

“Their symptoms were much better controlled than a lot of that had to do with the fact that they were just spending more time inside,” Gonzalez said.

Elnakat said more studies need to be done about climate changes during the pandemic, but she thinks it could help cities plan for their future, which includes infrastructure, public mass transportation, shift changes and more.

Air pollution is still 30% lower than pre-lockdown levels in major cities across the UK

Date:-14-July-2020, Source: zmescience.com



Although traffic levels are returning to normal, air pollution is 30% lower than expected in towns and cities in the United Kingdom, according to a new report. This is likely explained by a smoother flowing of traffic and changes in commuting behavior, the researchers argued.

Air pollution is widely recognized as a threat to both public health and economic progress. The World Health Organization (WHO) estimates that 4.2 million deaths annually can be attributed to outdoor fine particulate matter air pollution, caused by many emission sources such as transportation and energy production.

A team of researchers at the University of York looked at more than 100 roadside sites across the UK and found that nitrogen dioxide (NO₂) pollution levels were 30% below normal on July 1. At the peak of the coronavirus crisis, pollution levels were 56% lower than normal nationwide, the study found.

This is despite there's now a similar number of vehicles on the roads as there was before lockdown. For instance, heavy goods vehicle traffic (HGV) is at 95% of its normal levels, while vans are at 90% and personal cars are at 75%. But the small reduction is actually enough to cut congestion and pollution.

"It seems that while traffic levels look like they have mostly returned to normal, concentrations of some air pollutants are still quite a lot lower than expected. We think the reason is that congestion has not fully returned, and this has quite a large effect on emissions and hence concentrations," David Carslaw, who led the analysis, said in a statement.

A lesson for urban planners even beyond the coronavirus pandemic

The researchers argue that the findings could help cities across the globe to improve the way they tackle air pollution. This is particularly important during the pandemic, considering the growing evidence that polluted air could make the novel coronavirus more deadly.

Nitrogen dioxide is mainly emitted by diesel vehicles and has been at dangerous levels in most urban areas in the UK since 2010. It is responsible for an estimated 23,500 early deaths every year in the country. During the lockdown, traffic levels fell to levels last seen in 1995, leading to a drop of NO₂.

Different types of vehicles emit different levels of pollution. For example, HGVs have stricter regulations so they emit less pollution than diesel cars. This could indicate that less car traffic is behind lower pollution levels. But, according to Carslaw, less congestion was likely the reason for the drop in NO₂ levels.

"Everyone would appreciate improved air quality and this suggests we don't need such savage reductions in road traffic as seen during lockdown to achieve that. If you can reduce traffic by 10-20% and remove a lot of the congestion, that may have a disproportionate effect on the emissions," said Carslaw.

Advisers to the UK government said last week that air pollution was likely to be increasing the number and severity of COVID-19 infections. This followed calls from lawmakers for action and a warning that the government had a legal obligation to urgently review its air quality strategy.

But the problem is actually much broader than just the UK. More than half of the world's population is living with growing levels of air pollution that are affecting their health every

day, a concerning study reported in June. Sub-Saharan Africa and Southeast Asia are among the regions with the largest increases.

"Convincing link" between air pollution, high covid-19 figures in n. brabant, limburg"

Date:-15-July-2020, Source: nltimes.nl



Researchers at the University of Birmingham found a "convincing link" between air pollution and the high number of Covid-19 patients in Noord-Brabant and Limburg. According to the British researchers, the number of Covid-19 hospital admissions and deaths increases as the

amount of particulate matter in the air increases, Brabants Dagblad reports.

According to the researchers, an increase of 1 microgram of particulate matter statistically leads to between 13 and 21 percent more coronavirus related deaths. In the Netherlands, the amount of particulate matter in the air ranges from around 8 micrograms per cubic meter in Noord-Nederland to around 12 micrograms in Oost-Brabant and Noord-Limburg.

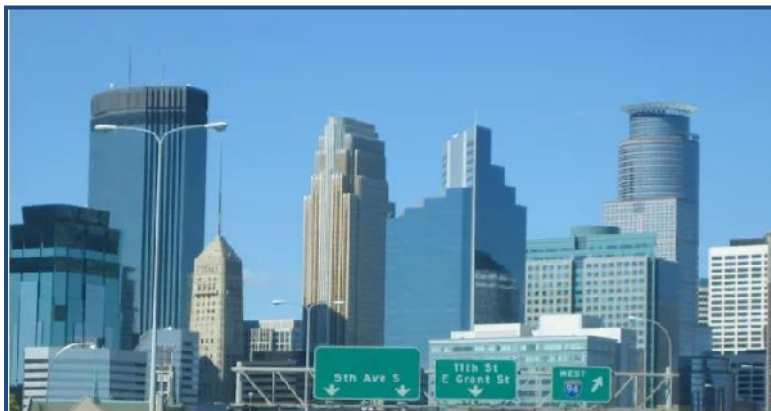
The study focused on so-called PM 2.5 particulate matter - medium-sized particles that mainly occur when the emissions from traffic and industry react with ammonia from livestock farms. The researchers took 20 factors which could influence the coronavirus figures into account, including things like age, education, income and health.

They also took the annual Carnival festivities into account, often mentioned as the major coronavirus spreading incident in Noord-Brabant and Limburg. "We are not saying that Carnival did not play a role. I suspect it did," researcher Matt Cole said to the newspaper. Only, even after carnival was taken into account, the connection between the coronavirus numbers and air pollution is still solid, he said.

The researchers suggest that the Netherlands should do more against air pollution and that the health authorities should be aware of this link if there is another coronavirus outbreak. They also added that this study is based on statistics - detailed epidemiological research is required to demonstrate a strong link.

Air pollution in the Twin Cities dropped 20% during COVID-19 shutdown, U of M finds

Date:-16-July-2020, Source: bringmethenews.com



University of Minnesota researchers recently found that air pollution decreased during COVID-19 lockdowns.

With support from the Minnesota Pollution Control Center, researchers looked at pollution data from March 13 to April 21 and compared that

to the same time during past years. Researchers looked at the difference between urban and rural counties throughout the U.S. and those that closed nonessential businesses and those that did not.

The study focused on two types of air pollution measurements: nitrogen dioxide and fine particulate matter.

The results, published earlier this week by the university, show nitrogen dioxide declined around 25% compared to previous years. This applied to urban and rural counties and regardless of what their COVID-19 lockdown situation was.

Minnesota-specific data from Anoka, Dakota and Hennepin counties showed an average nitrogen dioxide decrease during the same period of 20.1% compared to historical years, according to study author and assistant professor Jesse Berman.

Researchers believe this decrease was due to fewer vehicle trips as people avoided travel and were working from home, in addition to thousands of employees being laid off.

But fine particulate matter declined to a lesser extent, down around 11% in urban counties and 4% in rural counties. Researchers believe this type of pollution did not drop as much as it's often produced by industries like food production and construction, which have remained operational.

The data specific to Anoka, Dakota and Hennepin counties in Minnesota revealed a similar average decline of 4.8%, but Berman told Bring Me The News that "this is driven primarily by a large decline in Anoka County," where as he observed a small increase in Hennepin County compared to past years.

Overall, the decreased pollution is likely only temporary, as Berman said "decreased air pollution and any potential benefits are likely fleeting as policies are relaxed."

Air pollution in China dropped by half during lockdown

Date:-17-July-2020, Source: airqualitynews.com



Air pollution in China fell by 48% during the first 20 days of lockdown, according to researchers at NASA and the University of Exeter.

Most of China's provinces went into lockdown on the day of the Lunar New Year.

To measure the impact that this lockdown had on air pollution, the researchers

used NASA's Aura satellite and the European Copernicus satellite to measure levels of nitrogen dioxide (NO₂) 20 days before and after the New Year celebrations.

After analysing the Satellite imagery the researchers found that NO₂ levels dropped by almost half just 20 days after the lockdown began.

According to the researchers, some reduction in NO₂ pollution is expected in this period due to closures for the public holiday.

However, the researchers have highlighted that this year's NO₂ levels still fell a further 21% below the average for 2015-2019.

The researchers also singled out regions that contain large power plants and found similar declines in air pollution, this suggests that measures to contain COVID-19 affected power generation as well as industrial production and travel.

Dr Fei Liu, the lead author of the study and an air quality researcher at NASA's Goddard Space Flight Center, said: 'This is the first time I have seen such a dramatic drop-off over such a wide area for a specific event.'

'This year, the reduction rate is more significant than in past years and it has lasted longer.'

Arran Page, a PhD candidate at the University of Exeter Business School, added: 'Many Chinese cities have poor air quality that reduces life expectancy and quality.'

‘While temporary, these substantial reductions in air pollution may have positive health implications for the lives of residents in otherwise heavily polluted areas.’

Air Quality Advisory Extended Through Sunday

Date:-18-July-2020, Source: sfgate.com

Smoke blowing toward the Bay Area from the Mineral Fire in Fresno County is continuing to affect air quality this weekend, according to the Bay Area Air Quality Management District.

An agency spokesperson said Saturday that an air quality advisory is being extended through Sunday due to smoke migrating from the fire, which started Monday evening.

Smoke from the fire is expected to impact the Bay Area through Sunday. At the surface, winds are expected to remain onshore across the Bay Area. Smoke will likely remain aloft, resulting in smoky and hazy skies. The agency will be closely monitoring air quality throughout the Bay Area for smoke impacts from the fire.

If the smell of smoke is present, it is important that Bay Area residents protect their health by avoiding exposure. If possible, stay inside with windows and doors closed until smoke levels subside, if temperatures allow. It is also recommended that those impacted by smoke set their air conditioning units and car vent systems to re-circulate to prevent outside air from moving inside.

The agency added that smoke can irritate the eyes and airways, causing coughing, a dry scratchy throat and irritated sinuses. Elevated particulate matter in the air can trigger wheezing in those who suffer from asthma, emphysema or chronic obstructive pulmonary disease, or COPD. Elderly persons, children and individuals with respiratory illnesses are particularly susceptible to elevated air pollution levels and should take extra precautions to avoid exposure.

Coronavirus lockdown leads to less air pollution, more clean energy

Date:-19-July-2020, Source: studyfinds.org

NUREMBERG, Germany — Shortly after the coronavirus lockdown began, people around the world started sharing pictures of an amazing phenomenon taking place — major cities were suddenly clear of air pollution and smog. It turns out cities aren’t just cleaner, they’re gathering more power during the pandemic. A team of scientists in Germany report that solar panels are able to harvest more energy from the sun now that the air is cleaner than usual.

Researchers from the Helmholtz-Institute Erlangen-Nürnberg for Renewable Energies say pollutants hang in the air and block the sun’s rays. With more people living in quarantine, there is less air pollution and this produces more clean energy.

Air pollution capital gets cleaned up

One of the cities scientists are using for their studies is Delhi, India. Since it usually experiences high levels of air pollution, researchers believe there are many COVID-19-related effects taking place here.

“Delhi is one of the most polluted cities on the planet,” says first author Ian Marius Peters in a media release. “Moreover, India enacted a drastic and sudden lockdown at the start of the pandemic. That means that reductions in air pollution happened very suddenly, making them easier to detect.” The ERN team used the photovoltaic (PV) system to capture the solar radiation in Delhi. Scientists then compared the output of the PV solar panels in late March of 2020 with data from the same time period in 2017-2019. The results reveal solar panels are able to collect eight percent more sunlight this year than in previous years.

“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 explains. “I expected to see some difference, but I was surprised by how clearly the effect was visible.”

Flattening the ‘climate curve’

Peters adds the study shows the significance of cutting down on worldwide pollutants, whether people are living in quarantine or not.

“We’ve gotten a glimpse of what a world with better air looks like and see that there may be 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.”

China's covid drop in air pollution

Date:-20-July-2020, Source: theecologist.org



Air pollution in China fell 48 percent due to economic impact of Covid-19 policies.

Air pollution in China, as measured by levels of nitrogen dioxide (NO₂), fell by 48 percent during lockdown, as a result of the economic fall-out from policies implemented to prevent the spread of Covid-19, a study has found.

Researchers used data from NASA’s Aura satellite and the

European Copernicus Sentinel-5 Precursor satellite to measure levels of nitrogen dioxide (NO₂), in the first study to quantify the environmental and economic impact of China's Covid-19 policies.

Levels of NO₂, a noxious gas emitted by cars and factories when fossil fuels are burned, were used as an indication of economic activity.

Health

The research team, including from the University of Exeter Business School and NASA, found China's NO₂ levels declined dramatically during February and March 2020 as businesses closed their doors, people began to work from home and quarantine measures were put in place.

Oliver Hauser, associate professor of economics at the University of Exeter Business School, said: "This unusual period offers a rare counterfactual of a potential society which uses substantially less fossil fuels and has lower mobility."

Aaron Page, a PhD Candidate at the University of Exeter Business School, said: "Many Chinese cities have poor air quality that reduces life expectancy and quality. While temporary, these substantial reductions in air pollution may have positive health implications for the lives of residents in otherwise heavily polluted areas."

Most of China's provinces went into lockdown on the day of the Lunar New Year, the start of a week-long public holiday. The satellite measurements showed a 48 percent drop in NO₂ levels over the 20 days after the Lunar New Year on 25 January, compared with the 20 days before.

However, some of the observed reduction of NO₂ is expected in normal years due to closures during the public holiday, or simply due to variation in weather each year. But, while factories typically shut down and traffic decreases, this year's NO₂ levels have still fallen a further 21 percent below the average for 2015-19.

Significance

Dr Fei Liu, lead author of the study and an air quality researcher at NASA's Goddard Space Flight Center, affiliated with Universities Space Research Association, said: "This is the first time I have seen such a dramatic drop-off over such a wide area for a specific event."

"This year, the reduction rate is more significant than in past years and it has lasted longer."

The researchers related the NO₂ reductions to two government policies: reports of the first cases in each of China's provinces and the date of a province's lockdown.

They found NO₂ levels fell by around 16 percent in each province after the first COVID-19 case was announced, as people began to stay at home and travel less.

Lockdowns, which on average were imposed 3-4 days afterwards, led to a further reduction of 15% in each province, as citizens' mobility was reduced in a bid to contain the disease.

Emissions

The researchers simulated the effects of meteorology on emissions to rule out the possibility that weather conditions caused the decline in NO₂.

They also singled out regions containing large power plants or industrial plants and found the similar variations in NO₂ to the national average, suggesting measures to contain Covid-19 affected power generation as well as industrial production.

In addition, they observed NO₂ reductions along the China National Highways. The study is published in Science Advances.

Unbelievable! This place has worse air quality than Delhi

Date:-21-July-2020, Source: timesofindia.indiatimes.com



With the COVID-19 lockdown announced in almost all the countries around the world earlier this year, there have been reports of less pollution and animals reclaiming the streets in many areas. This has resulted in a shuffle in the global air quality rankings too. Good news is that Delhi is no longer the most polluted city in the world, and nor is Beijing.

You will be surprised to know that a sleepy city in Central Chile, which has ranked near the bottom in the earlier air quality rankings, is now the world's most polluted city in the world. In fact, Temuco, in Central Chile, has left behind the notoriously polluted megacities and is at the top.

However, this has nothing to do with the town's contamination from economic activity. It is the direct result of poverty. It so happened that during this time, i.e., June through August, when the Southern Hemisphere is in winter, mercury in Temuco plunges to as low as 4^o Celsius, thereby forcing the city residents to burn cheap and, more often, wet firewood to keep themselves warm.

Narrating the situation, a city resident said that at times only half a block down the street is visible in her Temuco neighbourhood, and the rest is all grey smoke. She added that it is like

living in a city with permanent fog, and that she is now used to itchy eyes and the smell of heavy smoke in her living room always.

As per a data compiled by Bloomberg Green and the non-profit OpenAQ, Temuco has been the most polluted city and had the worst air quality in the world at least five days in the past few weeks. Moreover, as the air gets worse, the range of health ailments also grows parallelly.

Temuco was one of the first Chilean cities to be put under quarantine in April. This might be one of the probable reasons for growing pollution, as lockdown forced everyone to stay indoors. The burning of wood creates soot and microscopic particles, thereby contributing to the pollution.

Deadly levels of air pollution come from unexpected sources, study finds

Date:-22-July-2020, Source: consumeraffairs.com



Studies continue to emphasize the health risks associated with rising levels of air pollution, including the threat these emissions pose to consumers' longevity.

Now, a new study conducted by researchers from the University of Minnesota found

that the threats to consumers' health only continue to mount. However, extreme levels of air pollution could be coming from sources many haven't considered.

"Essentially we're asking, 'what's killing people and how do we stop it?'" said researcher Sumil Thakrar. "People usually think of power plants and cars, but nowadays, livestock and wood stoves are as big of a problem."

Where are the emissions coming from?

To understand what kinds of emissions are putting consumers' health at the greatest risk, the researchers analyzed data from the Environmental Protection Agency. This allowed them to track emissions levels, types, sources, and overall health risk.

"Targeting particularly damaging air pollution sources is a more efficient, and likely more effective, way of regulating air quality," said researcher Jason Hill. "Think of springing a leak in your boat while out fishing. Why fret too much about how much water is coming in when what you really should be doing is plugging the hole?"

Fine particulate matter, which is commonly notated as PM2.5, was the biggest threat to consumers' health that the researchers discovered in this study. However, this type of emission was identified in high levels from sources that many haven't considered before.

For example, the researchers learned that ammonia contains high volumes of PM2.5. The chemical is used widely in popular household cleaners, but it can also be used in fertilizer and other agricultural processes. Despite the known risks linked to ammonia, the chemical remains easily accessible and widely used nationwide.

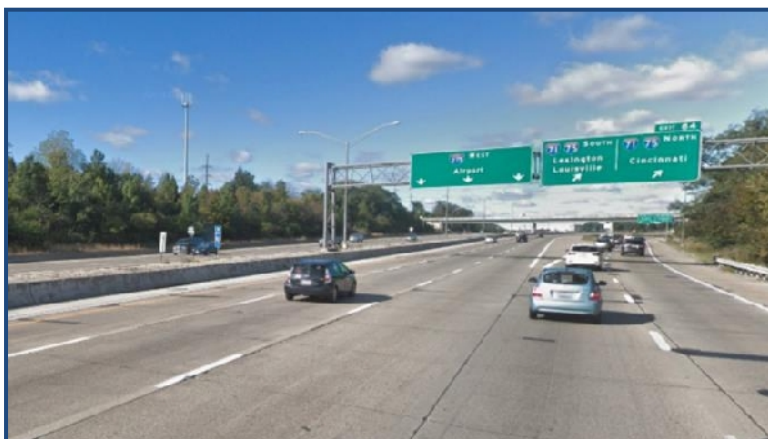
Consumers are exposed to these fumes in other ways too. Simple household tasks like cleaning can create emissions that can be harmful to breathe in, but a dusty construction site can lead to similar risks. Like Thakrar mentioned, while traffic and fossil fuels certainly contribute to these rising emissions levels, the source of some of the highest levels of air pollution come from ordinary places that aren't usually considered by the general public.

Exposure to PM2.5 is particularly dangerous. It's not only responsible for thousands of deaths each year, but it can increase the risk for any number of health conditions, including lung cancer and heart attacks, among several others. To see real change and protect consumers' health, the researchers explained that regulation of these emissions is a crucial step that lawmakers need to get behind.

"Our work provides key insights into the sources of damage caused by air pollution and suggests ways to reduce its impacts," Thakrar said. "We hope policymakers and the public will use this to improve the lives of Americans."

Near Downtown, Dirty Air On The Decline During COVID-19

Date:-23-July-2020, Source: wvxu.org



Exhaust is down nearly 20% on I-75 near Hopple Street from March 23 to June 30.

You may have guessed the air got cleaner near downtown Cincinnati as more people stayed home during COVID-19. Now Southwest Ohio Air Quality Agency has the statistics to prove it.

The agency monitors air pollutants on a regular basis throughout the region. A study from one of those monitors, I-75 Southbound near Hopple

Street, shows nearly a 20% decrease in exhaust.

Ohio's stay-at-home order began March 24. The study covered March 23 through June 30 and compared the numbers to the same time in 2017-2019:

Oxides of Nitrogen: -19.1%

Nitrogen Dioxide: -18.6%

Nitric Oxide: -20.1%

Carbon Monoxide: -9.1%

Particulate Matter: -14%

"It wasn't an entire surprise but yet it was really encouraging to see, frankly, what happens when we have a fairly significant drop in regular commuting," says spokeswoman Joy Landry.

She points out that it speaks to the impact of reducing air pollution and helps people with cardiovascular and lung issues.

The study also showed traffic was down 42% from March 24 to May 11 and down 20% from May 20 to June 30.

Indoor air quality poses serious health risks

Date:-24-July-2020, Source: jpost.com



air pollution

The very air we breathe at home could be poisonous, according to Carol Abraham, an environmental health expert and one of the founders of the Environmental Protection Ministry.

While public attention is usually focused on "conventional" outdoor, environmental health hazards, it's time to start focusing on indoor threats, says Abraham.

The usual suspects are often found outside residential buildings: loud motorways, smoke puffing factory chimneys, contaminated water sources, and even neglected household waste piles, all these pose serious health concerns due to the pollution they create.

But today, according to Abraham, there is a growing awareness of the health dangers that are prowling in our own backyard.

"The coronavirus outbreak that has led (and still leads) many to start working from home, and to a general increase in the amount of hours that each of us spends at home is a real opportunity to understand what's happening to the air quality in our houses," explains Abraham. A study, conducted by the United States Environmental Protection Agency (EPA), has found that air pollution indoors is up five times more than it is outside.

Even more so, according to estimations by the World Health Organization, some 3.8 million people die prematurely due to diseases caused by bad air quality indoors.

In Israel however, the awareness of the general population to the problem is almost non-existent, according to Abraham. It is two problems in one; the first being that the Israeli public doesn't know that there is even such a thing as indoor air pollution and the second is health damages that it can cause.

Some of the threats that lurk at our homes come from supposedly innocuous everyday objects such as pesticides, paints, air fresheners, disinfects, deodorants and more. "Even the clothes we often send to dry cleaning emit poisonous gases," says Abraham.

No one seems to be immune to the dangerous effects of these breathable elements. Young children, elderly people, and others who suffer from respiratory problems are especially susceptible to indoor air pollution.

Even healthy people with no medical history can develop a serious of health issues such as: headaches, vertigo, irritation of the nasal canals, nose bleeds, allergic skin reactions and nausea.

In some of the more severe cases, that are often caused by years of prolonged exposure, permanent damage is caused to important internal organs and the central nervous system, increasing the overall chances of getting cancer.

But not all threats come from supposedly harmless objects found in every house. In some cases, indoor pollution is caused by an external source. This phenomena has been identified as "the sick house syndrome."

The term refers to buildings which contain hazardous materials, either because they were used in the construction process or because they were built in close proximity to pollution sources.

In either case, there is a serious lack of awareness to this life-endangering problem.

Here's how air pollution and regular exercise affect high blood pressure

Date:-25-July-2020, Source: *hindustantimes.com*



Exercising regularly can lower the risk of high blood pressure, even if people live in areas where air pollution is relatively high, according to recent research.

The research was published in the American Heart Association's flagship journal

Circulation.

The risk-benefit relationship between air pollution and physical activity is an important public concern because more than 91 percent of people worldwide live in areas where air quality does not meet World Health Organization (WHO) guidelines.

"Extended outdoor activity in urban areas increases the intake of air pollutants, which can worsen the harmful health effects of air pollution," said study author Xiang Qian Lao, Ph.D., an associate professor at the Jockey Club School of Public Health and Primary Care at The Chinese University of Hong Kong in Shatin, Hong Kong.

"While we found that high physical activity combined with lower air pollution exposure was linked to lower risk of high blood pressure, physical activity continued to have a protective effect even when people were exposed to high pollution levels. The message is that physical activity, even in polluted air, is an important high blood pressure prevention strategy," added Lao.

Researchers studied more than 140,000 non-hypertensive adults in Taiwan and followed them for an average of 5 years. Researchers classified the weekly physical activity levels of each adult as inactive, moderately active, or highly active.

Researchers also classified level of exposure to fine particulate matter (PM_{2.5}) as low, moderate and high. PM_{2.5} is the most commonly used indicator of air pollution. High blood pressure was defined as 140/90 mm Hg.

The American Heart Association/American College of Cardiology 2017 Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults defines high blood pressure as 130/80 mm Hg.

Overall, people who are highly active and exposed to low levels of pollution had a lower risk of developing high blood pressure. People who were inactive and exposed to highly polluted air had a higher high blood pressure risk.

Each increase in PM2.5 level was associated with a 38 percent increase in risk of incident hypertension, whereas each increase in physical activity level lead to a 6 percent lower risk of hypertension. This suggests that reducing air pollution is more effective in preventing high blood pressure. The benefits of regular physical activity held up regardless of pollution level. People who exercised moderately had a 4 percent lower risk of high blood pressure than those who didn't exercise. People who exercised at a high level had a 13 percent lower risk of high blood pressure than the non-exercisers.

"This is the largest study to analyze the combined effects of air pollution and regular physical activity on high blood pressure. Our findings indicate that regular physical activity is a safe approach for people living in relatively polluted regions to prevent high blood pressure," Lao said.

"Exercise should be promoted even in polluted areas. The findings also put a spotlight on how strongly pollution can impact blood pressure, and how important it is to control pollution levels to prevent high blood pressure," Lao added.

In 2004, the American Heart Association issued a scientific statement concluding exposure to air pollution contributes to cardiovascular illness and death. A 2010 update elaborated on those risks, which include heart attack, stroke, arrhythmia, and heart failure.

"This study confirms our understanding of the role of physical activity in the prevention of cardiovascular diseases including hypertension. It also reminds us of the importance of air pollution in the development of cardiovascular diseases," writing group author Russell V. Luepker, M.D., M.S., a volunteer expert for the American Heart Association said.

"The link between pollution and cardiovascular disease may include the development of hypertension along with other factors associated with particulate matter in air pollution," added Luepker.

The findings of this study are limited and cannot be generalized to other populations with higher exposure to air pollution because it only included people living in Taiwan, where ambient air was moderately polluted (the annual PM2.5 concentration was 2.6 times of the limit recommended by the World Health Organization).

Researchers did not distinguish between outdoor and indoor physical activity, meaning they could not exclusively examine the association of PM2.5 and hypertension relative to physical activity outdoors or indoors. Researchers also included indoor cigarette smoking as a variable.

Lockdown saw modest drop in China air pollution – study

Date:-27-July-2020, Source: eurekaalert.org

Large improvements of air quality in China during the COVID-19 lockdown have been widely reported, but new research reveals that the two pollutants most harmful to human health, fine particulate matter (PM2.5) and ozone, were only slightly reduced.

The study, by scientists from the University of Leeds, UK and the Southern University of Science and Technology, China, analysed air pollutant concentrations from China's national network of around 1,300 monitoring stations to quantify the response of air pollution across China during the COVID-19 lockdown.

They found that the falls in some air pollutants like nitrogen dioxide (NO₂) were substantial, whereas other pollutants like particulate matter (PM) and ozone pollution were only slightly reduced or barely affected.

The study is published today in the IOP Publishing journal Environmental Research Letters.

Senior author Professor Dominick Spracklen, from the University of Leeds, said: "Although China's air quality has improved in recent years, indoor and outdoor air pollution still has serious health impacts, with 12 per cent of deaths in China in 2017 attributable to it. Understanding trends in air quality is therefore essential to assess the effectiveness of recent air quality measures and help inform future air pollution mitigation. The application of control measures during the COVID-19 outbreak enabled us to analyse the potential air quality improvements resulting from a reduction in emissions."

To understand the impact of the control measures during the COVID-19 outbreak, the researchers compared pollutant concentrations in 2020 with expected concentrations had the COVID-19 outbreak not occurred.

They used a time series of China-wide measurements of key pollutant concentrations, from January 2015 to April 2020, to isolate the changes during the lockdown period compared with concentrations otherwise expected based on recent trends, seasonality, and the effects of the Lunar New Year (the precise date of which changes from year to year).

Lead author Ben Silver, from the University of Leeds, said: "During the lockdown period in China, defined as January 23rd to March 31st, 2020, we found that the largest reductions occurred in NO₂, with concentrations 27 per cent lower on average across China. The largest reductions were in Hubei province, where NO₂ concentrations were 50.5 per cent lower than expected during the lockdown.

"Much smaller reductions were observed for other pollutants. PM_{2.5} - fine particles measuring less than 2.5 µm - had a modest reduction of 11 per cent across China, and was not reduced in north-east China. These particles are the most harmful constituent of air

pollution, as they travel deep into the lungs and bloodstream and damage the lungs and heart. Ozone can irritate breathing, affect lung function and worsen lung conditions such as asthma. We found almost no change in ozone concentrations because of the pandemic control measures."

Co-author Xinyue He, from the Southern University of Science and Technology, Shenzhen, China, said: "Chinese NO_x (nitrogen oxide) emissions are dominated by transport (35 per cent), industry (35 per cent), and power generation (19 per cent), all of which are likely to have been affected by the lockdown. Reduction in emissions from these dominant sectors and short lifetime explains the larger reduction in NO₂ compared to other pollutants.

"PM_{2.5} concentrations in China are heavily influenced by residential emissions, which are likely to have been less affected by the control measures. The larger relative reductions in PM₁₀ and CO (carbon monoxide) compared to PM_{2.5}, may be due to a greater reduction in primary emission sources and the greater contribution of secondary aerosol to PM_{2.5}. Reductions in emissions of volatile organic compounds and NO_x, combined with changes in PM concentrations, resulted in little overall change in ozone concentrations."

Professor Spracklen added: "The modest improvement in air quality during the lockdown, despite very large reductions in emissions from some sources such as traffic, highlights the challenge facing China as it tries to further improve air quality. Our study provides insight into the effects of future emission reductions and can help inform development of effective air pollution mitigation strategies."

The most harmful air pollutants hardly declined during lockdown

Date:-28-July-2020, Source: airqualitynews.com



Researchers from the University of Leeds and the University of Science and Technology in Shenzhen, analysed 1,600 air quality monitoring stations in China from January 2015 to April 2020 in order to isolate and understand the changes in air pollution during the lockdown period.

The researchers found that while concentrations of nitrogen dioxide (NO₂) did show improvements, the two most harmful pollutants to human health hardly declined.

Fine particles measuring less than 2.5µm – had a modest reduction of 11% in some areas and did not decline at all in north-east China.

The researchers also found that there was almost no change in ozone concentrations across the country.

Lead author of the study Ben Silver, from the University of Leeds, said: 'The largest reductions of NO₂ were in the Hubei province, where NO₂ concentrations were over 50% lower during the lockdown.

'Much smaller reductions were observed for other pollutants. PM_{2.5} particles had only a modest reduction and are the most harmful constituent of air pollution, as they travel deep into the lungs and bloodstream and damage the lungs and heart.'

Co-author Xinyue He, added: 'Chinese NO_x emissions are dominated by transport (35%), industry (35%), and power generation (19%, all of which are likely to have been affected by the lockdown.

'Whereas PM_{2.5} concentrations in China are heavily influenced by residential emissions, which are likely to have been less affected by the control measures.

'The modest improvement in air quality during the lockdown, despite very large reductions in emissions from some sources such as traffic, highlights the challenge facing China as it tries to further improve air quality.

'Our study provides insight into the effects of future emission reductions and can help inform the development of effective air pollution mitigation strategies.'

N. China's Tianjin reports improving air quality in H1

Date:-29-July-2020, Source: xinhuanet.com

TIANJIN, July 29 (Xinhua) -- North China's Tianjin Municipality saw a decline in the density of hazardous fine particulate matter PM_{2.5} in the first half of this year, the Tianjin Ecology and Environment Bureau said Wednesday.

The city's average PM_{2.5} density dropped to 53 micrograms per cubic meter in the first six months, down 7 percent year on year.

PM_{2.5} is particulate matter less than 2.5 micrometers in diameter that causes smog. The World Health Organization recommends an annual PM 2.5 level of 10 micrograms per cubic meter.

The city saw 118 good air quality days in H1, nine days more than the same period last year. The number of heavy air pollution days was 11, one day less than the same period last year.

To improve air quality, the city has taken measures such as overhauling industrial parks, banning high-polluting vehicles and machinery at the port and strengthening efforts to control dust pollution and emission of volatile organic compounds.

The city has set a target of keeping the annual average PM2.5 concentration at about 48 micrograms per cubic meter.

London breaching air pollution limits

Date:-30-July-2020, Source: theecologist.org



More than one thousand locations in England still breaching air pollution limits

A data audit by Friends of the Earth has revealed the 1,360 sites across England that have breached the annual Air Quality Objective for Nitrogen Dioxide (NO₂) levels, which are set to protect health.

The leading cause of NO₂ pollution is emissions from road traffic, which is also a huge source of climate-wrecking emissions. Friends of the Earth is campaigning to

remove polluting vehicles from the road and clean up transport – to fight the climate crisis and to protect public health.

Although the most recent data shows a marginal improvement from previous years (last year's audit found 1,591 English locations breaching limits) there is still a shocking number of locations exceeding the Air Quality Objective, which Local Authorities have to achieve. Some places show very high levels of exposure (up to 144 percent above the objective).

Recovery

Simon Bowens, clean air campaigner at Friends of the Earth, said: "Failing to fix air pollution costs lives. It also shows a failure to address the climate crisis because the sources and solutions are intrinsically linked.

"If ministers want to avoid a return to the health-damaging and illegal levels of air pollution we had before lockdown, their enthusiasm for 'active travel' needs to be a permanent switch and not just a short-term gap plugger.

"The government must also end its damaging fixation on building more roads. You can't justify this by planning to phase out polluting petrol and diesel vehicles and replace them

with electric ones. We need to go much further than just getting out of one type of car and into another.

"Investment in better cycling and walking should be part of a fair and green post-coronavirus economic recovery plan aimed at creating a cleaner, fairer future."

Emissions

Laura Chow, head of charities at People's Postcode Lottery (which funds action against air pollution across the country) said: "Air pollution affects us all. It's the old, the young, the poor and the sick who suffer most. But we will all benefit from a reduction in vehicle emissions.

"Our towns and cities will be cleaner, more pleasant places to live and work and we'll be helping to fight climate change too. I am proud that players of People's Postcode Lottery are supporting local projects across the country which are tackling air pollution and climate change. By working together, we really can make a difference."

Friends of the Earth is campaigning for a green and fair recovery from the coronavirus crisis. The government must step up and commit to building a future that's greener, safer and fairer for everyone.

Experts in SE Asia call for regional collaboration in fighting air pollution

Date:-31-July-2020, Source: connectedtoindia.com



The US government has partnered with India on improving health systems. The engagement between India and the US focuses on better monitoring of data on air pollution.

Experts from various south Asian countries have emphasised the need for regional cooperation in fighting air pollution and agreed that people in the region can live longer if the World Health Organisation's guidelines on air quality were met.

The average life expectancy in India could increase by 5.2 years and in Delhi by 9.4 years if the WHO standards on air quality are achieved, they said.

During a webinar discussion on 'Air Quality in South Asia: Opportunities and Challenges', organised by the Lung Care Foundation, climate experts from India, the USA, Sri Lanka and Pakistan got together to find a collective solution to tackle air pollution in South Asia.

During the discussion, Michael Greenstone, Director of Energy Policy Institute at the University of Chicago (EPIC), said air pollution was reducing life expectancy in several countries.

“Air pollution causes people to lead a shorter life. Particulate pollution comes from energy use. Particulate matter air pollution is the single greatest threat to human health globally. “1.9 years of life expectancy is lost every year globally due to particulate pollution, followed by smoking, alcohol and other issues. India's life expectancy can go up by 5.2 years if (WHO) norms are followed,” Greenstone said, sharing EPIC's report on Air Quality Life Index.

As per the report, if Delhi complied with the WHO air quality standard, people could live around 9.4 years longer, said Greenstone.

Similarly, average life expectancy in countries like Pakistan and Nepal could go up by 2.8 years and 4.6 years if the WHO guidelines were met, he said.

Among other speakers was David Kennedy, Minister Counselor for Public Affairs, US Embassy, New Delhi, who said improved health quality and air quality is the priority of the US government.

“Air pollution does not respect borders. If it is to be controlled, it requires consistent long-term focus by all sections of society, frontline workers, media, students, everyone. US-India development relationship goes back to many years. The US government has partnered with India on improving health systems. The engagement between India and the US focuses on better monitoring of data on air pollution,” he said.

Other panelists in the discussion were Christopher Commins, Economic Officer, US Embassy; Ranil Dhammapala, Air Quality Fellow, US Embassy, Colombo Sri Lanka; and Abid Omar, Founder, Pakistan Air Quality Initiative (PAQI).

August 2020

Residents of England's most polluted spot divided over solution

Date:-1-Aug-2020, Source: theguardian.com



Only 550 people live in Chideock, but it is the main tourist access route to the Dorset coastline.

With the title of England's worst road pollution hotspot this week being placed on a small village on the Jurassic Coast, the problem of toxic NO₂ fumes is in the spotlight – not just as a public hazard for big cities but for countryside residents too.

And it's expected to get worse. While Friends of the Earth this week revealed the latest

figures showing 1,360 sites across England were breaching the air quality objective levels for NO₂, road traffic forecasts from the Department of Transport show traffic volumes are expected to increase in England and Wales each year until 2050, potentially by up to 51% in total.

Up to 80 % of this NO₂ comes from exhaust fumes. Along with other traffic fumes, it is among the largest environmental risks to public health.

Long-suffering residents of England's worst hotspot, Chideock in Dorset, told the Guardian they are divided on how to fix their decades-long traffic blight. Like many rural communities, they feel cut off from mainline railways or adequate bus services and rely heavily on their cars.

But millions of tourists and business visitors also snarl up Chideock and other coastal villages on the A35. Only 550 people live here but it is the main tourist access route to the Dorset coastline and has a popular beach less about a 1.5km walk away. As a result, in summer 20,000 vehicles a day rattle through.

The A35 turns an otherwise rural retreat into an urban rattle and hum. A constant stream of cars, vans and lorries rumbles past lines of immaculately thatched cottages, two pubs and a village shop, the vehicles spewing out harmful levels of this poison. The residents tell me most of the listed buildings are too old to have proper foundations and are being shaken.

The village bus stop sits in the natural cradle of the landscape basin and pollution flows down the road and collects here. One resident said her asthma was made worse when she regularly used the bus stop, so she stopped.

Resident Mansel Jones said: “A small number of people who live on the road are pushing to get a village bypass but it would destroy our village and just move the problem over into the fields nearby. Why destroy another beautiful piece of countryside? Once the bypass is built they can sell their houses for more. If you don’t like a busy road why buy a house on one?”

Anna Dunn runs a B&B in a 15th century house on the main road but only achieves about 30% occupancy. She has given up trying to run a full hotel: “People would come to stay but leave because of the road noise,” she said.

Another resident, Sue Griffin, said: “As a newcomer from busy London, I was amazed and then appalled at the traffic thundering through Chideock. My cob cottage lost its flank wall before I bought it – it literally fell down. No wonder. The vibrations are continuous.”

Tony Peacock, who is deputy chair of the parish council and member of a working group calling for a bypass, said: “The HGVs come down the hill almost all day. There is pollution from the tyres, brakes, exhausts – various metals, PM2.5 and other pollutants coming off them. The buses do not seem to be commercially viable. The last bus back from London leaves at around 12pm, so that’s no good.”

Resident Michael Moles has run the local post office and village store for 13 years: “There was a vote and a majority of the village rejected the proposal for the bypass. I think it would be disastrous for me commercially and for the pubs, cut off parts of the village and distress people who would live on the bypass. Do we enjoy the heavy traffic? No. But it’s not 365 days of the year, it is only at the height of the season, it is part and parcel of Chideock. My hope is the introduction of more clean propulsion of cars will address the question.”

The mixed attitudes show the challenges many villages face as they confront increasing traffic impacts on communities and health, balanced with economic and transport needs.

Chideock’s parish council asked Highways England to “detrunk” the A35 – meaning it would no longer be designated as a main link road – on grounds of road safety, traffic vibration, air pollution, congestion and village severance.

Highways England said it had to consider if a route “fits with the intention for a strategic road network to link main centres of population, major ports, airports and stations, peripheral areas and provide key cross-border routes to Scotland and Wales”.

The strategic and planning executive director, Elliot Shaw, told the council: “We work hard to mitigate those impacts through our management of the routes and in any enhancement schemes. Alongside this, we also need to balance the role that the strategic road network

plays in providing accessibility across England and supporting long-distance travel and the economy.”

West Dorset MP Chris Loder said the local traffic pollution problem had been overlooked for too long and he is reestablishing an A35 working group: “The British Lung Foundation have echoed to me the damaging effects of high levels of exhaust pollution and this must be a much higher priority in my opinion.”

Simon Bowens, campaigner at Friends of the Earth, has proposed several alternatives to more road building. He said: “The government must end its damaging fixation on building more roads. You can’t justify this by planning to phase out polluting petrol and diesel vehicles and replace them with electric ones.

“We need to go much further than just getting out of one type of car and into another. Investment in better cycling and walking should be part of a fair and green post-coronavirus economic recovery plan aimed at creating a cleaner, fairer future.”

Judge upholds Colorado air quality rules for oil, gas sites

Date:-2-Aug-2020, Source: oilandgas360.com



DENVER (AP) — A Denver district judge has dismissed a lawsuit by Weld County challenging new state regulations designed to cut oil and gas industry emissions.

District Judge Michael Martinez granted a motion by the state to dismiss the case, agreeing with state attorneys

that the rules, adopted under a 2019 law that emphasizes public safety and the environment over fossil fuels energy production, don’t pose a threat to Weld County’s economy, The Denver Post reported Friday.

Martinez found that when it comes to air quality regulations, the state Air Quality Control Commission has precedence over the county.

Weld County is home to nearly half of Colorado’s 52,000 active oil and gas wells, and county Commissioner Barbara Kirkmeyer has said the local industry paid nearly \$500 million in property taxes in 2019.

The air commission’s rules went into effect in February to help implement the 2019 law. The rules include increased inspections of well sites and equipment.

“We will continue to aggressively pursue new rules and regulations that reduce emissions of greenhouse gases and air pollutants,” said Andrew Bare, spokesman for Colorado’s Air Pollution Control Division.

Safe air pollution limits are being breached in Wigan

Date:-3-Aug-2020, Source: wiganoday.net



Air pollution

Research by environmental campaigners Friends of the Earth, which analysed council reports on nitrogen dioxide in the air at monitoring sites across England, came to the shocking conclusion. It warns that failing to fix air pollution costs lives, and shows a failure to address the climate crisis.

The audit found three places in Wigan where the average level of nitrogen dioxide exceeded 40 micrograms per cubic metre of air in 2018, the latest year for which data is available.

The average must be below 40 to meet government air quality targets, while World Health Organisation (WHO) guidelines set this as a safe limit to protect public health.

The worst offending location – at the area’s Almond Brook Road site – came in at 57.7.

According to Friends of the Earth, road traffic is the leading cause of nitrogen dioxide pollution, which can inflame the lining of the lungs and reduce immunity to infections such as bronchitis.

Nationally, 1,360 sites failed to meet the 40 micrograms target in 2018.

Although this was down from 1,591 the previous year, Friends of the Earth said the figure was still shocking.

The group’s clean air campaigner Simon Bowens said: “Failing to fix air pollution costs lives. It also shows a failure to address the climate crisis.

“If ministers want to avoid a return to the health-damaging and illegal levels of air pollution we had before lockdown, their enthusiasm for ‘active travel’ needs to be a permanent switch and not just a short-term gap plugger.”

The Government recently announced plans to boost cycling and walking, including a pledge to build thousands of miles of bike lanes, which will be paid for by £2 billion of funding

announced earlier this year. But environmental campaigners have criticised its separate commitment to invest £27 billion in roadbuilding over the next five years.

Mr Bowens added that the Government must “end its damaging fixation on building more roads”.

Across the North West, 81 sites recorded annual averages that failed to meet air quality standards, one of which registered levels of more than 60 micrograms per cubic metre.

A Department for Environment, Food and Rural Affairs spokesman said: “Air pollution has reduced significantly since 2010 – emissions of

nitrogen oxides have fallen by 33 per cent and are at their lowest level since records began.

“But we know there is more to do, which is why we are taking urgent action to curb the impact air pollution has on communities across England through the delivery of our £3.8 billion plan to clean up transport and tackle NO2 pollution.”

Low air pollution in Tendring despite breaches across England

Date:-4-Aug-2020, Source: clactonandfrintongazette.co.uk



Good air - air pollution in Tendring is within safe limits

AIR pollution in Tendring is within safe limits despite hundreds of breaches across England, research by environmental campaigners has found.

An analysis of council reports carried out by Friends of the Earth found levels of nitrogen dioxide at more than 1,000 monitoring sites across England are failing to meet air quality targets.

The audit found there were no sites in Tendring where the average level of nitrogen dioxide exceeded 40 micrograms per cubic metre of air in 2018, the latest year for which data is available.

The average must be below 40 to meet government air quality targets, while World Health Organisation guidelines set this as a safe limit to protect public health.

According to Friends of the Earth, road traffic is the leading cause of nitrogen dioxide pollution, which can inflame the lining of the lungs and reduce immunity to infections such as bronchitis.

Drivers from poor cities can be exposed to 80% more air pollution

Date:-5-Aug-2020, Source: eurekaalert.org

Car users from the world's least affluent cities are exposed to a disproportionate amount of in-car air pollution because they rely heavily on opening their windows for ventilation, finds a first of its kind study from the University of Surrey.

According to the World Health Organisation (WHO), air pollution kills an estimated seven million people worldwide every year and nine out of 10 people breathe air with high levels of pollutants.

In a study published by the Science of the Total Environment journal, a global team of researchers led by Surrey's Global Centre for Clean Air Research (GCARE) investigated air pollution exposure levels for commuters in 10 different global cities - Dhaka (Bangladesh), Chennai (India), Guangzhou (China), Medellin (Colombia), Sa?o Paulo (Brazil), Cairo (Egypt), Sulaymaniyah (Iraq), Addis Ababa (Ethiopia), Blantyre (Malawi), and Dar-es-Salaam (Tanzania).

The research team investigated PM2.5 and PM10 exposure levels inside vehicles during peak hours in the morning and evening, as well as off-peak hours in the middle of the day. The scientists measured how exposure levels changed when drivers used recirculation systems, fans and simply opened the windows.

The study discovered that drivers in some of the world's poorest cities experienced higher levels of in-car pollution.

Irrespective of the city and car model used, a windows-open setting showed the highest exposure, followed by fan-on and recirculation. Pollution exposure for windows-open during off-peak hours was 91 percent and 40 percent less than morning and evening peak hours, respectively. The study also found that the windows-open setting exposed car passengers to hotspots of air pollution for up to a third of the total travel length.

The study found that commuters who turn on the recirculation are exposed to around 80 percent less harmful particles than those who open their car windows. Car cabin filters were more effective in removing pollution than fine particles, suggesting that if new cars had more efficient filters, it could reduce the overall exposure of car commuters.

Professor Prashant Kumar, Director of GCARE at the University of Surrey, said: "To be blunt, we need as many cars as possible off the road, or more green vehicles to reduce air pollution exposure. This is yet a distant dream in many ODA countries. Air-conditioned cars

are unattainable for many poor and vulnerable commuters across the world, but our data is clear and coherent for all 10 participating cities.

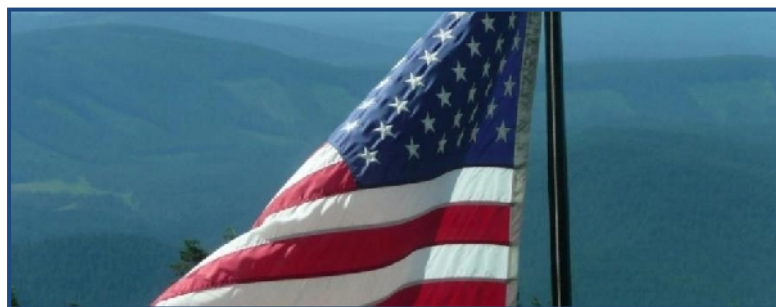
"We must now work with our global partners to make sure they have the information needed to put in place programmes, policies and strategies to protect the most vulnerable in our communities and find realistic solutions to these serious problems."

Professor Abdus Salam from the University of Dhaka said: "The study has drawn important conclusions that can help commuters make decisions in their day-to-day lives to protect their health. Simple choices, like travelling during off-peak hours, can go a long way in reducing their exposure to air pollution."

Professor Adamson S. Muula from the University of Malawi said: "Working with the GCARE team and global collaborators on this study has been an insightful experience. We were given access to affordable technology to collect novel datasets that haven't been available for cities in this part of the world. We also got to see where our cities stand in comparison to other global cities in developing countries. This has allowed for the sharing of much needed knowledge and best practices."

American air pollution laws: A history of constant amendments

Date:-6-Aug-2020, Source: downtoearth.org.in



have.

What does it mean to have a strong legality? An extensive legal structure that enumerates all the necessary steps, guidance, reporting and enforcement or is that too complicated of a system to

For the United States, managing air pollution is not a complicated structure but it hopes to recommend the necessary laws that will ensure clean air. Since its inception in 1953 into American laws, the Clean Air Act (CAA) has gone through multiple revisions.

There have been four major amendments with multiple subsidiary laws established to support the main act. The CAA now covers an extensive range of conditions for stationary and non-stationary sources of air pollution to follow with a strong enforcement mechanism.

The Environmental Protection Agency (EPA) functions to uphold the federal law at state level, by reviewing the State Implementation Plan (SIP) and creating the National Ambient Air Quality Standards (NAAQS) standards.

They review the NAAQS standards every five years through which each state has to revise their SIPs. Once the state prepares the SIP and is accepted by the EPA after review, each SIP becomes a federal law and has to abide by federal guidelines of enforcement and compliance.

The CAA also authorised the Department of Health, Education and Public Welfare (HEW), who conduct research into air pollution prevention and abatement as well as “criteria”, reflecting the health and welfare effects expected.

The HEW was also authorised to request the Department of Justice to bring suit to abate interstate air pollution, although in limited authority. Between 1970 and 2019, the combined emissions of the six common pollutants (PM_{2.5} and PM₁₀, SO₂, NO_x, VOCs, CO and Pb) dropped by 77 per cent. This progress occurred while the US economy continued to grow.

Despite many issues that the American air pollution norms have, which include factors such as poor accounting for emissions from aging equipment, there is a certain level of merit in the system. However, the economic benefits have far outweighed the cost of controlling pollution, estimated at four to eight times the cost of compliance.

The CAA has created a situation where maintaining compliance has led to technological innovation and improved health of the environment and the public.

The question that arises from this is whether we can create a similar structure in India for air pollution. The National Clean Air Programme (NCAP) has provided a pathway for the first time in detail, a method to control air pollution. However, it is an order made by the National Green Tribunal (NGT) and does not fall under a Central act, like the Environmental Protection Act or the Air Act.

There is a chance that it might become a guideline for states than an enforceable law that ensures good air quality for the citizens. The US provides policymakers in India a pathway to contextualise the merits of CAA into the NCAP.

The most common trend in all CAA amendments was the increasing role of the federal authority. The trajectory of responsibility starts at the federal level and is passed down to the states that have plenary powers.

Since the federal government has a clause for supremacy, their authority is defined over the states that have no option but to comply. Non-compliance by the state results in sanctions, civil and criminal suits.

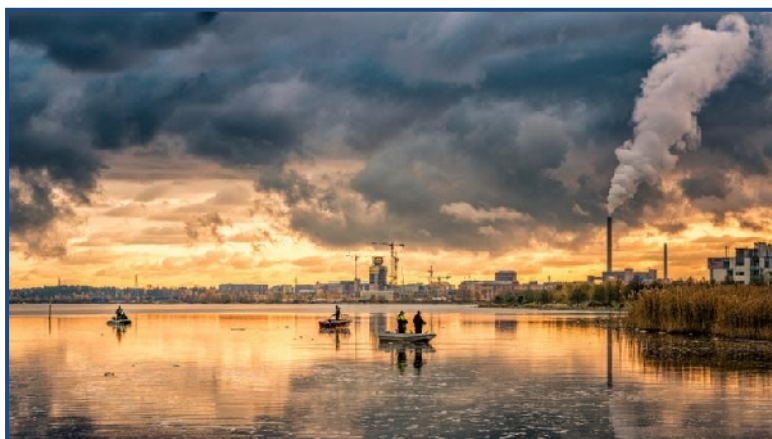
The federal government also provides for economic incentives and subsidies to help with the job of compliance. A similar delineation of power and responsibility is the need of the hour, as Indian cities are slowly being engulfed in air pollution.

The Air Act, 1981 is a strong legal act. What it needs is a revision and that too, constantly. It primarily focuses on stationary sources, ie industry specifically. There is no mechanism to include non-stationary sources like vehicular pollution or for indoor air pollution. The NCAP has been enforced by the NGT as of now, but it needs a clear direction from the central government for it to have the desired impact. The targets set in the NCAP, which have to be reduced by 20-30 per cent by 2024 from 2017 levels, are already considered weak.

However, there is a risk of not meeting those standards. The action points of the cities in their action plan lack enforcement and compliance mechanisms, methods of achieving the targets and a risk of unjustified spending from an increased budget. We can learn something from experiences of other countries, especially the US, not to translate their exact methods but to see the merit in their action for clean air.

Half of the world's population exposed to increasing air pollution, study shows

Date:-6-Aug-2020, Source: myvetcandy.com



Half of the world's population is exposed to increasing air pollution, new research has shown.

A team of researchers, led by Professor Gavin Shaddick at the University of Exeter, has shown that, despite global efforts to improve air quality, vast swathes of the world's

population are experiencing increased levels of air pollution.

The study, carried out with the World Health Organisation, suggests that air pollution constitutes a major, and in many areas increasing, threat to public health.

The research is published in leading journal *Climate and Atmospheric Science* on Wednesday, June 17th 2020.

Professor Shaddick, Chair of Data Science & Statistics at the University of Exeter said: "While long-term policies to reduce air pollution have been shown to be effective in many regions, notably in Europe and the United States, there are still regions that have dangerously high levels of air pollution, some as much as five times greater than World Health Organization guidelines, and in some countries air pollution is still increasing".

The World Health Organization has estimated that more than four million deaths annually can be attributed to outdoor air pollution.

Major sources of fine particulate matter air pollution include the inefficient use of energy by households, industry, the agriculture and transport sectors, and coal-fired power plants. In some regions, sand and desert dust, waste burning and deforestation are additional sources of air pollution.

Although air pollution affects high and low-income countries alike, low- and middle-income countries experience the highest burden, with the highest concentrations seen in Central, Eastern Southern and South-Eastern Asia.

For the study, the research team examined trends in global air quality between 2010 and 2016, against a backdrop of global 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 individual countries, regions and globally.

This methodology constitutes a major advance in the ability to track progress towards the air quality-related indicators of United Nation's Sustainable Development Goals, and to expand the evidence base of the impacts of air pollution on health.

Professor Shaddick added: "Although precise quantification of the outcomes of specific policies is difficult, coupling the evidence for effective interventions with global, regional and local trends in air pollution can provide essential information for the evidence base that is key in informing and monitoring future policies."

Windows-down driving dramatically increases exposure to air pollution

Date:-7-Aug-2020, Source: cnet.com



Air pollution is deadly. Smoke, smog and microscopic exhaust particulates can cause untold health problems for those that are exposed to them in large quantities or over long periods of time. The World Health Organization estimates that air pollution takes the lives of around 7 million people each year.

Underscoring this shocking statistic, a study released by the Global Centre for Clean Air Research at the University of Surrey in the UK reveals that commuters in 10 of the world's poorest cities are exposed to

high levels of in-car pollution. Researchers examined the air in metropolises like Chennai, India; Cairo, Egypt; and Addis Ababa, Ethiopia.

Not surprisingly, windows-down motoring exposed drivers to the most airborne grime, though passengers are not immune to filthy air, either. In testing, it was found that they were exposed to high levels of pollution for as much as a third of their total travel time.

Researchers also took measurements with vehicle HVAC systems running. Operating the fan with the windows up certainly helped but using recirculation mode significantly reduced exposure to harmful particulates, dropping it by around 80%. Naturally, cabin air filters can remove some of the pollution from recirculated air.

Using recirculation mode is not always an option in hotter locales, but there is one thing you can do to reduce your exposure to air pollution. Driving or traveling during off-peak hours can lower windows-down exposure by 91% in the morning and by as much as 40% in the evening.

Using vehicles fitted with air conditioning would certainly help limit exposure as well, as would switching to a fleet of new, emissions-free electric cars and trucks. But for disadvantaged drivers in poor cities neither of these options are likely to be economically viable.

Air pollution is a pressing global issue. Sadly, it's one that seems unsolvable, at least in the immediate future.

Air pollution is decreasing our average lifespan by two years

Date:-8-Aug-2020, Source: thestar.com



Air pollution in certain countries is so bad that it is cutting average local lifespans by up to eight years

Air pollution cuts life expectancy for every man, woman and child on Earth by nearly two years, according to data released on July 28 (2020), which experts say show that poor air quality is “the greatest risk to human health”.

The Air Quality Life Index (AQLI) says that as the world races to find a vaccine to bring the Covid-19 pandemic under control, air pollution would

continue to cause billions of people to lead shorter and sicker lives across the globe.

The index converts particulate air pollution – mainly from the burning of fossil fuels – into its impact on human health.

It found that despite significant reductions in particulate matter in China – once one of the world’s most polluted countries – the overall level of air pollution had stayed stable over the past two decades.

In countries such as India and Bangladesh, air pollution is so severe that it now cuts average lifespans in some areas by nearly a decade.

The research authors say that the quality of the air many humans breathe constitute a far higher health risk than Covid-19.

“Though the threat of the coronavirus is grave and deserves every bit of the attention it is getting, embracing the seriousness of air pollution with a similar vigour would allow billions of people to lead longer and healthier lives,” says AQLI creator and University of Chicago Milton Friedman Professor in Economics, the College and the Harris School Dr Michael Greenstone.

Nearly a quarter of the global population lives in just four south Asian countries that are among the most polluted: Bangladesh, India, Nepal and Pakistan.

AQLI found that these populations would see their lifespan cut by five years on average, after being exposed to pollution levels 44% higher than 20 years ago.

It says that particulate pollution was also a “significant concern” across South-East Asia, where forest and crop fires were combining with traffic and power plant fumes to create toxic air.

Some 89% of the region’s 650 million people live in areas where air pollution exceeds the World Health Organization’s (WHO) recommended guidelines.

While places such as the United States, Europe and Japan have succeeded in improving air quality, pollution still takes an average of two years off life expectancy worldwide, AQLI says.

Bangladesh was found to have the worst air quality of any country, and around 250 million residents of India’s northern states will lose eight years of life on average unless pollution is brought under control.

Several studies have shown that exposure to air pollution is also a key Covid-19 risk factor and Prof Greenstone urges governments to prioritise air quality after the pandemic.

“No shot in the arm will alleviate air pollution,” says the Energy Policy Institute at the University of Chicago director.

Smart Fire Use Encouraged To Reduce Air Pollution

Date:-9-Aug-2020, Source: scoop.co.nz

Tairāwhiti residents are reminded to only burn dry, suitable firewood and keep chimneys clean and maintained to minimise air pollution.

During winter air quality usually declines due to smoke from woodburners and domestic fires. The National Environmental Standards for Air Quality (NESAQ) sets a minimum level of health protection for all New Zealanders. Councils are required to monitor levels of Particulate Matter of less than 10 micrometres in diameter (PM10) to meet the set health protection levels.

Particles larger than 20 micrometers in size are easily visible and can cause nuisance effects such as dust and ash on surfaces like window sills. Small sized particles (less than 10 micrometres) are known to cause health effects. Breathing in these tiny suspended particles can be harmful as they end up in the airways, lungs or even enter the bloodstream.

Earlier this year Council's air quality monitoring equipment was upgraded to more modern technology that measures PM2.5 as well as PM10. This winter there has been eight exceedances of the permissible level for PM10 – this is likely due to the more sensitive monitoring equipment.

To help improve our air quality and avoid smoking out your neighbour, here are some fire tips to reduce air pollution:

- Use dry wood – it gives more heat and causes less pollution. Wood needs around 12 months to dry out before burning.
- Do not burn driftwood in your fireplace – it creates a corrosive smoke which is likely to cause damage to the fireplace as well as release contaminants such as dioxin.
- Keep your wood dry – store the wood undercover out of the rain and make sure air can flow around it.
- Check your fireplace – clean the flue or chimney every year.
- Never burn rubbish, treated wood or painted timber as they release chemicals.
- Check the smoke coming out of your chimney – a clear emission usually means an efficient fire and less pollution.
- Dispose of ashes once they're cold, do not place on veggie gardens as arsenic is a contaminant product from the combustion process.

Essex air pollution to rise to 'high' tomorrow - with storms in the evening

Date:-10-Aug-2020, Source: gazette-news.co.uk



AIR pollution in Essex could rise to high levels over the next few days due to rising temperatures.

The London Air Quality Network is reporting that the high levels of air pollution could continue across Tuesday and Wednesday.

The network is encouraging those with conditions such as lung and heart problems, along with asthma, to reduce the amount of physical exertion they go through.

There are also thunder showers forecast for tomorrow evening.

A spokesman said: "The weather forecast is for another fine day turning hot or very hot by late morning and continuing into the evening with plenty of sunshine and light winds.

"There is a possibility of thundery showers in the early evening.

"An gentle easterly breeze will continue throughout the forecast period, this will increasing further the temperatures and ground level ozone formation along with imported ozone from the continent causing levels to rise.

"High levels of Ozone are possible along with possible Moderate Particulate levels.

"This forecast is intended to provide information on expected pollution levels in areas of significant public exposure.

"It may not apply in very specific locations close to unusually strong or short-lived local sources of pollution."

Air pollution in the winter linked to more hospitalizations for strokes

Date:-11-Aug-2020, Source: news-medical.net

Scientists have found that air pollution in the winter is associated with more hospitalizations for all strokes in Dublin.

The study, led by researchers from RCSI University of Medicine and Health Sciences, is published in the current edition of Cerebrovascular Diseases.

During winter months in Ireland, particularly in Dublin, higher levels of fine particles, coarse particles, sulphur dioxide and nitrogen dioxide are found in the air. The sources of these are solid fuel burning, such as coal, peat, and wood, as well as road traffic - especially diesel engines.

After accounting for other variables, such as temperature, humidity, day of the week and time, the researchers found that there was a statistically significant rise in the number of hospitalisations for strokes in Dublin zero to two days after a rise in air pollution.

For higher levels of nitrogen dioxide and sulphur dioxide, the researchers found both had an associated 3.5% higher risk of stroke. Higher levels of coarse particles correlated with a 3.2% higher risk, and finer particles correlated with a 2.4% higher risk.

The study marks the first time there has been a link demonstrated between short-term air pollution and stroke in Ireland.

There was no significant association for all air pollutants found in the smaller urban area of Cork, but meta-analysis showed a significant association between hospitalisations for strokes and higher levels nitrogen dioxide and fine particles in the air.

"Because Ireland has relatively low air pollution when compared internationally, this highlights the need to introduce additional policy changes to reduce air pollution in all countries," said Professor David Williams, professor of stroke medicine at RCSI.

China's plan to boost railway freight falls behind target, knocking air pollution battle off track

Date:-12-Aug-2020, Source: sg.news.yahoo.com

China's ambitious three-year plan to boost railway cargo volume and reduce long-distance trucking – a key plank in Beijing's campaign to cut air pollution – is falling behind schedule, according to official data and media reports.

Under the plan, which was introduced by the central government in 2018, China's "transport structure" was to be improved by shifting the movement of bulk cargo such as minerals from dirty, diesel-burning trucks to cleaner electric-powered railcars.

By 2020, at least 80 per cent of industrial and mining firms with an annual bulk cargo volume above 1.5 million tonnes – an amount that would cover most mining sites and smelters – was to be connected to the railway system.

Get the latest insights and analysis from our Global Impact newsletter on the big stories originating in China.

In addition, all major ports were told to move transport of iron ore and coal from trucks to ships and railways.

However, official data shows the plan is lagging far behind schedule and there is little prospect that targets will be met by year-end.

For example, the Port of Tianjin, one of the major harbours in northern China, said railway transport accounted for only 64 per cent of iron ore moved from the entrepot in the first half of this year, though this was an improvement from 50 per cent for all of 2019.

The lack of railway cargo is forcing some key freight lines to run below designated capacity, including the Haoji Railway, which started operations last year as the world's longest special coal transport railway, connecting the coal hub of Inner Mongolia with central and southern China.

The 1,800km rail line has a transport capacity of 200 million tonnes per year, and the state-owned China Railway Group, which operates the national railway system, said it hoped it could transport 60 million tonnes of coal this year.

But in the first six months, the rail line carried just 9.7 million tonnes of coal.

Zhao Jian, a professor in the economics department at Beijing Jiaotong University, said China Railway Group's monopoly over the railway system has resulted in inefficiency and a mismatch in market demands, according to a report in China Business, a local newspaper.

The country's vast railway freight system is managed under 18 different regional bureaus and there is little incentive to improve coordination of services, he said. And despite the extensive network, the average freight mileage was just 700km, Zhao was quoted as saying.

The Chinese government has encouraged industrial and mining enterprises to build their own railways to connect to the state system, but many are dragging their feet on the investment.

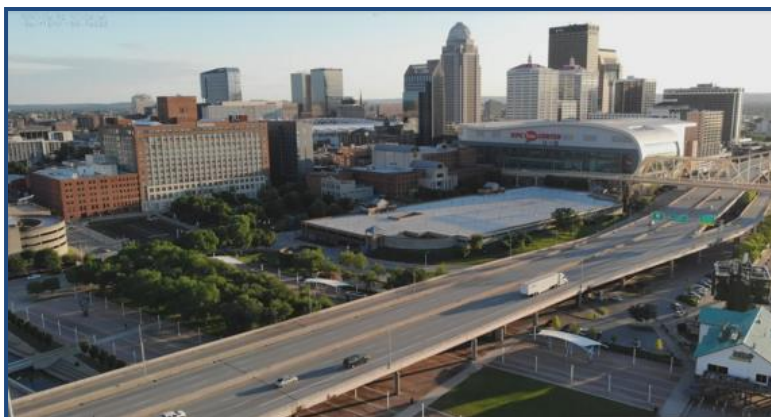
In 2019, the National Development and Reform Commission, the country's economic planning agency, approved 127 mini railway projects – with lengths ranging from 1km to 64km – to solve the so-called last mile problem in the freight system, but it has not provided any state support.

China's total railway freight increased 3.6 per cent year-on-year in the first half to 1.7 trillion tonnes, or about 47 per cent of the full-year target of 3.65 billion tonnes, according to China Railway Group.

Louisville Air Pollution Improving, But Ozone Problems Remain

Date:-13-Aug-2020, Source: wfpl.org

Louisville's air quality officially met the national standard for sulfur dioxide this week for the first time since 2013, but it continues to struggle with unhealthy levels of ozone, according to the U.S. Environmental Protection Agency.



The designation comes about eight years' after Louisville Gas & Electric invested nearly \$1 billion in pollution controls at the Mill Creek coal-fired power plant — the county's largest source of sulfur dioxide (SO₂).

The EPA's designation is evidence of Louisville's improving air quality, but it also highlights the more stubborn challenge that remains: ozone. There is no one single source for the pollutants that make ozone, and it's going to require broader community participation to meet the national standard.

Those are the results of a new report drafted by Louisville's air quality regulator, the Air Pollution Control District, in coordination with more than three dozen local and national non-profits, businesses and other government agencies.

"There is no SO₂ scrubber kind of magic solution," said Michelle King, APCD Director of Program Planning. "Because there (are) just so many different sources and products that, that is something that is more of a challenge for us."

Improving air quality plays a big role in human health. In fact, researchers studied this exact thing in Louisville and found 400 fewer hospital visits for asthma attacks in the year after LG&E added pollution controls on Mill Creek.

But while the benefits of improving air quality help everyone, the detriments of pollution, including ozone and SO₂, disproportionately impact disadvantaged communities. For example, the 2017 Louisville Metro Health Equity Report found nearly double the rates of inpatient asthma admissions among the city's Black residents.

"We all need to understand there are health impacts from ozone non-attainment," King said. "In some ways it's the underlying health conditions that can be exacerbated by the same air quality in two different neighborhoods."

Ground level ozone forms when oxides of nitrogen (NO_x) and volatile organic compounds (VOCs) react in the presence of sunlight. The hotter and drier it is, the more ozone is created. That's why Louisville's ozone season runs from March through October when the days are longer and warmer.

NO_x is a side effect of combustion, which isn't great for a society that still largely derives its energy from burning fossil fuels. LG&E's Mill Creek and Trimble County coal-fired power plants are still the two largest industrial emitters of NO_x, and industrial sources overall are

largest contributors to NOx pollution in the city, but emissions from vehicles are another large contributor, according to APCD's Multipollutant Stakeholder Report.

The planes at Louisville's airport, cars and trucks also contribute to the VOCs in the air, but as a whole the area's single largest emitters can be traced back to bourbon, King said. In 2017, the latest data available, Jim Beam's Clermont plant had the highest emissions in the region, followed by Heaven Hill, Brown-Forman and Four Roses distilleries, according to the report.

The largest overall share of VOCs come from what are called non-point sources and include everything from body shops, to dry cleaning, to woodworking. Much of that is due to the use of solvents in industrial, commercial and residents cleaning products.

A study within APCD's report concluded Louisville would see the largest ozone benefit by reducing NOx, though it also noted it would help Louisville's urban core to reduce VOCs.

APCD brought together a coalition of more than three dozen organizations to help the city reach the national standard. The group included many of the largest emitters of the pollution that forms ozone.

For example, LG&E, Brown-Forman, Heaven Hill and Kosmos Cement Company worked alongside government agencies and non-profits to come up with recommendations for how to improve the city's air quality.

The recommendations are numerous. Here are a few: Start a list of planned pollution reductions from stakeholders, encourage action from large emitters on air quality alert days, encourage energy efficiency projects and technology improvements that limit pollution, and implement strategies to expand the use of electric vehicles and bicycles.

LG&E made a commitment even before the report was released. In April, the county's electricity and natural gas provider agreed to reduce NOx emissions at its Mill Creek plant from a high of as much as 36 tons per day to at or below 15 tons per day during Louisville's ozone season.

APCD has already begun sharing the report's recommendations with Louisville Metro Government and the EPA, but many of the improvements will require broader community involvement, said King with APCD.

"Air quality is something we all own," King said. "It goes from government and large industry all the way down to residents to really own air quality and understand why it's so important."

Air pollution in China drops by 10% owing to coronavirus restrictions

Date:-14-Aug-2020, Source: indiatoday.in



disinfection in Beijing

China saw average concentrations of lung-damaging airborne particles known as PM2.5 fall by 10.8 per cent from January to July as industry slowed because of the coronavirus, data showed on Friday, though levels were still well above WHO recommendations.

Average PM2.5 stood at 33 micrograms per cubic metre over the seven months, according to data collected from monitoring stations in more than 300 cities, the Ministry of Ecology and Environment said.

China's national standard is 35 micrograms, though the World Health Organization (WHO) recommends levels of no more than 10.

PM2.5 is caused by the burning of fossil fuels and other industrial processes and is associated with a range of health problems, including respiratory disease and cancer.

The environment ministry said the improvement in air quality throughout the country in February and March was "incomparable" after the government imposed lockdowns to prevent the spread of the novel coronavirus, which cut industrial activity and traffic.

But environmental groups have warned that China might turn a blind eye to industrial polluters and rely on energy-intensive processes to try to reverse the economic impact of the pandemic in the second half of the year.

"There was a temporary pollution increase in April but it quickly went down in May," said Li Shuo, senior energy and climate analyst with Greenpeace. "We need to see if July represents the beginning of a larger trend."

In July, average PM2.5 levels fell 5 per cent, but some regions saw a rebound. The capital, Beijing, saw average PM2.5 rise 10.8 per cent to 41 micrograms. The smog-prone Beijing-Tianjin-Hebei region as a whole jumped 5.9 per cent to 36 micrograms.

"Industrial outputs are coming back to pre-Covid levels," said Li.

"Sometimes air quality would correspond with that, sometimes not. Weather and other conditions play a role here too."

Opinion/Commentary: Fine-particle air pollution has decreased — for some people

Date:-16-Aug-2020, Source: [dailyprogress.com](https://www.dailyprogress.com)

Air pollution contributes to as many as 9 million premature deaths worldwide each year — twice as many as war, other violence, HIV/AIDS, tuberculosis and malaria combined.

Fine particulate matter air pollution is especially dangerous: Microscopic particles readily enter the lungs, bloodstream and brain, with health effects that include infant death, reduced life expectancy for adults, cancer, lung disease and heart disease.

Fine particle matter pollution concentrations in the United States have declined by roughly 70% since 1981. However, in a newly published study, we show that the areas that were most polluted in 1981 are still the most polluted today, and the least polluted areas in 1981 are still the least polluted today.

Areas that were whiter and richer in 1981 have become relatively less polluted over time. Areas that became whiter and richer between 1981 and 2016 have become relatively less polluted over time. In contrast, the neighborhoods and population groups that were most exposed to fine particle pollution 40 years ago — disproportionately low-income and minority communities — are still exposed to higher pollution levels.

As scholars who focus on environmental economics and public policy, we believe that the persistence of air pollution disparities matters. We care about who is advantaged and disadvantaged. In addition, our results have implications for environmental public policy. To the extent that policy aims to reduce pollution disparities, the job is far from finished.

Mapping pollution

Researchers have known for decades that air pollution varies across locations due to economic activity, climate and other factors. It is also well documented that lower-income households, people of color and other disadvantaged communities are disproportionately exposed to air pollution. Since research shows that air pollution is associated with early death, lower educational attainment and lower lifetime earnings, these differences promote economic, health and social inequality.

What has not been clear is how much air pollution disparities have changed over time. We wanted to understand particulate matter air pollution disparities in a more systematic way, for the entire U.S. over many years.

Until recently, the information needed to answer this question simply wasn't available. The U.S. Environmental Protection Agency monitors levels of fine particle pollution, known as PM_{2.5}, nationwide. But its monitors offer relatively sparse coverage and are concentrated in disproportionately urban locations.

In our study, we leverage newly available data that captures PM2.5 concentrations at more than 8.6 million distinct U.S. locations from 1981 through 2016. These data were constructed from satellite observations and pollution transport modeling, along with pollution monitor records. They provide a detailed year-by-year picture of fine particulate matter concentrations for each of the roughly 65,000 Census tract “neighborhoods” in the United States.

Persistent disparities

Our analysis shows that there has been some progress over the past 35 years in reducing gaps between the most polluted and least polluted locations. In 1981 PM2.5 concentrations in the most polluted 10% of census tracts averaged 34 micrograms per cubic meter. PM2.5 concentrations in the least polluted 10% of census tracts averaged 13 micrograms per cubic meter. The difference was 22 micrograms per cubic meter.

In 2016 PM2.5 concentrations in the most polluted 10% of census tracts averaged 10 micrograms per cubic meter. PM2.5 concentrations in the least polluted 10% of census tracts averaged 4 micrograms per cubic meter. The difference was 6 micrograms per cubic meter.

These reduced gaps likely imply that differences in pollution-induced health, wealth and productivity across locations are also declining. But while pollution gaps have declined for some disadvantaged communities, this hasn’t been universal.

Next we wanted to see whether specific locations had more or less pollution than other locations, and whether the most polluted locations were the same through time. To explore these questions, we ranked each neighborhood from most polluted to least polluted for every year that we had data.

We then evaluated how these rankings changed between 1981 and 2016, and found that they remained remarkably persistent. The most polluted areas in 1981 remain the most polluted areas today, and the least polluted areas in 1981 remain the least polluted areas today. Communities that were disadvantaged in 1981 remain exposed to higher levels of pollution today. If anything, relative disparities have worsened for poorer and Hispanic communities.

While PM2.5 concentrations decreased nationwide between 1981 and 2016, the same areas generally are still most and least polluted.

A disproportionate share of the most polluted areas over the past 40 years are in Southern California, while the least polluted areas are more dispersed across the U.S. As an example, a child born in Los Angeles County in 2016 was exposed to 42% more fine particle pollution than the average child born in the United States, and 26% more pollution than a child born in New York City.

A few areas did see improvements or declines in their relative standing. Ohio, West Virginia, eastern Kentucky and the Northeast Corridor became relatively less polluted from 1981 through 2016. California's Central and Imperial valleys, southwestern Arizona, southern Texas and portions of Arkansas and Oklahoma became relatively more polluted.

Equity and policy

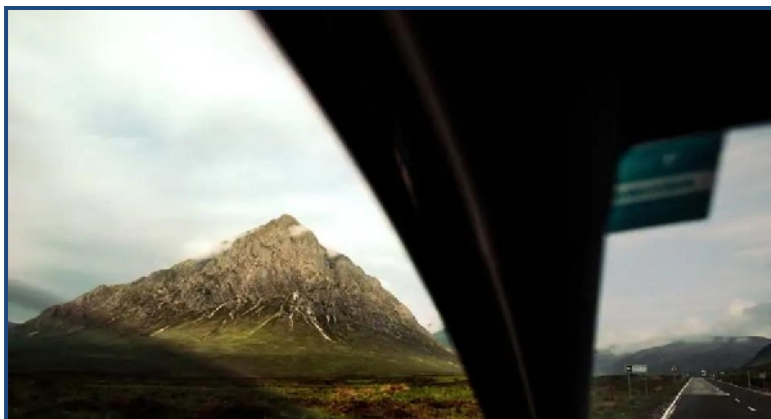
Our findings underline the scope, scale and persistence of air pollution disparities in the United States. But if particulate matter air quality has improved over time — which should translate into improvements in health, wealth and productivity for most Americans — why should we be concerned about relative disparities between some locations and others?

In our view, persistent disparities between the most and least polluted communities matter because fairness, equity and justice are relative concepts. We define them based on who is advantaged and who is disadvantaged at any given time. Pollution disparities translate into health, economic and social disparities.

For decades, federal and state environmental guidelines have aimed to provide all Americans with the same degree of protection from environmental hazards. The EPA's definition of environmental justice states that "no group of people should bear a disproportionate share of the negative environmental consequences." On this front, our research suggests that the United States is falling short.

Drivers who keep their car windows open likely to be exposed to more air pollution: Study

Date:-17-Aug-2020, Source: hindustantimes.com



The scientists measured how exposure levels changed when drivers used recirculation systems, fans, and simply opened the windows.

A first-of-its-kind study from the University of Surrey finds that car users from the world's least affluent cities are exposed to a disproportionate amount of in-car air pollution because they rely heavily on opening their windows for

ventilation.

According to the World Health Organisation (WHO), air pollution kills an estimated seven million people worldwide every year, and nine out of 10 people breathe air with high levels of pollutants.

In a study published by the Science of the Total Environment journal, a global team of researchers led by Surrey's Global Centre for Clean Air Research (GCARE) investigated air pollution exposure levels for commuters in 10 different global cities -- Dhaka (Bangladesh), Chennai (India), Guangzhou (China), Medellin (Colombia), Sao Paulo (Brazil), Cairo (Egypt), Sulaymaniyah (Iraq), Addis Ababa (Ethiopia), Blantyre (Malawi), and Dar-es-Salaam (Tanzania).

The research team investigated PM2.5 and PM10 exposure levels inside vehicles during peak hours in the morning and evening, as well as off-peak hours in the middle of the day. The scientists measured how exposure levels changed when drivers used recirculation systems, fans, and simply opened the windows.

The study discovered that drivers in some of the world's poorest cities experienced higher levels of in-car pollution.

Irrespective of the city and car model used, a windows-open setting showed the highest exposure, followed by fan-on and recirculation. Pollution exposure for windows-open during off-peak hours was 91 per cent and 40 per cent less than morning and evening peak hours, respectively. The study also found that the windows-open setting exposed car passengers to hotspots of air pollution for up to a third of the total travel length.

The study found that commuters who turn on the recirculation are exposed to around 80 per cent less harmful particles than those who open their car windows. Car cabin filters were more effective in removing pollution than fine particles, suggesting that if new cars had more efficient filters, it could reduce the overall exposure of car commuters.

Professor Prashant Kumar, Director of GCARE at the University of Surrey, said: "To be blunt, we need as many cars as possible off the road, or more green vehicles to reduce air pollution exposure. This is yet a distant dream in many ODA countries. Air-conditioned cars are unattainable for many poor and vulnerable commuters across the world, but our data is clear and coherent for all 10 participating cities.

"We must now work with our global partners to make sure they have the information needed to put in place programmes, policies and strategies to protect the most vulnerable in our communities and find realistic solutions to these serious problems."

Professor Abdus Salam from the University of Dhaka said: "The study has drawn important conclusions that can help commuters make decisions in their day-to-day lives to protect their health. Simple choices, like travelling during off-peak hours, can go a long way in reducing their exposure to air pollution."

Professor Adamson S Muula from the University of Malawi said: "Working with the GCARE team and global collaborators on this study have been an insightful experience. We were given access to affordable technology to collect novel datasets that haven't been available

for cities in this part of the world. We also got to see where our cities stand in comparison to other global cities in developing countries. This has allowed for the sharing of much-needed knowledge and best practices.”

Professor David Sampson, Pro-Vice-Chancellor for Research and Innovation at the University of Surrey, said: “I commend Professor Kumar and his GCARE team for their continued global leadership in air quality challenges around the world. The collaborative research of the GCARE team represents best in class, taking evidence from quality science and turning it into a leading-edge policy for the betterment of all.”

The study was part of the Clean Air Engineering for Cities (CArE-Cities) project. CArE-Cities is a seed funding project, awarded by the University of Surrey under the Research England’s Global Challenge Research Funds.

CArE-Cities involves 11 Development Assistance Committee (DAC) listed countries and aspires to bring cleaner air to cities by building a knowledge exchange platform. Its activities include joint workshops, researchers exchange and pilot studies to address urban development and health impact assessment agendas in ODA countries.

Bay Area fires: Spare the Air alerts issued through Wednesday, smoke blankets the Peninsula

Date:-18-Aug-2020, Source: mercurynews.com



BRENTWOOD, CA – AUGUST 16: Smoke from a vegetation fire caused by a lightning strike rises into the sky as seen from Marsh Creek Road in Brentwood, Calif., on Sunday, Aug. 16, 2020. A severe lightning storm caused several fires near the Round Valley Regional Preserve and Morgan Territory Regional Preserve.

The Bay Area Air Quality Management District has issued Spare the Air alerts in effect through Wednesday, making it illegal for Bay Area residents to burn wood or other solid fuel until the alert is lifted.

The alerts come as smoke and particulate pollution lingers in the Bay Area following a weekend of wildfires.

“Multiple wildfires inside and outside of the Bay Area are creating an unhealthy

breathing environment,” said Jack Broadbent, executive officer of the Air District. “With the added risk of COVID-19 on respiratory health, it’s crucial that we all do our part to reduce air pollution and take precautions to reduce exposure.”

Bay Area residents are encouraged to stay inside with the doors and windows closed if possible to avoid exposure. If temperatures indoors are too high, the district recommends residents visit a cooling center or another building with filtered air.

The district is also extending the air quality advisory through Thursday “at least” as a result of smoke from a weekend of wildfires, a district spokesperson said Tuesday morning.

The smoke is heaviest on the Peninsula, where a wildfire is burning in San Mateo County, and in the East Bay cities of Livermore, Dublin and Pleasanton, according to spokesperson Erin DeMerritt.

However, DeMerritt said, those numbers could change as the wildfires continue to blaze around the Bay, and areas near and downwind of the fires could continue to see elevated readings. By early evening, smoke had settled across the Peninsula.

“Things are changing very rapidly because the firefighters haven’t gotten a handle on this fire as quickly as we thought they would,” DeMerritt said.

As of Tuesday evening, there was zero containment of any of the fires burning around the Bay Area, including 25,000 acres in Santa Clara County and 12,000 acres in Napa County.

Government to introduce legally binding air pollution targets

Date:-19-Aug-2020, Source: [airqualitynews.com](https://www.airqualitynews.com)



The government has set out plans to introduce legally binding targets to improve air pollution and combat waste.

In an announcement made today (August 19), the government has set out plans to introduce targets under the Environment Bill to combat environmental and climate challenges.

The four priority areas will include support for improving air quality, this will involve the introduction of targets which focus specifically on reducing particulate matter (PM2.5).

Another potential target will look to increase resource productivity and reduce waste and plastic pollution.

Further targets will also work to restore and improve biodiversity and tackle water pollution.

The Environment Bill was suspended due to the COVID-19 pandemic but the Public Bill Committee is scheduled to report by September 29.

To set these targets, Defra will collaborate with independent experts and stakeholders and the new environmental watchdog, the Office for Environmental Protection, will report annually on progress to hold the government to account.

Environment secretary George Eustice said: ‘The targets we set under our landmark Environment Bill will be the driving force behind our bold action to protect and enhance our natural world – guaranteeing real and lasting progress on some of the biggest environmental issues facing us today.

‘I hope these targets will provide some much-needed certainty to businesses and society, as we work together to build back better and greener.’

Kate Norgrove, executive director of advocacy and campaigns at WWF-UK commented on this announcement: ‘Legally binding targets are critical, but we need detail and urgency.

‘To address the nature crisis, we need these legally binding targets in the UK now – but just as urgent is the need to tackle the environmental damage we import.

‘A credible Environment Bill has to help protect the Amazon and other disappearing habitats with tough new nature laws to eliminate deforestation from the products we buy.’

Bristol City Council to backtrack on Clean Air Zone

Date:-20-Aug-2020, Source: airqualitynews.com



Bristol City Council to backtrack on the proposed Clean Air Zone (CAZ), instead looking for an ‘alternative option to improve air quality without charging.’

This announcement follows a similar statement made by Leeds City Council yesterday (August 19) on the suspension of the city’s Clean Air Zone for the foreseeable future.

Air pollution has significantly declined during the COVID-19 pandemic and according to Bristol council, the latest air quality data has demonstrated that despite traffic levels

increasing, the city centre's pollution has remained relatively low and therefore the CAZ is no longer needed.

If air pollution remains below the legal limits then councils will no longer have financial support from the government to introduce the CAZs.

Bristol City Council has instead proposed to continue accelerating transport improvements, such as a return to improved public transport links, increased walking and cycling routes and pedestrianising areas like the Old City. Mayor of Bristol, Marvin Rees, said: 'Our plans have always been about cleaning up our air in the fastest possible time and not being anchored to one method. We must be flexible in our approach and work together to get this right as a city.'

Katie Nield, clean air lawyer at Client Earth commented: 'Despite all the money already invested into introducing Clean Air Zones all across the country, the Government now looks to be eyeing a U-turn.' Bizarrely, ministers appear to be freezing funding for the schemes due to apparent improvements to air pollution caused by the lockdown.

'This is incredibly short-sighted. We know that any positive impacts on air quality prompted by the extraordinary circumstances surrounding lockdown are likely to be short-lived.

'If the Government is truly committed to a green and clean recovery, it cannot allow short-term dips in harmful pollutants to prompt row backs on action to clean up the air we breathe and protect people's health in the longer term.'

Air quality alert issued in Fairfield, New Haven counties

Date:-21-Aug-2020, Source: ctpost.com



The National Weather Service has issued an air quality alert for Friday for Fairfield and New Haven counties.

The National Weather Service issued an air quality alert for southern Fairfield and New Haven counties on Friday.

Officials said there could be poor air quality from 11 a.m. to 11 p.m. Friday.

"An Air Quality

Action Day means that Ground Level Ozone within the region may approach or exceed unhealthy standards,” the NWS said.

Often called smog, ozone pollution is harmful to breathe. Ozone aggressively attacks lung tissue by reacting chemically with it. When ozone is present, other harmful pollutants can be created.

Ozone develops in the atmosphere from gases that come out of tailpipes, smokestacks and many other sources. When these gases come in contact with sunlight, they react and form ozone smog.

The American Lung Association “State of the Air Report” has given Connecticut an F for high levels of ozone pollution. The annual air quality report card tracks Americans’ exposure to unhealthy levels of ozone and particle pollution, both of which can be deadly.

The methodology of the report determined a “weighted average” of ozone pollution based on the number of “orange” and “red” days.

Orange days are when the air quality index is between 101 and 150, on days when temperatures are in the 80s and 90s and winds are light. Red days are when air quality index is between 151 and 200, on days that are hot, hazy and humid, the air is stagnant and skies are sunny with little chance of precipitation.

Fairfield County has the highest number of high ozone days in Connecticut with an average of 25.8 days. Last year, it had 42 orange days and 18 red days.

Air Quality Alert in place for Treasure Valley; placed in 'orange' category

Date:-22-Aug-2020, Source: ktvb.com

BOISE, Idaho — The Idaho Department of Environmental Quality issued an Air Pollution Forecast and Caution to notify residents of the Treasure Valley of unhealthy air quality.

The air quality is currently in the unhealthy category and is "unhealthy for sensitive groups category."

Sensitive persons should limit the amount of time spent outdoors for the duration of the unhealthy air alert, as well as limit prolonged or heavy exertion. The general public should not be affected.

More information can be found by contacting DEQ's Regional Office in the Treasure Valley, at (208) 373-0550 or the Magic Valley, at (208) 736-2190. You can also visit DEQ's website.

Woodstove Burning Restrictions: Voluntary burn ban for residential wood-burning activities

Outdoor Burning Restrictions: All outdoor open burning is prohibited by the Department of Environmental Quality in accordance with local ordinances. The air quality alert is set to expire Monday at 3 p.m.

Wildfires bring smoke to the Central Valley

Date:-23-Aug-2020, Source: maderatribune.com



Wendy Alexander/The Madera Tribune

Smoke from fires in Northern and Southern California and from western Fresno County made its way to Madera County, as seen coming through State Route 41 on Thursday. Smoke from the fires made for an unhealthy day, according to the San Joaquin Air Pollution District.

District cautions residents of increasing health impacts

Multiple wildfires surrounding the Valley are causing smoke impacts to all counties of the Valley air basin. As a result, the San Joaquin Valley Air Pollution District is issuing a health caution, which will remain in place until the fires are

extinguished.

The Canyon Fire, located in Stanislaus County near Turlock; the Hills Fire, located in Fresno County west of Avenal near Highway 33; and the Lake Fire located in Los Angeles County southeast of Lebec are producing smoke that is infiltrating into the San Joaquin Valley, which includes San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare counties, and the valley portion of Kern county. Air pollution officials caution Valley residents to reduce exposure to the particulate matter (PM) emissions by remaining indoors in effected areas. PM pollution can trigger asthma attacks, aggravate chronic bronchitis, and increase the risk of heart attack and stroke. Individuals with heart or lung disease should follow their doctors' advice for dealing with episodes of PM exposure. Those with existing respiratory conditions, including COVID-19, young children and the elderly, are especially susceptible to the health effects from this form of pollution. Anyone experiencing poor air quality due to wildfire smoke should move indoors to a filtered, air-conditioned environment with windows closed. The common cloth and paper masks in dividuals are wearing due to COVID-19 concerns may not protect them from wildfire smoke. Residents can use the District's Real-time Air Advisory Network (RAAN) to track air quality at any Valley location by visiting myRAAN.com. District air monitoring stations are designed to

detect microscopic PM 2.5 particles that exist in smoke. However, larger particles, such as ash, may not be detected. If you smell smoke or see falling ash in your immediate vicinity, consider air quality “unhealthy” (RAAN Level 4 or higher) even if RAAN displays lower level of pollution. The public can also check the District’s wildfire page at www.valleyair.org/wildfires for information about any current and recently past wildfires affecting the Valley. In addition, anyone can follow air quality conditions by downloading the free “Valley Air” app on their mobile device. For more information, visit www.valleyair.org or call a district office in Fresno (559-230-6000), Modesto (209-557-6400) or Bakersfield (661-392-5500).

Despite lockdown, air pollution continues to rise. Here’s why

Date:-24-Aug-2020, Source: esquireme.com



One of the (few) positives of the global pandemic has been its effect on the environment.

The world saw the return of an extinct species, wildlife returned to cities it had otherwise abandoned, and overall the world seemed to benefit from humanity locking themselves down for a bit.

Greenhouse gas emissions have also come down; however, that doesn’t mean air pollution has dropped. In fact, the opposite is true: dangerous atmospheric

carbon dioxide is its highest in history.

According to Inverse, dioxide levels were higher during the pandemic than in the same period in 2017 and 2018. And the reason for that is a tad scary.

While overall emissions from the likes of China, India and the United States dropped dramatically during lockdown, emissions from both Australian and US bushfires have contributed greatly to the increase of carbon dioxide.

Deforestation (due to fires or the farming industry) obviously removes trees, which tend to absorb carbon dioxide making it doubly troubling.

Despite some good news for the environment due to the coronavirus pandemic, it’s clear going into lockdown for a few months hasn’t solved the issue of carbon dioxide in the atmosphere.

Wildfire haze, record heat and pollution combine to make Front Range air quality dangerous for all

Date:-25-Aug-2020, Source: dailycamera.com



Haystack Mountain, left, and the foothills are seen through the smoke while looking west from Somerset Drive near Colo. 52 in Boulder County on Aug. 24, 2020. Several major wildfires continue to burn across

Beyond wildfire smoke, the air quality in Denver has deteriorated as residents also are barraged with infusions of multiple lung-irritating pollutants — including ozone, which has spiked in recent days to levels 28% above federal health limits.

Ground-level ozone levels in metro Denver this week reached as high as 90 parts per million,

exceeding the health limit of 70 ppm, state monitoring data shows. Ozone levels at 11 of the 15 air-testing sites broke that health limit. Ozone causes acute respiratory problems and triggers asthma attacks.

Colorado public health officials issued a special “multiple pollutants” alert through at least 4 p.m. Tuesday. Health authorities focused most urgently on the harm from inhaling tiny “particulates” spreading in the smoke from burning forests and grasslands. California’s big fires brought more smoke, thickening the haze from the four major fires still burning across more than 193,000 acres in western Colorado.

These particulates piqued concerns because they easily waft inside homes and vehicles, penetrate masks residents wear to combat the coronavirus, cannot be exhaled, and quickly enter bloodstreams to cause broader harm.

The bad air over Colorado also gained potency this week from continued high temperatures — Denver hit 97 again Monday in a heat wave that has brought more than 60 days this summer with temperatures topping 90 degrees. Heat accelerates the formation of more ozone from the same amount of precursor pollution from vehicles and industrial facilities.

Front Range air conditions ranked about the worst since at least 2010, matching heavy smoke from wildfires in 2018, Colorado Department of Public Health and Environment officials said. And the officials advised all residents — not just older people, children and

people with asthma — to stay indoors and, if possible, set up “safe rooms” inside their homes.

“This is happening across the West, and people in those sensitive categories should be staying inside. Even for healthy and fit people, we recommend staying inside during peak conditions because of the effects this can have on your respiratory and cardio systems, especially pregnant mothers and children,” said John Putnam, the health department’s environmental programs director. “We are strongly encouraging people to try to take it easy,” Putnam said. Wildfire smoke has thickened the air pollution over much of California and other western states, including Idaho, Utah, Wyoming, Washington and Oregon. The smoke from lightning-sparked blazes in California that wafted over Colorado Springs, Denver and other Front Range cities over the weekend was shifting eastward to the high plains and spreading northward to Wyoming, state air quality meteorologist Scott Landes said. Colorado officials on Monday recommended increased protections, including:

Create a “safe room” using a portable air-filtering system. This should be “where you spend the most time,” Landes said.

Find a landmark 5 miles away that usually is visible. “If you know the landmark is 5 miles away and you cannot see it, you know the air quality is not safe,” Landes said. Assessing peak pollution also can be done using the federal website fire.airnow.gov, which presents readings from air testing stations. Close windows and adjust household and vehicle air systems to re-circulate air, minimizing intake of particulates.

Cumulative impact of smoke

Any boosting of resiliency this week likely will help in the future, Landes said, referring to science projections that climate warming will lead with some variability to rising temperatures for decades. “With climate change,” he said, “you’re going to start seeing more and more of these events.”

The particulates from wildfires originate as wood that breaks down into bits of carbon less than 2.5 microns wide — easily inhaled.

“You cannot exhale them back out. They enter your respiratory system and then can get into your bloodstream,” Landes said. “This has a cumulative effect. You’re going to feel it for days, maybe weeks afterwards, even after the smoke clears. It affects your heart, can give you headaches and fatigue. These fine particulates really have an impact on many parts of your body.”

Other pollutants hanging in the haze included heat-trapping greenhouse gases — carbon dioxide and methane — and toxics such as sulfur dioxide and hydrogen sulfide in smaller amounts from factories and the Suncor oil refinery north of Denver in Commerce City.

Colorado wildfires kicked out heavy smoke due to aggressive wildfire suppression in the past to protect the multiplying houses and other buildings built near forests. Wildfires are natural, essential in ecological balancing. The suppression has led to thicker forests that, when hot temperatures and lightning — or humans — spark fires, burn more intensely because flames find plenty of fuel.

Wildfires also emit carbon monoxide and other gases that can irritate lungs and hearts, health officials said. Among them: benzene, formaldehyde and acrolein. Firefighters bear the greatest risks because these don't spread as far as smoke.

The ozone stands out as a problematic pollutant inhaled by masses of people in Denver and other Front Range cities, worsening respiratory and heart ailments.

Ozone comes from the mixing of volatile organic compounds, or VOCs, and nitrogen oxides in heat and sunlight — typically reaching elevated levels during summer on hot days without wind.

The biggest sources of the VOCs and nitrogen oxides, according to Regional Air Quality Council data, include oil and gas production (44% of VOCs and 28% of nitrogen oxides). Other main sources: household personal care products, solvents and paints (19% of VOCs) and vehicles (15% of VOCs).

“Serious” air quality violator

Colorado officials for years have faced federal orders to reduce ozone air pollution, yet have failed for more than a decade to attain health standards. The Environmental Protection Agency has relegated Colorado to “serious” violator status for failure to meet the 2008 ozone limit of 75 ppm, let alone the current 70 ppm.

EPA spokesman Rich Mylott on Monday confirmed this summer's highest levels of particulate and ozone pollution, noting that wildfire smoke typically contains ozone precursor pollution and that “the higher levels of ozone we have seen over the past few days are likely influenced by smoke from western fires.”

Heat and sunlight boost ozone formation, “however the volumes of chemical compounds reacting in the air, particularly nitrogen oxides and volatile organic compounds, have much more of an effect on ozone levels,” Mylott said, acknowledging state efforts to reduce pollution. “We expect these efforts will have an impact on improving air quality... in upcoming years.”

The EPA will take into consideration “exceptional events” — the big wildfires — in assessing Colorado's compliance with federal orders, state officials said.

A climate shift toward hotter, drier conditions in Colorado and the West means state air quality officials will be forced to do more to reduce air pollution, Putnam said.

“We’re not going to have the ability to control the 90-degree days and the transport of wood smoke. This means we’re going to have to reduce emissions that much more from our big sectors — transportation and oil and gas,” he said.

The Colorado Air Quality Control Commission rule-making process aims at reducing emissions from oil and gas operations in the state.

“It’s going to be a continuous process to keep reducing emissions,” Putnam said. “Because we are going to have a warmer climate, we are going to have to reduce emissions more.”

Air Pollution Forecast and Caution continues for Southeast Idaho

Date:-26-Aug-2020, Source: localnews8.com



POCATELLO, Idaho (KIFI/KIDK) - The Idaho Department of Environmental Quality (DEQ) has extended an Air Pollution Forecast and Caution again for Wednesday.

The extension notifies residents

of Bannock, Bingham, Bear Lake, Caribou, Franklin, Power and Oneida Counties of degraded air quality.

The National Weather Service forecast does not expect a widespread air quality improvement until the weekend.

At this point, the DEQ will take it day to day with the possibility of lifting burn restrictions on some counties Thursday barring any changes in air quality for the worse, but due to wildfire smoke health impacts may occur, burning restrictions are in effect.

Air quality in Southeast Idaho currently in the moderate category.

The pollutant of concern is Fine Particulate Matter (PM_{2.5}).

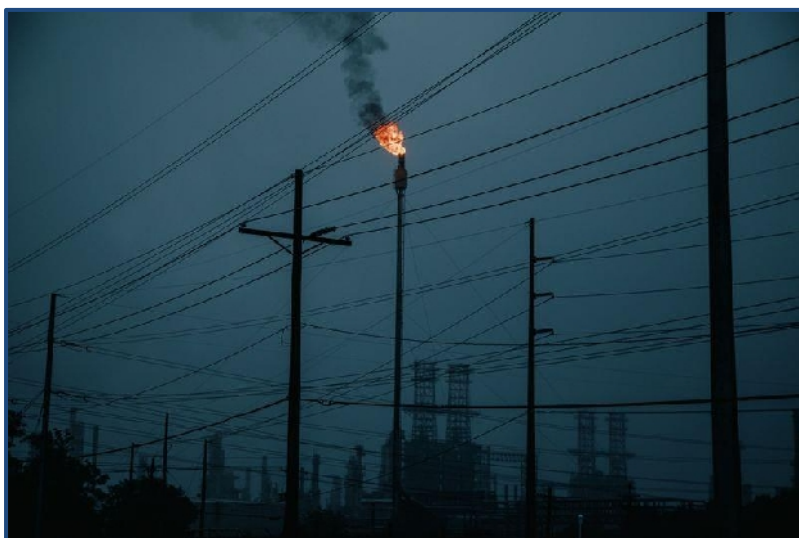
When air quality is moderate, air quality is acceptable; however, people who are unusually sensitive to air pollution may experience health impacts and should consider reducing prolonged or heavy exertion.

Residential wood burning activities are restricted. This burn ban will remain in effect until air quality has improved in accordance with local ordinances.

All outdoor open burning is prohibited by the Department of Environmental Quality in accordance with local ordinances and the Rules for the Control of Air Pollution in Idaho.

Air Monitors Disabled on Gulf Coast as Storm Unleashes Pollution

Date:-27-Aug-2020, Source: bloomberg.com



A gas flare at an oil refinery ahead of Hurricane Laura in Lake Charles, Louisiana, on Aug. 26.

As Hurricane Laura barreled toward the Gulf Coast on Wednesday, Texas and Louisiana regulators disabled dozens of air monitors meant to sniff out carcinogenic benzene, ozone-forming compounds, and other pollution.

Monitors installed across Beaumont and Houston -- the heart of the U.S. petrochemical and refining complex -- "are not designed

to withstand hurricane-force winds," the Texas Commission on Environmental Quality said. Louisiana regulators also notified the federal government of plans to turn off air monitors ahead of the storm, the U.S. Environmental Protection Agency said in an emailed statement.

Environmentalists and public health experts warned Thursday that without active air monitoring, local communities and regulators may not detect the silent and sometimes odorless chemical leaks that may have been unleashed by Laura, one of the most powerful storms ever to hit Louisiana.

Already, a Motiva Enterprises LLC refinery in Port Arthur reported that as it prepared for the storm, a process line leaked an estimated 223 pounds of benzene, volatile organic compounds and other substances. And residents in Westlake, Louisiana, have been asked to shelter indoors to avoid exposure to a chemical plant fire that could release its own toxic plume.

"We're talking about some of the biggest refineries in the entire nation," said Elena Craft, a Texas-based toxicologist and a senior health and climate director with the Environmental Defense Fund. "Even on a good day we know there are emissions that are unaccounted for

or not followed up on. We don't have a clear understanding of the volume or magnitude of some of these emission events."

The TCEQ has already begun bringing back online some air monitors in Houston, with data possibly available later Thursday, spokesman Brian McGovern said. It could take longer to restart systems in Beaumont. In the meantime, the agency said it's deploying sensor-equipped vans to help monitor air quality. As the storm menaced the coast, companies in southeast Texas told regulators that even without emergency spills they expected to release an extra 4.4 million pounds of pollutants, including ozone-forming compounds and the carcinogens benzene and 1,3-Butadiene, just from rapidly shutting facilities before the storm and restarting them after. Particularly heavy emissions were anticipated by the Beaumont Gas to Gasoline Plant and a refinery in Galveston, according to reports filed with the state and analyzed by the EDF. Air monitors don't produce reliable samples during windy weather, said Neil Carman, a former TCEQ official who is now a Sierra Club clean air program director. "The wind is going to dilute pollution," Carman said by phone. "After the storm passes and the wind has gone away, that's when you're going to see pollution levels rise." After Hurricane Harvey swept through Houston three years ago, it took weeks for some air monitors to be brought back online. In the meantime, some chemical leaks were found to be much larger than originally described.

For instance, a Valero Energy Partners LP refinery in Houston initially reported an estimated 6.7 pounds of benzene had been released after Harvey damaged a crude storage tank. But independent monitors near the site detected benzene levels six times higher than what Valero initially reported. And the company ultimately revised its first estimate, telling regulators the actual release was nearly 300 times larger than initially calculated, resulting in discharging some 1,881 pounds of the carcinogen.

Wildfires Pollute Clark County Air

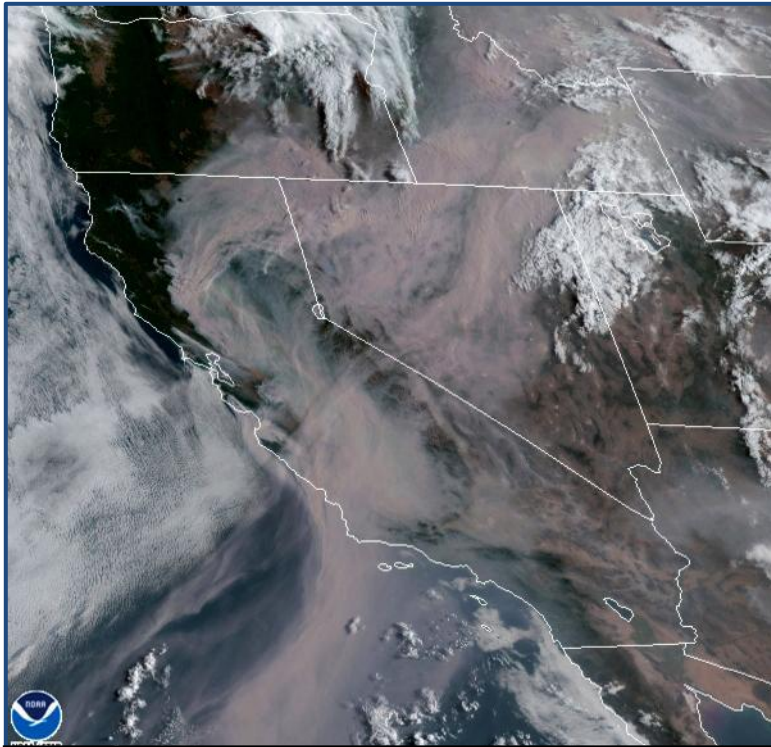
Date:-27-Aug-2020, Source: knpr.org

The historic wildfires in California dirtied the air in Southern Nevada last week

Winds brought the smoke to the Las Vegas Valley, prompting a days-long air-quality alert that expired Sunday.

"Things got pretty bad last week," said Kevin MacDonald of the Clark County Department of Environment and Sustainability, "We had four consecutive ozone exceedance days and that was due to wildfires smoke that was blowing in from California, and I believe, parts of Arizona as well."

MacDonald told State of Nevada that fires contribute to ozone pollution, which typically increases in the summer anyway.



This satellite image from the Cooperative Institute for Research in the Atmosphere (CIIRA) and released by the National Oceanic and Atmospheric Administration (NOAA) shows smoke from massive wildfires in Northern California, top left, being pushed by winds to the northeast on Thursday, Aug. 20, 2020.

"During the summer months, here in Clark County, we're in what's known as ozone season. So, we're on an ozone advisory from the beginning of April until September because that's when ozone is at its peak," he said.

Ozone can damage airways and exacerbate respiratory problems. MacDonald said people with asthma or other breathing problems should use extra caution when ozone is high but healthier people shouldn't ignore the warnings.

"It is a good idea for everybody, whether they're healthy or have some underlying health conditions, to pay attention to the air

quality because we all breath the same air," he said.

Ground-level ozone is created with oxides, nitrogen and volatile organic compounds get cooked by the sun. When smoke from wildfires drifts our way, the problem gets worse.

MacDonald said Southern Nevada is a perfect place for ozone to get created.

"One of the reasons we have such high ozone it's not just because of our weather," he said, "It's because of our geography, our topography and the weather because we have a lot of heat, a lot of sun, a lot of people, a lot of cars on the road, but also with all the mountains around Clark County pollutants can come and settle in. It's like a bowl that cooks ozone."

MacDonald says the best way to combat the chemical is for people to drive less because the exhaust from cars is filled with chemicals that contribute to ozone development.

He also suggested people fill up their cars after sunset because the fumes from gasoline are one of the volatile organic chemicals. So, releasing it during the day means it will create more ozone.

The department measures air pollution in Southern Nevada through a network of 13 monitoring stations.

Last year, the valley only saw three days of exceedance on ozone but this year and 2018 there were several days where ozone exceeded recommended limits.

Opinion: After Feds' Failure, NYS Must Crack Down on Air Pollution

Date:-28-Aug-2020, Source: citylimits.org



In one of the Trump administration's latest moves to undermine public health, the U.S. Environmental Protection Agency (EPA) declined to adequately control emissions of PM 2.5, dangerous fine particulates linked to premature death – and now tied to mortality from

COVID-19. The Clean Air Act requires the EPA to review emissions standards for hazardous pollutants every five years, and this year PM 2.5 was up for review. Despite the growing body of research confirming the serious harms of the pollutant and notwithstanding EPA's own policy assessment, the EPA declined to strengthen the standard. The administration also recently declined to improve the weak standards for ozone, commonly called smog, and rolled back regulations on emissions of methane, one of the most potent greenhouse gases. These are just a few examples in a series of recent rollbacks of environmental regulations and standards that hurt both communities and the environment.

As with responses to the pandemic itself, lacking national leadership, it's up to the states to lead on pollution reductions. New York State should follow the lead of California and others in taking aggressive and entirely feasible steps to reduce harm to its communities posed by the federal government's failure to put public health first and regulate dangerous pollutants.

In New York City alone, each year PM 2.5 pollution causes more than 3,000 deaths, 2,000 hospital admissions for lung and heart conditions, and approximately 6,000 emergency department visits for asthma in children and adults, according to the City Department of Health and Mental Hygiene.

The pandemic has only heightened this risk, with recent research from the Harvard T. H. Chan School of Public Health showing that long-term exposure to PM 2.5 air pollution increases the likelihood of severe COVID-19 outcomes. The study determined that an increase of only one microgram per cubic meter of fine particles can increase the COVID-19

death rate by eight percent and underscored the importance of air pollution regulations and enforcement. Reducing particulate matter in Manhattan by just one microgram per cubic meter would have correlated to hundreds fewer COVID-19 deaths in the borough by early April 2020. Other studies have supported these conclusions as well.

Not all people face the same impact of PM 2.5. People of color disproportionately bear the brunt of PM 2.5 emissions even though the emissions are disproportionately caused by the consumption and activities of white Americans. Why? Because sources of PM 2.5 emissions are disproportionately sited in communities of color across the country and here in New York City. In New York, these are often the same neighborhoods with the highest rates of COVID-19.

New York State must take action given the federal government's failure to regulate these dangerous pollutants. Reducing emissions from trucks and buses is one way the state could significantly alleviate health harms from PM 2.5 pollution. New York should follow California's leadership, working towards a zero emissions rule for trucks and investing in electric transit and school bus fleets. Because school bus depots are highly concentrated in communities of color and low-income communities, reducing school bus emissions in particular has the potential to alleviate health disparities in these communities.

The state should also shutter the outdated "peaker plants" in the New York City area. These inefficient and highly polluting power plants operate only on peak electricity demand days – when air pollution is typically at its worst – exacerbating the negative health impacts of poor air quality in environmental justice communities. These power plants are also disproportionately expensive for ratepayers, who should not have to pay for unnecessary electricity capacity, especially during a severe recession. As it stands, New York City residents pay some of the most expensive rates in the nation, due in part to the "capacity payments" dedicated to keeping peaker plants online in case they are needed. The excessive capacity payments made to peaker plant owners could do far more good and create green jobs if invested in localized renewable energy generation and battery storage, as well as efficiency improvements in buildings, which is New York City's single greatest opportunity to reduce greenhouse gas emissions.

Now is the perfect time to replace this system: Downstate electricity demand is lower than average due to the ongoing reduction in commercial activity. This means that by the time the city is operating at peak electricity demand again, there could be a new energy-efficient system in place. Bold actions like closing down the peaker plants and making a zero-emissions or electric energy transition rule for trucks and buses would also help New York achieve its greenhouse gas emissions targets under the state's Climate Leadership and Community Protection Act.

The Trump EPA's rollback of PM 2.5 standards and methane emission regulations and failure to strengthen smog regulations are in line with a much broader failure to adequately

regulate pollutants and enforce existing pollution standards. New York should not wait for the federal government to protect our communities and our environment. The state must step up and respond with the bold changes New Yorkers need.

Environment Canada warns of air pollution as crews continue to battle fires in western Nova Scotia

Date:-29-Aug-2020, Source: globalnews.ca



A brush fire in western Nova Scotia has resulted in Environment Canada issuing a special air quality statement for the region.

Environment Canada is warning residents of western Nova Scotia of high levels of air pollution as multiple fires burn in the area.

Smoke plumes from fires near Argyle and Pubnico in Yarmouth County, Lake Alma in Annapolis County and Saturday Lake in Lunenburg County are likely

to stay in the area Saturday due to light winds. As the wind picks up later in the day the smoke is expected to move north from the location of the fires. But Environment Canada is warning that air quality may deteriorate as smoke descends to ground level.

Heavy rain in the forecast is expected to help the situation overnight, improving air quality by Sunday. Nova Scotia's Lands and Forestry Department has said that crews remain on the scene of several wildfires in the province.

Department spokesman Brian Taylor told The Canadian Press that the ongoing wildfire in Argyle, a municipality in Yarmouth County, is 50 per cent contained. A portion of Highway 103 near the 15-hectare fire was closed due to the smoke.

A department helicopter and 21 staff, as well as one volunteer fire department member, were on the scene of that blaze. v Seven other wildfires also burned in Queen, Cumberland, Lunenburg and Annapolis counties throughout the day, some of which were 100 per cent contained. A fire in the Saturday Lake area of Lunenburg county was 10 per cent contained by Saturday afternoon, the department said. A Lands and Forestry helicopter and 10 department staff members were deployed, and two air tankers from Fredericton, N.B., also dropped water on the fire. Environment Canada is warning that individuals may experience symptoms such as increased coughing, throat irritation, headaches or shortness of breath. Children, seniors and those with cardiovascular or lung disease will be especially at risk.

Dhaka's air unhealthy for sensitive groups

Date:-30-Aug-2020, Source: unb.com.bd



Dhaka ranked sixth worst in the Air Quality Index (AQI) on Sunday. The capital city had an AQI score of 112 in the morning, indicating that the air quality was unhealthy for sensitive groups.

A numerical value between 101 and 150 indicates that

members of the sensitive groups may experience health effects. The general public is less likely to be affected.

Brazil's Sau Paulo with a score of 153 topped the list of cities with worst air quality.

The following places were respectively taken by Indonesia's Jakarta, China's Chengdu and Shenzhen.

The AQI, an index for reporting daily air quality, tells people how clean or polluted the air of a certain city is and what associated health effects might be a concern for them.

'No improvement in sight'

Dhaka, one of the most densely populated cities in the world, has been grappling with air pollution for a long time. The air quality generally worsens during summer and shows signs of improvement in monsoon when the dust settles.

Environment, Forests and Climate Change Minister Md Shahab Uddin had admitted that the air pollution in Dhaka reached an intolerable level while the High Court issued a nine-point directive to bring down air pollution in the capital.

In an interview with UNB, he said brick kilns were responsible for 58 percent air pollution in the capital.

He said the Department of Environment (DoE) and the World Bank published a research report on the sources of air pollution in Bangladesh in March last year which identified brick kilns, fumes of vehicles and dust from construction sites as three main sources.

On January 13, the High Court issued nine-point directive following a writ petition filed by Human Rights and Peace for Bangladesh (HRPB).

California Adopts Bill to Clean Air Inside and Out of School

Date:-31-Aug-2020, Source: nrdc.org



Electric School Bus

The California legislature just passed a bill that will make the air safer to breathe and the water safer to drink in public schools, while reducing energy bills. It also accelerates the installation of charging infrastructure for electric vehicles needed to combat the largest source of air pollution that makes

lungs more vulnerable to COVID-19.

Assembly Bill (AB) 841 authored by Assembly member Phil Ting directs state energy efficiency funding to upgrade heating, air conditioning, and ventilation (HVAC) systems in public schools, prioritizing schools in underserved communities and those near freeways or industrial facilities. Schools will need to ramp up ventilation to re-open safely due to COVID-19, but many schools have inefficient or broken HVAC systems. This bill would fund repair and replacement of these inefficient systems, as well as new filters to reduce risk from both COVID-19 and wildfire smoke. It also provides funds to replace aging and inefficient water fixtures and appliances in schools, saving water and energy while reducing exposure to lead. This bill provides targeted funding for just three years, but will provide health and cost savings benefits for years to come.

To combat the air pollution that makes communities more vulnerable to COVID-19 and meet the state's climate goals, California must quickly transition its transportation sector to zero-emission vehicles. AB 841 would deploy charging infrastructure for all types of electric vehicles (EVs)—light, medium, and heavy-duty, fostering an active partnership between the electric industry, labor, and independent firms to meet the state's air quality and climate goals. Appropriately, the bill requires that not less than 35 percent of those infrastructure investments be made in underserved communities burdened by dangerous air pollution and poverty.

Installing electrical equipment needed to charge electric cars, trucks and buses not only keeps workers on the job at a time when unemployment is soaring, it accelerates transportation electrification that puts downward pressure on electric rates and bills to the benefit of all utility customers. According to Synapse Energy Economics, EV drivers in

Southern California Edison and Pacific Gas & Electric territory have already contributed more than \$800 million in excess of associated costs, money that is automatically returned to all customers in the form of lower rates. At a moment when many Californians are struggling, the state should expand access to EV charging that puts downward pressure on utility bills.

If signed into law by Governor Newsom, AB 841 would increase employment, combat deadly tailpipe pollution, save schools money on their utility bills and make them safer environments for children, all without exacerbating California's budgetary challenges. At a time when the state and the world could use some good news, this bill fits the bill.

September 2020

UK citizens are taking air pollution monitoring into their own hands

Date:-1-Sept-2020, Source: theguardian.com

Thousands of people are using home air quality monitoring kits due to fears official figures are not capturing dangerous pollution levels, say Friends of the Earth.



Friends of the Earth say 4,000 people have used their air monitoring kits in less than a year. Photograph: Courtesy Friends of the Earth

A growing number of citizens are monitoring local air quality because of fears official figures are not capturing “dangerous” levels of pollution.

The environmental charity Friends of the Earth has said 70 local groups are now using their testing kits and noted a “surprising” increase in people taking monitoring into their own hands.

Oliver Hayes, a Friends of the

Earth air pollution campaigner, said:

“We’ve been surprised by the high demand for our air monitoring kits. 4,000 people have used them in less than a year, uncovering worrying levels of pollution in urban and rural areas alike.

“Most people seem understandably keen to learn about air quality where they live, work, or where their children go to school. But more than 70 local Friends of the Earth groups have used multiple testing kits to uncover a more detailed picture of pollution, often in places lacking much in the way of official monitoring stations.”

Dr Benjamin Barratt, senior lecturer in air quality science at King’s College London, agreed that the numbers doing this had risen.

“Air pollution has moved from being seen as an environmental concern to a health concern but it’s both, of course,” he said. “As a health concern people are more worried about their own families and their neighbourhoods so that has led to a rise in people monitoring air pollution for those reasons.”

Barratt says he hopes local work, if done correctly, can help inform decision-making and provide evidence about local situations.

Air Apparent UK, a project in Bristol monitoring local area quality, has been running their work through the Luftdaten website, an open data project that gives advice on how to get monitoring kits and lets people upload their findings online.

Sam Prince, 38, from Bristol said that three UK sites feature on the website at the moment but he has built a further six that will appear soon, and a Leeds resident is also building a monitor that will be added in coming months.

Prince said: "A growing number are doing it ... not necessarily in the same way. I know a guy in Bristol who bought a wearable monitor from the US for \$200 and that lets him cycle through Bristol on his commute and shows the pollution levels."

He added: "More people are tracking air quality partly because there is very little local data ... You'd think that in a first world country we would be well covered with sensors but there is hardly anything. The air pollution could be good where I am now and 300m down the street it could be bad."

"The data from the government is useless as far as I am concerned ... so people are trying to collect more evidence to show the big problem of air quality. What I want to build is a map showing the pollution levels all over Bristol so you could avoid a certain street or area, for example, if you were cycling to work."

Other local groups who have started monitoring air quality include Clean Air Eastbourne in East Sussex and Clean Air Chorley in Lancashire. Residents in Lancing and Shoreham, West Sussex, have also teamed up to explore air pollution levels.

Another concerned group of Catford residents set up their own air monitoring tubes in July 2017 and say the results show "dangerous" levels of pollution.

Ted Burke of Clean Air Catford said they found that the air pollution levels were almost double the legal level in some locations in the area, including next to a number of primary schools.

"We have noted dangerous levels of pollution in some areas. We are now calling on the council to sort it out, want to work with them and know more about what they are doing already," Burke said.

In Eastbourne, local resident Robert Price said it was finding out that his home town was among the most polluted in the country that got him monitoring air pollution.

"I wanted to get my own data to see if the air was bad where I live. I've been running it for a month now, and three of the past seven days alone have breached World Health

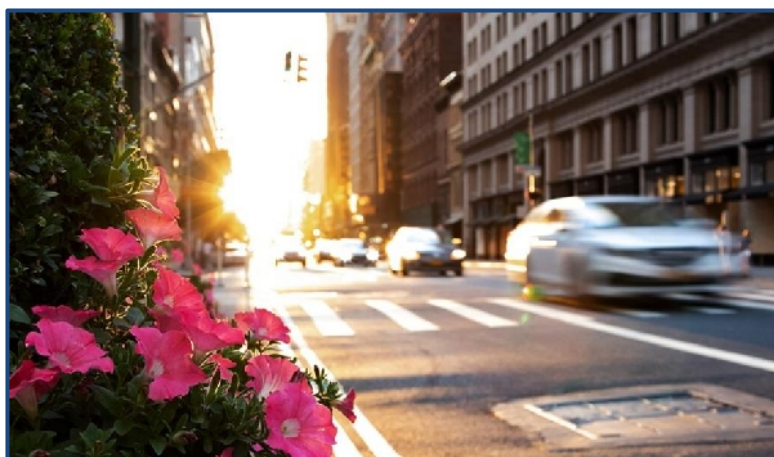
Organisation guidelines. UK/EU limits for particulate air pollution require a year's worth of data."

He added: "Since starting monitoring the air quality where I live, numerous people have been in touch via social media asking how to get involved. I formed Clean Air Eastbourne, and members have contributed to buy another seven sensors to put up around the town."

Price said that he was motivated by concerns of what air pollution might be doing to his young family and their health. "We need data to know what the condition of the air we breathe is like ... If this data isn't being tracked, how can we know if there is a problem or not? Building and running our own sensors helps give us this information. This is a matter of vital importance and if the government won't monitor it properly we must step in."

Asphalt adds to air pollution, especially on hot, sunny days

Date:-2-Sept-2020, Source: news.yale.edu



Asphalt is a near-ubiquitous substance — it's found in roads, on roofs and in driveways — but its chemical emissions rarely figure into urban air quality management plans. A new study finds that asphalt is a significant source of air pollutants in urban areas, especially on hot and sunny days.

Yale researchers observed that common road and roofing asphalts produced complex mixtures of organic compounds, including hazardous pollutants, in a range of typical temperature and solar conditions. The results of their work, from the lab of Drew Gentner, associate professor of chemical & environmental engineering, appear Sept. 2 in the journal *Science Advances*.

Decades of research about and regulations of emissions from motor vehicles and other combustion-related sources have resulted in improved urban air quality. But recent studies show that as those efforts succeeded, numerous non-combustion-related sources have become important contributors of organic compounds. These can lead to secondary organic aerosol (SOA), a major contributor of PM_{2.5} — an important regulated air pollutant comprising particles smaller than 2.5 micrometers in diameter — that have significant effects on public health.

The researchers collected fresh asphalt and heated it to different temperatures. “A main finding is that asphalt-related products emit substantial and diverse mixtures of organic compounds into the air, with a strong dependence on temperature and other environmental conditions,” said Peeyush Khare, a graduate student in Gentner’s lab and lead author of the study.

After some time, the emissions at summer temperatures leveled out, but they persisted at a steady rate — suggesting there are long-term, continued emissions from asphalt in real-world conditions. “To explain these observations, we calculated the expected rate of steady emissions and it showed that the rate of continued emissions was determined by the time it takes for compounds to diffuse through the highly viscous asphalt mixture,” Gentner said.

They also examined what happens when asphalt is exposed to moderate solar radiation and saw a significant jump in emissions — up to 300% for road asphalt — demonstrating that solar radiation, and not only temperature, can increase emissions.

“That’s important from the perspective of air quality, especially in hot, sunny summertime conditions,” Khare said.

Paved surfaces and roofs make up approximately 45% and 20% of surfaces in U.S. cities, respectively. The researchers estimated the potential total emissions and formation of SOA in Los Angeles, a key city for urban air quality case studies.

Because of the types of compounds asphalt emits, its potential SOA formation is comparable to motor vehicle emissions in Los Angeles, the researchers said — implying that finding ways to make roads more environmentally friendly is as important as doing the same for cars and trucks. Gentner noted, though, that the effect of asphalt emissions on ozone formation was minimal compared to that of motor vehicles and volatile chemicals in personal care and cleaning products — another key emerging source of reactive organic emissions that produces large quantities of SOA in urban areas.

Gentner emphasized that asphalt is just one piece in the puzzle of urban SOA.

“It’s another important non-combustion source of emissions that contributes to SOA production, among a class of sources that scientists in the field are actively working to constrain better,” he said.

It’s not just cars that make pollution. It’s the roads they drive on, too

Date:-3-Sept-2020, Source: sciencemag.org

The smell of summer in Los Angeles, or any major city, is often tinged with asphalt. A freshly paved road or a new tar roof doesn’t just wrinkle your nose, however: A new study suggests fresh asphalt is a significant, yet overlooked, source of air pollution. In fact, the material’s



A pothole being fixed in Southern California.

contribution to one kind of particulate air pollution could rival or even exceed that of cars and trucks.

"It's a super cool paper," says Allen Robinson, an environmental engineer at Carnegie Mellon University who was not involved with the research. "Asphalt could be a big, important contributor" to

air pollution, he says.

Air quality has improved over the past several decades in California and many other parts of the United States, largely because of cleaner exhaust from vehicles and power plants. Despite that, air pollution still contributes to many health problems—ranging from asthma to heart attacks. And many sources of air pollution continue to be a problem, from livestock emissions to volatile organic compounds from paints, cleaning products, and personal care products (especially those that contain fragrances, such as shampoo).

Yet, when scientists looked at all the known sources of air pollution in Los Angeles and the surrounding areas, they didn't add up. Some sources had not yet been identified.

"Asphalt was something that jumped out to us," says Drew Gentner, an environmental engineer at Yale University who led the new study. The material, made from crude oil or similar substances, contains the kinds of semivolatile organic compounds that lead to some types of air pollution. There's also a lot of it.

Gentner and colleagues gathered two types of fresh road asphalt and heated them in a laboratory furnace. They also tested new asphalt shingles and liquid asphalts used for roofing. They reasoned that new material should release more chemicals than older material, and they wanted to see how the emission rate changes as the fresh asphalt ages.

The greatest amount of semivolatile organic compounds escaped when the pavement was heated to 140°C, the temperature of road-paving, the team reports in *Science Advances*. Emissions fell as the asphalt cooled, but remained constant and significant at 60°C, a typical temperature for asphalt in Los Angeles during the summer, for the duration of the 3-day experiment. This suggests that asphalt could be a long-lasting source of pollution, Gentner says.

Sunshine was also important. Even moderate light caused a large increase in emissions regardless of temperature, although the reason is not clear. For road asphalt, emissions increased as much as 300% in moderate light. These emissions react to form tiny particles

suspended in air, called aerosols, that are harmful when inhaled, and the results suggest asphalt contributes even more to this kind of air pollution in hot, sunny weather, Gentner says.

The researchers estimated the annual emissions from new paving and roofing in parts of Southern California. They calculate that molecules released from asphalt could lead to between 1000 and 2500 tons of particulate air pollution—compared with just 900 to 1400 tons from gasoline and diesel vehicles. (Both sources pale in comparison to volatile chemical products, such as pesticides, coatings, adhesives, cleaning agents, and personal care products, which together contribute 4500 to 9500 tons of particulate pollution per year.)

It's not necessarily the case that asphalt roads cause more total air pollution than cars, however. Gentner notes that vehicles also release harmful particles from combustion and exhaust gases that form ozone.

"This is really one of the first papers that makes a quantitative connection between these gases from asphalt and aerosol formation in urban air," says Joost de Gouw, an environmental chemist at the University of Colorado, Boulder, who was not involved with the work.

One remaining question is how long asphalt continues to release these molecules. Gentner says it will be important to keep measuring them, because the molecules are large compared to those in other products, such as solvents, and it takes longer for them to escape.

Even though the picture is incomplete, Robinson says it's already clear that asphalt belongs in official inventories of air pollution sources; these data sets are important for modelers who study air pollution and for updating air quality regulations. He's optimistic that companies will come up with ways to process and apply asphalt that would release fewer emissions.

De Gouw points out that other materials can be substituted for asphalt, including clay tiles for roofs and concrete slabs for roads. But even then there are environmental trade-offs: Producing concrete, for example, causes high emissions of greenhouse gases.

Air pollution from busy traffic and its 'Grim Reaper' effect on Glasgow communities

Date:-4-Sept-2020, Source: glasgowlive.co.uk

Once a Glasgow pollution hotspot, Hope Street has seen Britain's biggest improvement in air quality since the coronavirus lockdown came into force.

The city centre street has repeatedly been named the most polluted road in Scotland - down to tall buildings on either side, which allows for little wind to disperse fumes from the constant cars, lorries and buses near Glasgow Central Station.



Statistics indicate that Glaswegians are 25 times more likely to die from respiratory illnesses caused by vehicle emissions in the city than by being involved in a car crash

And while the dramatic reduction in dangerous pollutants (with nitrogen dioxide levels falling from 56.6 micrograms per cubic metre to 18.7) is to be welcomed, it will no doubt be short-lived as Scotland moves through the route map out of lockdown.

But can gains be made in the improved air quality of recent months? Figures indicate that Glasgow could do with a breath of fresh air.

Statistics indicate that Glaswegians are 25 times more likely to die from respiratory illnesses caused by city vehicle emissions than by being involved in a car crash - despite the fact that only half the population own a car.

In January, a study of the UK's major urban areas estimated that the pollution caused by vehicle traffic in Glasgow was responsible for at least one in every 29 deaths in 2017 - that's more than 350 Glaswegians in a year.

And while research shows that years of breathing in dangerous toxins from vehicle exhausts leads to hundreds of deaths in the city, there is evidence to suggest that in Glasgow, even short-term, momentary events such as major traffic jams in the city have the capacity to kill Glaswegians.



Large volumes of traffic have returned to the roads in Glasgow as Scotland eased its way out of the coronavirus lockdown

A 2014 study into short-medium-term variations in black smoke air pollution in Glasgow and mortality rates in the wider Glasgow area showed that the death rate in the city increased in the 30 days following instances where higher than normal levels of traffic and urban air pollution were registered in the city.

The study, led by Dr Ian Beverland of the University of Strathclyde, used long-term data collected between 1974 and 1998 which detailed the daily mortality rates of residents aged over 50 in Glasgow.

Increased concentrations of black smoke were associated with increased mortality rates at 13-18 days and 19-24 days after elevated air pollution concentrations were recorded.

These 'pollution events' corresponded with higher rates of death from respiratory problems in particular (3.1%), compared with rates of death from all causes (0.9% increase).

The researchers of the study thus concluded that even with such a volume of literature dedicated to the effects of pollution on mortality rates, the full, true, effects of pollutants are possibly being underestimated.

Back in 2018, Glasgow became the first city in Scotland to introduce a low emission zone (LEZ), which, at present, only affects local service buses, but will apply to all vehicles by the end of 2022.

To complement this, a wide range of work is underway, such as encouraging higher levels of active travel to try and improve air quality and reduce the impact that traffic pollution in the city is having on the health of Glaswegians.

Unfortunately, plans to fully implement the low emission zone in Glasgow to include all other vehicle types have been put on hold because of the coronavirus pandemic - with the pause being met with stern criticism from campaign groups such as Friends of the Earth Scotland.

While highlighting that the coronavirus crisis has only further emphasis on the 'urgent' need to reduce pollution, they also believe that the low emission zone, in restricting the most polluting vehicles from built-up areas, has to be central to a plan to reimagine Glasgow for the better, during a period of time which has seen a huge increase in cycling in the city alongside the temporary reallocation of roads to encourage both active travel and social distancing.

Speaking to Glasgow Live, Dr Richard Dixon, Director of Friends of the Earth Scotland, said: "Air pollution from fine particles alone (PM2.5) is responsible for 2,000 early deaths in Scotland each year.

"Exposure to Nitrogen Dioxide (NO2) also causes early death, and we estimate that taking into account both PM2.5 and NO2, air pollution causes 2,500 early deaths in Scotland each year - more than ten times the number of people dying in road accidents.



Air pollution from fine particles alone (PM2.5) is responsible for 2,000 early deaths in Scotland each year.

"The World Health Organisation has classified outdoor air pollution as carcinogenic to humans. Long-term exposure to particulate matter at levels present on many Scottish streets has been shown to increase the risk of coronary events including heart attacks and strokes.

"There is a huge cost to the inaction on air pollution - both in direct costs to the NHS and

days lost at work in the wider economy. "Everyone's health is affected by air pollution, but children are affected worse than others because their lungs are smaller and are still developing.

"People with breathing and heart conditions are affected more than others, as well as the elderly, and people living in poverty. It is not fair that the people who are least responsible for air pollution are the worst affected and some of the most vulnerable in our cities."

Looking further into the issue surrounding air pollution in the city, the NHS published some interesting statistical data in 2015 on mortality rates between the NHS Greater Glasgow & Clyde (NHSGCC) area and the smaller Glasgow City Health & Social Partnership (Glasgow City HSCP) area.

Health rates within the city area, as one might expect, are worse than the wider NHSGCC area, with mortality rates 12% higher in Glasgow taking into account the different demography of the two populations, although life expectancy in Glasgow City was approximately equal to that in NHSGCC.

In terms of disease specific health indicators, one difference between the two areas labelled 'significant' concerned lung cancer rates, with the incidence of lung cancer in Glasgow City HSCP 26% greater than would have been expected assuming the pattern of incidence in the population of NHSGCC overall.

Of course most lung cancer cases are attributable to smoking (or passive smoking), but another risk factor is air pollution, which could be a possible contributor to the higher rates registered in Glasgow City HSCP.

This gives rise to the suggestion that the dangerously high levels of air pollution that are recorded in Glasgow may well be a contributory factor to increased lung cancer rates within the city.

Looking further into the statistics for smokings between the two populations, the prevalence of maternal smoking in Glasgow City HSCP was only just higher than in NHSGGC, while the prevalence of passive smoking was similar in Glasgow City to than in NHSGGC as a whole.

Meanwhile, the prevalence rate of smoking in residents over 15 in Glasgow City HSCP was only marginally higher than in NHSGGC (28% compared to 24.9%) - meaning that the incidence of morbidity for which smoking is a risk factor would also be expected to be less in Glasgow City HSCP than in the population of NHSGGC overall.

And if we look at breast cancer rates, the standardised incidence ratio (SIR) of breast cancer rates was deemed as 'not significant' in the Glasgow City HSCP area, with the incidence of breast cancer in Glasgow City HSCP not differing significantly from that in the population of NHSGGC.

The horror of the Australian bushfires and air pollution

Date:-6-Sept-2020, Source: airqualitynews.com

Wildfires have been ravaging Australia for several months, with fires beginning in September and continuing to spread today (January 6).

Although wildfires are part of the Australian eco-system and are an important process for regenerating land, these fires are the worst since records began, with climate change being partly to blame.

According to reports, an estimated 4 million hectares of land has been destroyed so far, with 2,000 homes lost to the flames which as a result has forced thousands of people to seek shelter elsewhere.

The current death toll has reached 25 people, which includes three firefighters, and it is estimated that over 500 million animals have been affected.

Wildfires can start for a number of reasons, from natural causes such as dry vegetation or a lightning strike to human arson such as abandoned cigarette butts or irresponsible fireworks.

In a report published by the Climate Council, it is described that due to climate change, since the mid-1990s, southeast Australia has experienced a 15% decline in late autumn and early winter rainfall and a 25% decline in average rainfall between April and May.

This decreased rainfall has led to drought which means that vegetation is more flammable and susceptible to extreme fires.

Across Australia, the average temperature has also increased, with temperatures reaching a record-breaking 48.9 degrees last month (December).

These higher temperatures exacerbate the dry conditions, enabling the fires to take hold and spread quickly.



As well as the immediate dangers that these bushfires pose to the residents of affected areas, wildfires also pose an increased threat to the long-term health of the whole population of Australia, due to increased air pollution.

According to a report, an estimated 90% of the total particle mass emitted from wildfires is fine particles, this,

therefore, makes particulate matter (PM_{2.5}) the number one public health threat from long-term exposure to wildfire smoke.

Air Quality News has regularly reported on the health impacts of PM_{2.5} exposure, which can range from respiratory tract irritation to asthma, reduced lung function, heart failure and premature death.

PM_{2.5} can also travel a long way from its original source.

On January 2, Australia's capital Canberra recorded its worst-ever air quality, with readings of PM_{2.5} spiking to over 200 µg/m³.

In December, Sydney also recorded its worst-ever air quality to date, with PM_{2.5} levels reaching nearly 400µg/m³, a level which is described by the World Health Organisation as hazardous, meaning that everyone may experience serious health effects.

Various reports have also shown that smoke from the Australian bushfires has travelled thousands of miles to New Zealand, with reports of the sky turning dark orange in colour.

Carbon monoxide is also present in wildfire smoke, however, it does not pose a significant hazard to the general population because it does not travel far from the original source.

Additionally, wildfire smoke also contains hazardous air pollutants (HAPs). According to the report, HAPs can contribute to adverse health effects in children, pregnant women, the elderly and those with existing lung, heart or liver problems.

Dr Richard Broome, environmental health director at the Government of New South Wales (NSW) has warned that the fires will very likely continue to engulf many parts of the State with smoke continuing to affect communities.

He revealed that over the past week (January 1) there has been 25% more presentations for asthma than the usual weekly average.

The NSW ambulance service has also received around 2,330 calls in this period, this is around 30% more than the average. Dr Broome warned: 'NSW Health continues to recommend that people should avoid outdoor physical activity when there is smoke around.'

In response to this increasing crisis, Scott Morrison, the Prime Minister of Australia announced on Saturday (January 4) that he will dispatch 3,000 army, navy and air force reservists to help battle the fires. This is the first time in Australia's history that this has been necessary.

Mr Morrison has also committed \$20m (£10.6m) to lease fire-fighting aircraft from overseas and has also announced that he will send 450,000 air pollution masks from the national medical stockpile to high-risk members of the public.

In a statement today (January 6) Mr Morrison said: 'While the immediate focus for our emergency services and the Australian Defence Force is keeping people safe and defending against the fires hitting so many areas, we also need to be ready to hit the ground in communities where the fire-front has passed to help them rebuild.' However, the PM has faced widespread criticism for failing to make the connection between the forest fires and climate change.

Australia is currently one of the world's biggest greenhouse gas emitters, with Market Forces estimating that tax-based fossil fuel subsidies cost Australia almost \$12bn (£6.3n) a year, and in a speech, last month (December) Mr Morrison has indicated that there will be no changes in his pro-fossil fuel policies.

Wildfire smoke makes air quality in Colorado Springs among worst in the world

Date:-7-Sept-2020, Source: krdo.com



Garden of the Gods shrouded in smoke

COLORADO SPRINGS, Colo. (KRDO) -- If you're having trouble breathing in Colorado this Labor Day, the reason is because of the thick smoke in the air that has drifted south from wildfires burning in northern Colorado.

But because of that thick smoke, Colorado Springs is dealing with some of the worst air quality in the entire world among major cities on Monday.

That's according to IQAir, which tracks air quality in real time around the world.

On Monday at around 6 p.m., parts of Colorado Springs saw air quality indexes ranging from 125 near central Springs to 176 near Fort Carson. That AQI of 176 ranks even higher than Hanoi, Vietnam, and Shanghai, China, which IQAir ranks as the worst two major cities for air quality.

According to the Environmental Protection Agency, an AQI over 150 is labeled as "unhealthy" and can be harmful for sensitive groups.

The smoke is being carried from the Cameron Peak Fire, which grew to nearly 90,000 acres as of Monday afternoon, and the Williams Fork Fire.

But California, which is also dealing with a rash of wildfires, has some cities with AQIs tallying in over 200. In Winters, California, the air quality index was 450, which puts people at serious risk of respiratory effects.

Lockdown did not reduce "most harmful" type of air pollution in Scotland

Date:-8-Sept-2020, Source: newswise.com

Newswise — The significant reduction in vehicle journeys during the COVID-19 lockdown did not reduce the level of toxic fine particles in Scotland's air, according to experts at the University of Stirling.

Analysis of fine particulate air pollution (PM2.5) in the first month of restrictions found little change - despite a 65 per cent reduction in the number of vehicles on the country's roads.

The team that led the research, from Stirling's Institute for Social Marketing and Health, say their findings suggest that traffic is not a key contributor to outdoor air pollution in Scotland - and, in fact, that people may be at greater risk from air pollution in their own homes.

Dr Ruaraidh Dobson, who led the study, said: "It has been assumed that fewer cars on the road might have led to a decline in the level of air pollution outdoors and, in turn, reduce the number of cases of ill health linked to this pollution. However, our study - contrary to research from places such as Wuhan in China, and Milan - found no evidence of fine particulate air pollution declining in Scotland because of lockdown.

"This suggests that vehicles aren't an important cause of this very harmful type of air pollution in Scotland - and people may be at greater risk from poor air quality in their own homes, especially where cooking and smoking is taking place in enclosed and poorly ventilated spaces."

Road traffic significantly reduced across the world following the introduction of COVID-19 restrictions and research has linked the change to improvements in outdoor air quality in some areas. It has been suggested that this may result in positive health effects.

Dr Dobson and colleague Dr Sean Semple analysed data from 70 roadside monitoring stations around Scotland from March 24 - the day after lockdown was introduced in the UK - to April 23. They then compared the data to comparative 31-day periods in 2017, 2018 and 2019.

They found that, across Scotland, the geometric mean concentration of PM_{2.5} was 6.6 micrograms per cubic metre of air (µg/m³) in the observed period in 2020 - similar to the levels in 2017 (6.7 µg/m³) and 2018 (7.4 µg/m³).

The 2020 figure was substantially lower than the markedly high concentrations observed in 2019 (12.8 µg/m³), however, the authors pointed out this was an "outlier" likely caused by a meteorological event that caused fine particulate dust from the Saharan desert to impact on UK air quality in April of that year. Significantly, removing the affected period from the 2019 analysis, reduces the mean value to (7.8 µg/m³).

The team did, however, note a reduction in nitrogen dioxide - specifically associated with vehicle exhaust emissions - in 2020, compared to the other three years.

Explaining that personal exposure to potentially harmful air could have actually increased during the lockdown, due to people spending more time at home, the paper says: "Lockdowns are intended to result in people spending more time in their homes. This could increase population exposure to indoor air pollution, such as cooking fumes and second-hand tobacco smoke."

It continues: "In countries, like Scotland, where it appears that the lockdown has not led to reductions in outdoor fine particulate matter pollution, it is possible that personal exposure to PM_{2.5} may actually have increased rather than declined, due to higher concentrations from indoor sources of particulate within the home setting.

"This could increase adverse health effects overall and also health inequalities - lower income people are more likely to smoke and to smoke indoors, and are likely to have smaller homes leading to higher PM_{2.5} concentrations from individual sources, due to smaller room volumes.

"If the severity of COVID-19 is related to air pollution exposure - as has been suggested - increased exposure to PM_{2.5} could potentially increase the death toll of that disease. Careful and balanced consideration of both outdoor and indoor sources of PM_{2.5} is essential to tackling the health harm of air pollution effectively and equitably."

It's not the end of the world, despite appearances to the contrary in Berkeley

Date: -9-Sept-2020, Source: berkeleyside.com



A dark orange sky above the UC Berkeley campus at 8:55 a.m. Sept. 9, 2020

Yes, day is night, but, as we reported yesterday, the ominous orange sky is caused by smoke from the August Complex fires and, amazingly, the air quality is pretty good.

Yes day is night and you can't see the sun. You woke up and were disoriented. Had to put the lights on in your home at 7 a.m. to see what you were doing. People are wandering around outside wide-eyed and

taking photographs on their cellphones.

It might feel like apocalypse, not least on top of a global pandemic that has put us on lockdown for six months, but it's not.

As Berkeleyside reported yesterday, the ominous orange sky — even darker than it was Tuesday — is caused by smoke from the over 300,000-acre August Complex fires burning in Mendocino and neighboring counties.

The Bay Area is directly downwind from the fires and strong winds are pushing smoke about 5,000 feet up in the air through a process called “turbulent mixing.” Or, as NWS meteorologist Drew Peterson put it: “It's kind of like if there's a pile of dust, and someone took a leaf blower to it and flung it all up into the air.”

The sky is orange because longer wavelength light (reds and oranges) are able to push through smoke particulates, whereas shorter wavelengths (blues and purples) are filtered out. And it has gotten progressively darker since (the largely invisible) sunrise. According to the National Weather Service, as the winds weaken, gravity takes over as the primary vertical transport of the smoke. “Suspended smoke will descend closer to the surface and could lead to darker skies and worsening air quality today,” the agency posted on Twitter, adding, “This is beyond the scope of our models so we rely on your reports!”

Berkeleyans have been sharing dramatic photo on social media since they woke up — describing the view as a “nuclear winter” or the “Twilight Zone.”

The good news — and boy do we need good news on an eerie day like today — is that the air quality is actually pretty good in Berkeley. According to the Bay Area Air Quality Management District monitor at the Aquatic Park, it was at the yellow, “moderate” level (79 MP2.5) by the 7 a.m. count.

Pollution watch: air pollution in China falling, study shows

Date:-10-Sept-2020, Source: theguardian.com



Annual deaths have dropped to 1990 levels after 2013 peak thanks to concerted action in key cities.

It is a long time since images of a smoggy Beijing were in the news. India now leads the World Health Organization’s (WHO) league table of polluted cities.

A new study shows that annual deaths from air pollution in China peaked in 2013 and are now below 1990 levels. Concerted action reduced particle pollution in 74 key Chinese cities by an average of 33% between 2013 and 2017.

Industry and traffic were cleaned up and tackling fuels used at home played a big role too. In 2005, 61% of Chinese homes cooked using coal or wood. This reduced to 32% in 2017. Around Beijing coal heating was banned in favour of fossil (natural) gas, and clean energy was promoted countrywide.

However, about 1.25 million Chinese people still die early each year as a result of air pollution. In 2005, the WHO set global guidelines for particle pollution and interim targets for countries to gauge progress.

Today, the air breathed by 81% of China’s population has yet to meet the first interim target. Controlling air pollution is hard. Other countries can learn from China’s experience and avoid using fossil fuels, especially coal, to power their industrial development.

Wildfire smoke brings worst air quality to Portland, Seattle

Date:-11-Sept-2020, Source: apnews.com

SEATTLE (AP) — Smoke pollution from wildfires raging in California and across the Pacific Northwest worsened in San Francisco, Seattle and Portland, Oregon, on Friday, giving those cities and others in the region some of the world’s worst air quality.



A man wearing a mask walks by the lake outside of the Washington State Capitol in Olympia, Wash., Friday, Sept. 11, 2020. Olympia is among the places facing unhealthy air quality due to wildfires in the Pacific Northwest.

Public health officials warned residents to keep indoors with the windows shut, to set air conditioners to run on recirculated air instead of fresh, and to use air purifiers if they had them. Meanwhile, they wrestled with whether to open “smoke shelters” for homeless people or others lacking access to clean air amid

the COVID-19 pandemic and concerns about herding people indoors.

“The same population that is most vulnerable to the virus is also most vulnerable to the smoke,” Seattle Mayor Jenny Durkan noted during a news conference.

The sky turned a hazy, grayish white across the Northwest as winds that had previously pushed much of the smoke offshore shifted, bringing unhealthy levels of near-microscopic dust, soot and ash particles to Portland, Seattle, and Vancouver, British Columbia. San Francisco also continued to suffer from smoke pollution; those four cities topped the list of major cities with the worst air quality Friday, according to IQAir.com, which tracks air quality around the world.

The particles are small enough that they can penetrate deep into the lungs, and health effects can include chest pain, arrhythmia and bronchitis. Those with preexisting conditions such as heart and lung disease or asthma are especially at risk.

The smoke was expected to linger through the weekend, another reminder of the vast and severe effects of climate change. In a news conference Friday, Washington Gov. Jay Inslee insisted on calling the blazes “climate fires” rather than wildfires.

“This is not an act of God,” Inslee said. “This has happened because we have changed the climate of the state of Washington in dramatic ways.”

Seattle ordered parks, beaches and boat ramps closed through one of the last hot weekends of the summer to discourage outdoor recreation, and officials were opening a clean air

shelter Friday afternoon that can hold 77 people. The facility, which had been set up as an overflow COVID-19 care facility, is large enough to allow for social distancing, they said.

San Francisco officials were also opening “weather relief centers” that will stay open through the weekend, said Mary Ellen Carroll, director of the city’s Department of Emergency Management. City buses were free for everyone so those who need to can reach the centers.

Much of California was covered by a thick layer of smoke being pumped into the air by dozens of raging wildfires. In San Francisco, the gray air smelled of burned wood and visibility was clouded by “very unhealthy” air, according to the Bay Area Air Quality District.

Residents were also asked to avoid activities that could further degrade the air quality, including unnecessary driving, lawn mowing and barbecuing.

Working in University Place, a Tacoma suburb, Washington state Department of Ecology spokesman Andy Wineke said the smoke had obliterated his typical view of the Olympic Mountains.

“I can barely see my neighbor,” he said.

Vancouver currently has some of the worst air quality out of the world’s major cities

Date:-12-Sept-2020, Source: ubyssey.ca



Folks are advised to stay indoors with the windows shut and if possible, in clean air.


Vancouver has some of the worst-rated air quality out of the world’s major cities due to smoke from wildfires that have been ravaging the west coast of the United States.

According to IQAir, a global air-quality information platform, Vancouver is second only to Portland, Oregon for the world’s worst air quality and pollution levels. IQAir uses the US Environmental Protection Agency’s Air Quality Index

(AQI) to form its rankings.

The index is based on five major pollutants, including particle pollution, and increases relative to the severity of health impacts from the air quality.

12 September 2020, 16:41

Major city			US AQI
1		Portland, USA	302
2		Vancouver BC, Canada	216
3		Seattle, USA	188
4		San Francisco, USA	163
5		Lahore, Pakistan	154
6		Delhi, India	154
7		Los Angeles, USA	146
8		Karachi, Pakistan	145
9		Dubai, United Arab Emirates	124
10		Tehran, Iran	120

Of the world's major cities, Vancouver currently has the second-highest AQI.

Real-time Canada city ranking			
#	CITY	US AQI	
1	Castlegar	273	
2	New Westminster	216	
3	Vancouver BC	216	
4	Surrey East	212	
5	West End	212	
6	Burnaby	203	
7	Sechelt	202	
8	Victoria Topaz	200	
9	Richmond	197	
10	Tsawwassen	197	
			15:00, Sep 12 (local time)

At the time of writing, the ten Canadian cities with the highest AQI indexes are all located in BC. Of those 10, 7 have an AQI rating of above 200, or are at levels that are 'very unhealthy.'

On September 8, Environment Canada released public weather alerts for nearly every location in British Columbia as smoke from wildfires in California, Oregon and Washington have blown northward in recent days.

"Wildfire smoke ... is forecast to impact air quality through the weekend as a large mass of

smoke move[s] through,” reads the advisory for Metro Vancouver.

The advisory specifically highlights the presence of fine particulate matter, or PM2.5 — small airborne particles that wildfire smoke, along with gasses, is composed of. When inhaled, they can cause irritation of the eyes, nose and throat, and inflammation.

While the cotton and surgical face masks worn by much of the province in response to the COVID-19 pandemic can block the aerosols that carry the coronavirus, they don’t protect against PM2.5. The tighter-fitting N95 respirators can filter out these particles if worn properly, but using them isn’t advised while stock is in short supply and they need to be reserved for health care professionals and front-line workers.

Instead, folks are advised to stay indoors with the windows shut and if possible, in clean air.

Environment Canada’s Air Quality Health Index, which is calculated using the presence of air pollutants and describes the health risk related to each level, has values that range from 1–10+. At the time of writing, Metro Vancouver’s observed conditions are rated at 10+, or very high risk.

At this risk level, Environment Canada recommends that at-risk individuals avoid physically demanding activities outdoors, and that the general population reduce outdoor activities and monitor for symptoms including coughing and throat irritation. At-risk individuals include young children, seniors and people with respiratory or cardiovascular conditions such as COVID-19.

During an air quality advisory, you can reduce your personal health risk by:

- Staying cool and drinking lots of water,
- Limiting your outdoor and strenuous physical activities,
- Keeping your windows and doors closed at home and in your vehicle,
- Using a high-quality air filter
- And checking in on your neighbours and loved ones who are more vulnerable to smoke, while respecting physical distancing guidelines.

An alert from Metro Vancouver released this morning stated that people may seek refuge from wildfire smoke in public indoor spaces, but physical distancing guidelines in place due to COVID-19 must be adhered to.

Information from the BC Centre for Disease Control has previously stated that reduced air quality may lead to more severe cases of COVID-19 and more COVID-19 infections overall due to reduced immune function of the respiratory system.

“If you are experiencing symptoms such as chest discomfort, shortness of breath, coughing or wheezing, seek prompt medical attention,” reads the statement from Metro Vancouver.

Air quality is forecasted to improve Monday. However, because of the ever-changing patterns of winds, temperatures and wildfire behaviours, air-quality conditions can change quickly.

How climate change is fueling record-breaking California wildfires, heat and smog

Date:-13-Sept-2020, Source: latimes.com



Smoke and haze from wildfires hovered Thursday over San Francisco, as much of California was blanketed in smoke from a siege of wildfires and poor air quality.

In 2001, a team of international scientists projected that during the next 100 years, the planet’s inhabitants would witness higher maximum temperatures, more hot days and heat waves, an increase in the risk of forest fires and “substantially degraded air quality” in large metropolitan areas as a result of climate change.

In just the past month, nearly two decades after the third United Nations Intergovernmental Panel on Climate Change report was issued, heat records were busted across California, more than 3 million acres of land burned, and in major metropolitan areas, such as Los Angeles and San Francisco, air pollution has skyrocketed.

“This shouldn’t come as a surprise to anyone,” said Michael Gerrard, director of the Sabin Center for Climate Change Law at Columbia University. “Maybe we underestimated the magnitude and speed” at which these events would occur, he said, but “we’ve seen this long freight train barreling down on us for decades, and now the locomotive is on top of us, with no caboose in sight.”

In a matter of weeks, California has experienced six of the 20 largest wildfires in modern history and toppled all-time temperature records from the desert to the coast. Millions are suffering from some of the worst air quality in years due to heat-triggered smog and fire smoke. A sooty plume has blanketed most of the West Coast, blotting out the sun and threatening people’s lungs during a deadly pandemic.

California is being pushed to extremes. And the record heat, fires and pollution all have one thing in common: They were made worse by climate change. Their convergence is perhaps the strongest signal yet that the calamity climate scientists have warned of for years isn't far off in the future; it is here today and can no longer be ignored.

"What we've been seeing in California are some of the clearest events where we can say this is climate change — that climate change has clearly made this worse," said Zeke Hausfather, a climate scientist at the Breakthrough Institute, an Oakland-based think tank. "People who have lived in California for 30, 40 years are saying this is unprecedented, it has never been this hot, it has never been this smoky in all the years I've lived here."

Unprecedented, yes. But not unexpected.

Since the 1980s, government and oil industry scientists have been anticipating the events that have transpired across the state this past month.

As one 1988 internal Shell Oil Co. document noted, "by the time the global warming becomes detectable it could be too late to take effective countermeasures to reduce the effects or even to stabilize the situation."

"I'm only sorry that in 1989, I could not get an audience for what I wanted to communicate," said Jim Hansen, a retired NASA researcher and early climate change scientist, of testimony he made to Congress about the issue.

Record temperatures

Each of the extremes Californians are living through right now is fueled, at least in part, by the gradual warming of the planet, which is accelerating as greenhouse gas emissions continue to rise.

California summers are 2.5 degrees warmer than they were in the 1970s and are on track to heat up an additional 4.5 degrees by the end of the century if the world's current emissions trajectory continues, said Hausfather.

While precise attribution studies on the extreme heat waves in California in recent weeks will take time to complete, he said, they are clear examples of how climate change compounds natural weather variability to increase the likelihood of what once would have been a rare event.

"In a world without climate change, it still would have been a hot August; we still would have had some fires. But it's clear that climate change has made things notably worse," he said. "An extreme heat event that would have been 100 degrees is now 102.5 or 103 degrees, and that is actually a pretty big difference in terms of the impacts on people."

During the mid-August heat wave, Death Valley soared to 130 degrees, one of the hottest temperatures ever recorded on Earth.

Another ferocious heat wave over the Labor Day weekend brought Death Valley-like heat to other areas. Los Angeles County had its hottest temperature on record when Woodland Hills hit 121 degrees Sept. 6. At Cal Poly San Luis Obispo, it reached 120 degrees, the highest reading since record-keeping began in 1869, in an area that is less than 10 miles from the Pacific Ocean.

John Lindsey, a marine meteorologist with Pacific Gas and Electric, said the mercury rose to unprecedented levels in San Luis Obispo due to hot, downslope winds blowing from the northeast. They are known locally as Santa Lucia winds and can increase temperatures by 5.5 degrees for every 1,000 feet they descend.

"It was just rip-roaring hot," said Lindsey, who has forecast weather along the Central Coast since 1991. "You just don't expect Death Valley temperatures along coastal California."

Lindsey, who acknowledges that he was a bit of a climate skeptic in the past, said seeing the increase in seawater temperatures, in particular, over many years "was a real epiphany or wake-up call."

"By now, there's no doubt in most people's minds that the atmosphere is warming and the ocean is warming," he said. "With the way greenhouse gases are increasing, in my mind, there's no doubt that we're causing this. It's human activity that's causing this. So I'm concerned about the future. And that's somebody who's very skeptical."

Global warming has increased the odds of unprecedented heat extremes across more than 80% of the planet and "has doubled or even, in some areas, tripled the odds of record-setting hot events" in California and the Western U.S., said Stanford University climate scientist Noah Diffenbaugh.

An unprecedented firestorm

When it comes to wildfires, "what we've had in California over the last three to four weeks is unprecedented in our historical experience," Diffenbaugh said.

"This is more extreme than any other year in living memory," he said, and is consistent with the impact of global warming.

Research by Diffenbaugh and colleagues that was published last month found that the number of days with extreme wildfire weather in California has more than doubled since the early 1980s, primarily due to warming temperatures drying out vegetation.

"It means that even with no change in the frequency of strong wind events, even with no change in the frequency of lightning, the risk of wildfire and risk of large, rapidly growing wildfires goes up as a result of the effect of that warming," he said.

And it's that atmospheric warming that has set the stage for the fires raging throughout the western U.S., said Park Williams, a hydroclimatologist at Columbia University's Lamont-Doherty Earth Observatory.

"If we think of the atmosphere as a giant sponge that's always trying to extract water from the landscape, then temperature increases the sponginess," he said.

As soils become drier, heat waves become more intense. That's because the energy in the atmosphere is no longer being used in evaporation but is just building up heat. And as heat increases and soils — and, therefore, fuel for fires — dry out, the risk grows, laying the foundation for the type of wild and destructive fires we are now observing.

"That's why, I think, you keep reading quotes from these firefighters who say they are seeing fire behavior unlike anything they've seen before," he said. "As we go out in the future, in a world with this exponentially growing risk ... we're going to see fires far different than we've seen before."

He noted that fires are not unusual in California — they are an integral part of the state's history and landscape. Bad forest management, combined with human behavior — intentional and unintentional starting of fires — have contributed to the problem. But the effect of climate change is real and growing.

"We have seen the rapid warming of California summers really turbocharge the type of conditions that are suitable for rapid growth of wildfires," Hausfather said. "We see fires growing from essentially nothing to a quarter of a million acres in one day. And that's because the conditions are ripe, and temperature plays a large role."

John Abatzoglou, associate professor in the Department of Management of Complex Systems at UC Merced, agreed.

"What we are seeing play out does indeed have human fingerprints on it, including those from climate change," he said.

"We can see how warm and dry years catalyze these fires," he said, adding, however, that for fires to start, "they need to have ignitions. But the heat and dryness have absolutely set the table for widespread fire activity."

Dreadful air quality

It was no coincidence that ozone pollution levels in downtown Los Angeles spiked to their highest levels since the mid-1990s on a day in which temperatures reached an all-time high for the county, said Cesunica Ivey, an assistant professor of chemical and environmental engineering at UC Riverside who studies air quality.

The global rise in temperatures observed over decades is also occurring locally, she said, “and these frequently occurring heat waves, this upward trend in basin-wide average temperature, is contributing to ozone exacerbation.”

Southern California regulators have seen decades of progress fighting smog stymied in recent years by hotter weather and stronger, more persistent inversion layers that trap pollution near the ground. Their efforts are being hindered by rising temperatures from climate change, according to air quality experts.

That’s because hotter weather speeds up the photochemical reactions that turn pollutants from vehicle tailpipes and other sources into ozone, the invisible, lung-damaging gas in summer smog. Studies show that ozone levels are about two parts per billion higher than they would be without global warming.

What precisely is driving changes such as elevated smog levels can be hard to tease out in the middle of an extreme event because so much is happening at once, with multiple hazards piling on top of each other in a vicious feedback loop.

The recent heat spells, for instance, both fueled smog formation and led to power outages. Gov. Gavin Newsom suspended air quality rules on power plants and other polluters to ease strain on the grid, allowing more emissions to sully the air. The COVID-19 pandemic has added an additional layer of complexity at a time when Californians are trying to protect their homes, lungs and bodies from threats that seem to be coming from all sides.

“When you add COVID, extreme heat, wildfires and air pollution all together, they’re all detrimental to public health, and it just makes things worse,” said Yifang Zhu, a professor of environmental health sciences at UCLA Fielding School of Public Health who studies air pollution and its effects. “These stressors are happening at the same time. So the impact is cumulative and maybe even synergistic to each other.”

That cascading effect, in which one extreme compounds another, is a feature of global warming that experts have long warned about.

Ivey, of UC Riverside, said she and other scientists aren’t surprised to see so many extremes hitting simultaneously, “but to see it playing out is scary.”

“It’s one of those moments where ozone converged with record acres burned and a heat wave,” she said. “If the writing isn’t on the wall, then I don’t know what to tell folks.”

Global warming is also fueling increases in wildfire pollution, a mix of soot particles and gases that can fuel ozone formation and dramatically worsen smog. Those added emissions are only going to get worse as the severity and frequency of fires increases.

“People may not directly connect local air pollution to global climate change, but they are intertwined,” said Zhu. “They are two sides of the same coin.”

What this year’s extreme heat, fire and air quality degradation is showing, said Columbia’s Williams, is that we are, in a sense, blindly stepping off a cliff from a world in which we could somewhat predict what was going to happen, based on decades and centuries of data.

“We’re finding that we’ve lost complete control,” he said. “The baselines we’ve used for decades no longer apply. There really isn’t a normal anymore.”

West coast cities face the world's worst air quality as wildfires rage

Date:-14-Sept-2020, Source: theguardian.com



Neighborhoods shrouded in smoke as the Bobcat fire advances toward foothill cities on 13 September 2020 in Monrovia, California.

Four west coast cities in the US currently rank in the top 10 for worst air quality in the world, as wildfires rage up and down the western seaboard, cloaking the entire region in smoke.

Portland, Oregon, and Seattle, Washington, hold the No 1 and No 2 spots, while San Francisco and Los Angeles sit at four and six. Collectively, with the

smoke from the wildfires, these four cities have knocked every city in China out of the top 10 for worst air quality.

With wildfires burning more than 3.3m acres in California, 1m acres in Oregon and more than 620,000 acres in Washington state, smoke from these blazes has nearly reached Hawaii to the west and Michigan to the east.

Many in California are approaching a month of unhealthy air quality. The state’s fire season kicked off early with a freak barrage of dry lightning in mid-August that sparked a number of infernos, many of which are still burning. The August lightning siege, as firefighters refer to the event, resulted from nearly 14,000 lightning strikes that ignited more than 900 new wildfires. Warm temperatures and dry conditions have fueled additional fires since then. Six of the state’s 20 largest wildfires in its history are currently burning. At least 24 people have died.

Ash has rained down on cities such as Oakland, San Francisco, Sacramento, Los Angeles and San Diego for weeks now, blowing into the cracks of windows and covering surfaces. Local

officials have warned residents to stay indoors and avoid outdoor physical activities. Unhoused Californians and residents forced to evacuate from the wildfires have faced particular challenges with finding shelter amid the current air quality that abides by social distancing. In Berkeley and Oakland, local lawmakers opened air respite centers for vulnerable unhoused residents. Residents in Oregon and Washington are now experiencing what their California counterparts have gone through since mid-August. A heavy haze rests upon the Pacific north-west as wildfires leveled entire neighborhoods last week, killing at least 10 in Oregon. In Clackamas and Marion counties, large blazes remained completely uncontained.

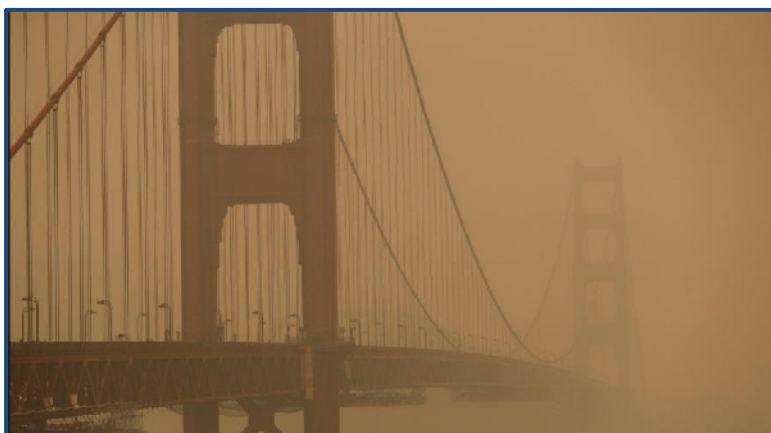
Washington state residents met much of the same fate over the weekend, as the combined effect of the wildfires in Oregon and the dozens more burning in Washington sent plumes of smoke over the state. Much hoped-for relief in the form of a weather system did not arrive on Monday, as expected, but the National Weather Service hoped that air quality conditions could begin improving later. Scientists are already seeing the health effects of wildfire smoke exposure on residents, with Stanford University recording hospital admissions for asthma rise by 10% and cerebrovascular incidents such as strokes jump by 23% in the days following the August lightning siege in California.

Further complicating the health effects of the smoky air quality is a pandemic centered on a virus that affects the lungs. Researchers have expressed concerns that the unhealthy air quality will only intensify the risks of the Covid-19 pandemic, in terms of physical and mental health.

Wildfire smoke causes record pollution in Oregon, wafts as far as Washington, D.C.

Date:-15-Sept-2020, Source: reuters.com

SACRAMENTO, Calif./WASHINGTON, D.C. (Reuters) - Air quality in five major cities in Oregon



The Golden Gate Bridge is seen under a smoke filled sky from California wildfires in San Francisco, California, U.S., September 10, 2020.

was the worst on record as the state continues to be blanketed by thick smoke from wildfires ravaging nearly 5 million acres in the U.S. West, environmental officials in the heavily forested state said.

The fires have generated so much smoke that along with hazardous air from California to Washington state, skies above the U.S. capital have

also taken on a hazy din, thanks in part to smoke wafting thousands of miles from the West Coast.

The unprecedented wildfires – burning across a total of some 4.5 million acres (1.8 million hectares) as of Tuesday – have burned through towns in Oregon while also devouring forests in California, Washington and Idaho. The resulting blanket of ash and smoke has made the region's air quality among the worst in the world.

Hardest hit is Oregon, where tiny bits of smoke and ash known as particulates have reached the highest levels on record in Portland, Eugene, Bend, Medford and Klamath Falls, the state's Department of Environmental Quality said on Tuesday.

Air this week in all five cities was rated "hazardous" according to air quality standards, and in Bend, the air quality index topped 500, exceeding the air quality scale altogether, the department said.

Satellite images show that some of the smoke from the fires, traveling on the jet stream at high altitude, has wafted east as far as New York and Washington, D.C., according to the National Weather Service.

That smoke is not necessarily reducing the air quality near the ground, though.

John Simko, a spokesman for the National Oceanic and Atmospheric Administration, said that generally, such particles are carried high on the wind and may not come close enough to earth to impact air quality.

He did not address air quality in a specific region of the country. But on Tuesday, measures of fine particulate matter, known as PM2.5, in New York and Washington, D.C., were within a range considered safe by U.S. standards.

In Los Angeles, the smoke just hangs all day, every day. Residents say it's taking a toll

Date:-16-Sept-2020, Source: edition.cnn.com

(CNN)In the foothills below the Bobcat Fire, just northeast of Los Angeles, the smoke just hangs all day, every day.

"Thirty-plus years ago, I quit smoking," Mike Day, of nearby Monrovia, told CNN on Saturday. "But I've started again in the last six days, just from (breathing) the air."

Day is among thousands of people on the West Coast who feel they are unable to go outside without the poor air quality taking a toll on their health.



COURTESY JACOB ANDRADE

These are the Hotshots, firefighters on the frontlines of deadly California blazes

The almost 90 large wildfires raging in the West have killed at least 36 people, destroyed hundreds of buildings and even entire towns. The fires have also burned more than 4.6 million acres in the West, creating massive plumes visible even on the

International Space Station.

The smoke, many say, has

become unbearable.

People in states like California, Oregon and Washington said they have had physical reactions -- headaches, drowsiness and dry, burning eyes -- after air quality index rates in their areas soared.

Air quality levels from Canada to Southern California are unhealthy or even hazardous, according to the US government's AirNow Smoke Map. And three cities -- Portland, Oregon, Seattle and San Francisco -- now have the worst air quality of any in the world, according to the monitoring group Air Quality Index.

And as the fires continue to burn, people's health concerns continue to grow.

'Post-apocalyptic' vibes in Oregon

Oregon's congressional delegation urged Health and Human Services Secretary Alex Azar to declare the wildfires there a public health emergency, saying 10% of all hospital admissions are asthma-related, according to a statement from Sen. Ron Wyden's office.

"Over the last several days, air quality across Oregon has ranked among the worst in the world and even maxed out the scale used by the Environmental Protection Agency to measure hazardous air quality," the statement said.

Terrence Petty, a Portland resident, said the city's "smoke-clogged air has compounded the anxiety" people are feeling from the daily protests and the pandemic.

"The city looks post-apocalyptic," Petty, a retired Associated Press editor, told CNN in an email.

"We didn't see the sun for several days. People are staying inside. This is especially difficult for Portlanders, who are fond of going for walks in city parks, cycling, and other outdoor activities."

Petty usually rides his bicycle 30 miles every day. But he said he hasn't been able to ride it since last Thursday.

"I miss the outdoors," he said. "I'm not the only one who's starting to go stir crazy."

'A cloud of smoke' over Washington

Washington Gov. Jay Inslee said that "virtually the entire state is covered by a cloud of smoke."

It's "unbelievably irritating, downright unhealthy and dangerous, so people literally can't go outside their homes to care for their health," Inslee told CNN's Wolf Blitzer Monday.

In Spokane, Washington, where there were several large fires to the south and northwest, the fine particle pollution Sunday was "more than 13 times the national, health-based standard of 35 micrograms/cubic meter of air," according to a Spokane Regional Clean Air Agency tweet.

Richard Goodrich, an associate professor of history at the Gonzaga University, went out to take photographs of the smoke Sunday night, donning two cloth face masks.

"It is hard to breathe, and the smoke causes sore throats and a nagging headache," Goodrich told CNN.

Over in Seattle, Oakland A's pitcher Jesús Luzardo said he was "gasping for air" during his start on Monday's game against the Mariners.

'Inhaling smoke' across California

In California alone, wildfires have destroyed more than 3.2 million acres of land, health officials said on Tuesday. That is an area almost the size of Connecticut.

In the San Francisco Bay Area, the longest stretch of unhealthy air quality alerts record is broken daily. The alert has been extended through Wednesday, which would be 30 days of alerts in a row.

The previous record was 14 consecutive days, set during the 2018 Camp Fire that devastated the city of Paradise.

Katherine Simon, who has lived in San Francisco for almost 18 years, said she's never seen anything like the conditions there last week, when people had their lights on in the middle of the day because the sky was so dark.

"I typically will take the dog out by now on a walk, but it's almost to a point you don't really even want to go outside," she told CNN.

In Los Angeles, Joaquin Baldwin said the air quality has made him feel drowsy, and his eyes have started to burn.

"The air quality was pretty bad, even inside the house with everything closed," Baldwin, an animation layout artist, told CNN. "It's not healthy at all."

A homemade air purifier -- which he made using a fan and filters he bought from the hardware store, after seeing that air purifiers across the Coast were sold out -- helped.

But he still is avoiding the outdoors as much as possible.

"We have a balcony here and we don't allow for more than a minute or two just to look out for a second. It's very strong when you go out. You're just inhaling smoke the whole time."

Doctors: Smoke exposure is worrisome

The alarmingly high level of smoke in the air has physicians concerned.

"I'm very worried, actually," said Dr. Mary Prunicki, director of Air Pollution and Health Research at the Sean N. Parker Center for Allergy and Asthma Research at Stanford University.

"Because the levels have been high enough, long enough, and research studies show the health effects of that, especially for vulnerable populations, from wildfire smoke exposure."

Prunicki cited a Canadian study that showed within an hour of a community experiencing wildfire smoke, "you can see an increase in ambulance calls for respiratory and cardiac distress."

"And then you layer on the Covid pandemic on top of it, and the fact that we're going into influenza season."

The Air Quality Index in many places along the West Coast has been soaring. An AQI of 301 or more is hazardous, and in some places, including Sisters, Oregon, on Tuesday, it's above 400.

Even much lower levels are especially bad for people with heart or lung conditions, the elderly, children and teenagers, said Dr. John Balmes, a pulmonologist at University of California San Francisco.

An AQI from "101 to 150 is definitely unhealthy for those subgroups, 151 to 200 is unhealthy for everyone, and 201 and above is very unhealthy," Balmes said.

Prunicki said she checks the AQI before leaving the house and advises others to do that, too. "We keep checking it and hope that at some point it's tolerable to go out for a while," she said.

Doctors are also worried the bad air could make people with Covid-19 sicker.

"There was worry before the actual fires started about the potential interaction between bad air quality due to wildfire smoke, and COVID-19," Balmes said.

"Because there are a number of studies from China, from the Netherlands, from Italy, and at least one from the US that suggest that air pollution exposure can cause progression from asymptomatic SARS-CoV-2 infection to more symptomatic COVID-19, and even death."

Western wildfire smoke causes East Coast haze, vivid sunsets

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



The Bobcat Fire burns out a hillside near homes on September 15, 2020 Monrovia, California.

SACRAMENTO, US: The smoke from dozens of wildfires in the western United States is stretching clear across the country - and even pushing into Mexico, Canada and Europe.

While the dangerous plumes are forcing people inside along the West Coast, residents thousands of miles away in the East are seeing unusually hazy skies and remarkable sunsets.

The wildfires racing across tinder-dry landscape in California, Idaho, Oregon and Washington are extraordinary, but the long reach of their smoke isn't unprecedented. While there are only small pockets in the southeastern US that are haze free, experts say the smoke poses less of a health concern for those who are farther away.

The sun was transformed into a perfect orange orb as it set over New York City on Tuesday. Photographs of it sinking behind the skyline and glinting through tree leaves flooded social media.

On Wednesday, New Jersey residents described a yellow tinge to the overcast skies, and weather forecasters were kept busy explaining the phenomenon and making predictions as to how long the conditions would last.

On the opposite coast, air quality conditions were among some of the worst ever recorded. Smoke cloaked the Golden Gate Bridge and left Portland and Seattle in an ashy fog, as crews

have exhausted themselves trying to keep the flames from consuming more homes and even wider swaths of forest.

Satellite images showed that smoke from the wildfires has travelled almost 5,000 miles (8,000 km) to Britain and other parts of northern Europe, scientists said on Wednesday.

The current weather system, which favours a westerly wind across the higher levels of the atmosphere, is to blame for the reach of the smoke, experts explained.

"We always seem, at times, to get the right combination of enough smoke and the upper level jet stream to line up to bring that across the country, so we're just seeing this again," said Matt Solum with the National Weather Service's regional operations centre in Salt Lake City, Utah.

"It's definitely not the first time this has happened."

There could be some easing of the haze this weekend as a storm system is expected to move into the Pacific Northwest and could affect the conditions that helped the smoke travel across the country. But Solum said there's always a chance for more smoke and haze to shift around.

"Just due to all the wildfires that are going on, this is likely going to continue for a while," he said. "You might have ebbs and flows of that smoke just depending on how the upper level winds set up."

Kim Knowlton, a senior scientist with the Natural Resources Defence Council in New York City, said she woke up Wednesday to a red sunrise and more haze.

She said millions of people who live beyond the flames can end up dealing with diminished air quality as it's not uncommon for wildfire smoke to travel hundreds of miles.

Although the health impacts are reduced the farther and higher into the atmosphere the smoke travels, Knowlton and her colleagues said the resulting haze can exacerbate existing problems like asthma and add to ozone pollution.

Vancouver again tops list Friday morning for worst air quality in the world

Date:-18-Sept-2020, Source: vancouversun.com

Metro Vancouver and the Fraser Valley have been under a poor air quality alert since Sept. 8, but some reprieve may be on the way this weekend depending on the wildfires in Oregon.

Vancouver has once again topped the list for the worst air quality in world. On Friday morning, Vancouver was ranked No. 1 city in the World Air Quality Index for poor air quality

and pollution because of the smoke blanketing the region from the wildfires south of the border.



An air quality alert remains in effect for Metro Vancouver and most of southern British Columbia as smoke from U.S. wildfires continues to blow north of the border.

Residents in Metro Vancouver and the Fraser Valley have been living under a thick haze for more than a week, and a poor air quality alert has been in effect since Sept. 8.

However some reprieve may be on the way this weekend, depending on the wildfire activity in Oregon.

While Environment and Climate Change Canada is forecasting widespread smoke for Friday and Saturday, the outlook for Sunday looks a

little brighter. So far, the agency is calling for a mix of sun and cloud, with no mention of smoke. And Monday, the first day of fall, looks clear and sunny, with a high of 20 C.

Metro Vancouver continued the fine particulate matter advisory on Friday for Metro Vancouver and the Fraser Valley, saying smoke from fires in Washington, Oregon and California continues to persist in the region.

“Air quality has continued to improve since yesterday but ground-level smoke still remains and is expected to remain today,” the advisory stated.

Metro Vancouver says the rain in the forecast is expected to bring further improvements Saturday and through the weekend.

Last Saturday, Vancouver was listed as having the worst air quality in the world along with Portland and San Francisco.

Meantime Friday, Canada is sending nearly 300 firefighters and technical specialists to help fight the wildfires in Oregon. Of those more than 200 are from B.C.

The wildfires in Oregon so far have killed at least eight people, destroyed more than 1,000 homes and scorched more than 4,000 square kilometres.

Expert recommends staying indoors as west coast wildfire smoke reaches Saskatchewan

Date:-19-Sept-2020, Source: globalnews.ca

With Saturday highs of 25 C in Regina, it may be tempting to head outside and enjoy one of summer's last gasps this weekend, but health experts say incoming west coast wildfire smoke could leave you gasping as well.

"Generally speaking, it's best to stay indoors. You definitely don't want to be doing anything that will increase your respiratory rate such as exercising," said Saskatchewan Lung Association nurse Jill Hubick. "Particles of smoke are really small. Dust and cloth masks, for example, won't protect you from smoke."

The recommendation comes as weather experts predict smoke from wildfires in the northwest U.S. will soon settle over the prairies.

"We've got a cool upper trough rolling in and there's cooler air aloft. Because colder air is denser it will sink down to the ground and I think it will bring some of that smoke along with it. So it looks like the air quality will begin to deteriorate on Sunday," Quinlan said.

Quinlan says changes in wind direction and rain are the main mechanisms for clearing smoke from a region. He says southern Saskatchewan could see both on Sunday.

"I think, really, it'll be the change in wind direction that we do see as we head into early next week that will push that smoke down to the south across the border into the United States," he added.

Hubick said that health hazards can begin when inhaling any level of wildfire smoke with the potential of negative effects getting more serious from there.

"In general the public will experience things like headaches, runny nose, irritated eyes, and worsening of allergies," she said. "Those with lung diseases such as asthma or COPD – this can be a trigger for them and lead to an emergency, flareup or lung attack which requires immediate medical attention."

Hubick said it's especially important for those with compromised lungs to take their medications, but said that the respiratory system isn't the only part of the body at risk.

"Forest fire smoke causes an inflammatory response. It can also impact the heart," she said, adding that the young and old are most at-risk.

"Children have smaller airways, and smaller lungs and as a result have a faster respiratory rate. As a result of that, they're breathing faster and taking in more smoke. Older adults tend to have the disease so we want to make sure that we're protecting those populations as much as possible."

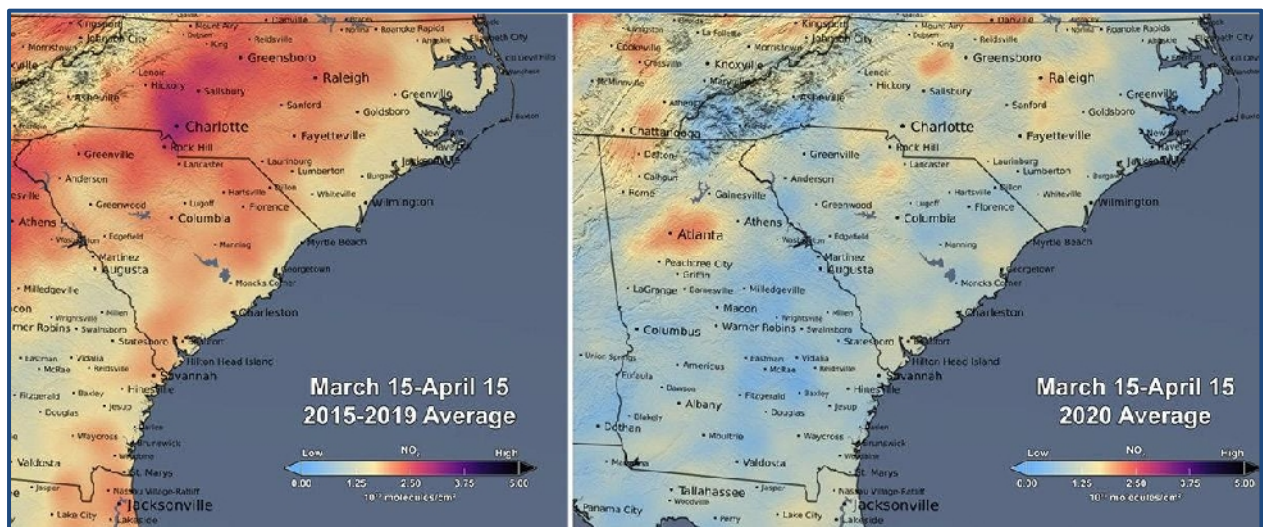
She said that precaution is also important because of the pandemic.

“If you are going to contract COVID-19, you don’t want to be in an already compromised state.”

Hubick reiterated that the best defense against wildfire smoke is to stay indoors, ensure doors and windows are tightly closed, and to put your air conditioner on a re-circulation setting if you have one.

In Shutdown, Less Traffic Doesn’t Mean Cleaner Air

Date:-20-Sept-2020, Source: unc.edu



Satellite images from NASA compare levels of nitrogen oxide, a pollutant produced by road traffic and other fossil fuel combustion processes, from 2015 to 2019 (left) and 2020. (Images by NASA)

As of early April, global carbon emissions decreased by 17%, in part because the COVID-19 shutdown led to a steep decrease in road and air traffic emissions. But while a drop in air emissions sounds positive, Carolina environmental scientist Sarav Arunachalam says the situation is not straightforward.

As the U.S. economy slowed this spring due to the novel coronavirus, an avenue of inquiry is how air emissions changed. One finding is that while passenger vehicle use decreased dramatically, freight traffic increased in some large cities.

“The demand for goods stayed up,” said Sarav Arunachalam, an environmental scientist at the University of North Carolina at Chapel Hill. “Grocery stores, Amazon, and Walmart had business. People were still looking for goods to purchase.”

As of early April, the world’s carbon emissions decreased by 17%, in part because of a 50 to 80% drop in road traffic and 75% drop in air traffic emissions in March.

Prior to the COVID-19 outbreak in the U.S., Arunachalam was working on a project about vehicular emissions in the eastern U.S., broken down by vehicle classes — passenger vehicles, medium-duty trucks, heavy-duty trucks and buses — in each state. The project, which was part of a collaboration seeking to develop the clean energy economy, improve transportation and reduce carbon emissions in the transportation sector, analyzed potential health benefits of transportation policies aimed at curbing climate change.

In the midst of the pandemic, he now wants to know what this change in emissions means for North Carolinians, specifically, and the nation as a whole. Through data modeling, he will quantify the potential reductions in air pollution and human health risks. He warns, though, that while air emission decrease sounds like a positive, the situation is not straightforward.

“If you look at the media right now and some preliminary numbers coming out, there’s a mixed message in terms of understanding if the COVID-19 pandemic shutdown has led to improved air quality,” he said. “Just because emissions from the transportation sector goes down does not mean that air quality has improved. I think that’s a key message.”

This is because factories, refineries, power plants, and diesel trucks are still dominant sources of pollution — not passenger vehicles.

Additionally, although vehicle traffic is down, ozone pollution has barely decreased. Not to be confused with stratospheric ozone, which protects the planet from ultraviolet radiation from the sun, ground-level ozone is detrimental to health. This pollutant is the result of a chemical reaction that happens when a vehicular and industrial pollutant, called nitrogen oxide (NO_x), reacts with naturally occurring, volatile organic compounds.

Although this process creates ground-level ozone, at a certain point, high levels of NO_x actually decrease ozone by temporarily breaking down its molecules.

“Even though you are increasing NO_x, you are removing ozone because you have reached a transition point in the chemical process,” Arunachalam explained. “So now, if you’re reducing NO_x emissions because there are fewer emissions on the road, then that eating up of the ozone is not happening so the ozone levels will start to go up.”

In a project, currently in the preliminary planning phase, Arunachalam wants to explore these nuances to determine how reduced emissions either have or have not contributed to reduced air pollution. Another study will help determine if the large-scale reduction in aviation emissions during the shutdown has led to tangible, local air quality improvements near airports. He hopes more data will reveal if changes in our behavior have had a significant effect on the environment and will provide insight on future changes needed to combat climate change and public health risk due to air pollution.

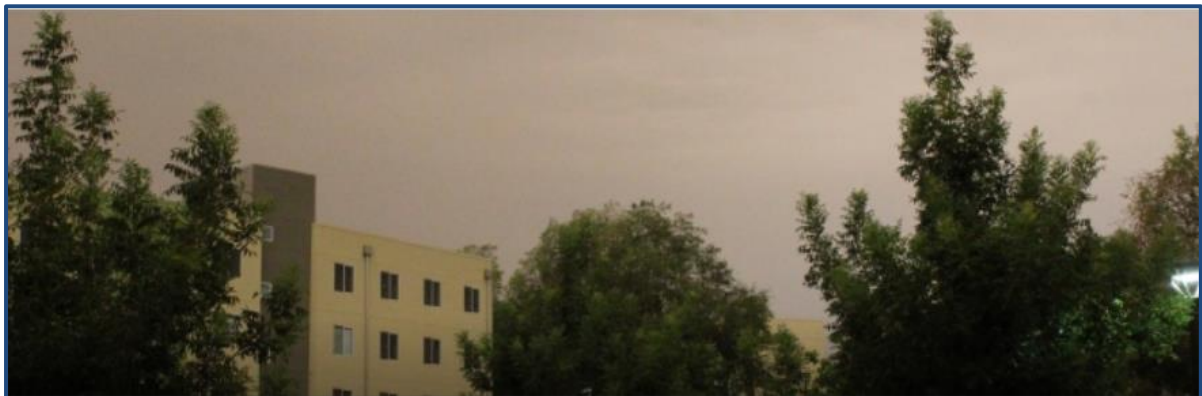
While some are hopeful that the pandemic may bring about positive trends in emissions, Arunachalam says it’s important to learn from historical trends. Both the 1918 flu pandemic

and the 2008 financial crisis saw drops in emissions — by 15% and 1.5%, respectively. However, once daily life normalized a bit, those numbers actually shot up higher to what they were before these events, increasing by 20% and 5% the following year.

“Given the focus being opening and reviving the economy, I have a suspicion that the government and the powers that be will put the environment and public health on the back burner. By doing all that they can to ramp up the economy, they will relax environmental standards and emissions will go back up. That’s my fear,” he said. “[To prevent this] it has to be a combination of both individual action and, more importantly, collective action at the highest levels.”

Unhealthy air conditions due to wildfires may cause long-term health effects

Date:-21-Sept-2020, Source: theaggie.org



Smoke from numerous wildfires in Northern California hangs in the air over the Tercero area of the UC Davis campus on September 9, 2020.

Climate crisis induces hazardous air quality across California

As wildfires ravage California, decimating homes and habitats, smoke blankets the state. This past month, multiple counties—including Solano and Yolo Counties—sent out alerts of unhealthy air quality. As the Air Quality Index (AQI) rose above 200, it became dangerous for everyone, not just those in sensitive groups, to go outside.

Exposure to poor air quality can have serious health consequences. Short term effects include, but are not limited to: asthma-like symptoms like eye irritation, runny nose, chest pain, sneezing, sore throat, coughing and shortness of breath, according to Nicholas Kenyon, a professor and chief of the division of pulmonary, critical care and sleep medicine.

While scientists continue to study the exact consequences of smoke inhalation, the short-term effects of California’s multiple acute episodes of poor air quality may have negative long-term impacts on public health, according to Kenyon.

“We will outlive these short-term events for a few days a year,” Kenyon said. “But if you’re growing up in the Davis area and we have a month of exposure to this wildfire smoke while your lungs are developing, it’s very possible that it affects you long term.”

Smoke inhalation provokes especially negative impacts on individuals with pre-existing health conditions such as asthma, cardiovascular disease and chronic obstructive pulmonary disease. Elderly people, children and pregnant women are also at high risk. These individuals can suffer from asthma attacks, acute exacerbations of their underlying illness, heart attacks or strokes, according to Kent Pinkerton, a professor in the department of anatomy, physiology and cell biology at the school of veterinary medicine and a professor in the department of pediatrics at the school of medicine.

“Our greatest concerns are for specific susceptible groups and certain ages,” Pinkerton said. “Exposure of particles and gases could exacerbate or enhance [their] conditions.”

Helene Margolis, an associate adjunct professor in the department of internal medicine at the school of medicine, said her greatest concern is the impact of poor air quality on pregnant individuals. If these people endure prolonged exposure to smoke late in their pregnancy, they can undergo preterm birth.

Air pollution from wildfires includes both gases and particles of buried materials. Exposure to particulate matter that is smaller than 2.5 microns (PM 2.5) has caused the most fatalities, according to Anthony Wexler, a distinguished professor of mechanical and aerospace engineering and director of the Air Quality Research Center. These small particles can easily enter the deepest parts of the respiratory tract—the alveoli—where gas exchange occurs.

This smoke primarily contains combusted vegetative material; however, more dangerous materials like rubbers, plastics and metals are burning too, since these wildfires have swept through developed land.

“The basic composition is similar to smoking,” Wexler said. “The concentrations are not as high, but [we are] doing it 24/7, which will have long term consequences.”

During unhealthy air conditions, the best way to protect oneself is to remain indoors. If one must go outside, Kenyon does not recommend exercising; raising one’s respiratory rate increases the intake of poor quality air into their lungs. As of Sep. 20, the air quality had improved to moderate conditions, but as California’s fire season continues through October, it is possible for the AQI to rise again.

During unhealthy conditions, individuals who leave their homes should wear N95 masks which provide a tight seal against the nose and mouth as well as proper filtration. N95 masks—which also prevent the spread of COVID-19 droplets—prevent 95-99% of particles

from penetrating the mask, according to Pinkerton. Since the emergence of COVID-19, however, N95 masks have not been readily available.

“Not all the coverings we are using right now for COVID-19 would necessarily be very effective in protecting from smoke or bad air quality,” Pinkerton said. “You really need protection and to not use a facial cloth mask, which only protects from 60% of particles in the air at best.”

Earlier this summer, reducing the spread of COVID-19 prompted many individuals to spend much time outdoors, however, the widespread wildfires have presented a further complication towards attempting to safely escape one’s home.

“It’s amazing how resilient people are in terms of managing what’s going on,” Kenyon said. “There are obviously some discrepancies in terms of recommendations that we’ve been facing with both wildfires and COVID we’re telling people to go outdoors for COVID to get out of closed environments, but of course, with the wildfires trying to stay indoors.”

While more research needs to be conducted before conclusions are drawn, scientists are speculating that exposure to wildfire smoke increases one’s susceptibility to infections, according to Margolis.

“One of our biggest concerns is that [exposure to] air pollution from the wildfire smoke potentially ... increases susceptibility to the virus,” Margolis said.

A correlation of this type has been seen with influenza and a similar could be witnessed with COVID-19, according to Kenyon.

Additionally, there is a concern that if an individual contracts COVID-19 after being exposed to air pollution, the disease is more severe, according to Margolis.

“It’s a pretty scary picture in terms of health,” Margolis said.

California will continue to suffer from wildfires and poor air quality as the climate crisis becomes more severe. In order to combat this issue, people need to decrease their dependence on fossil fuels, according to Wexler.

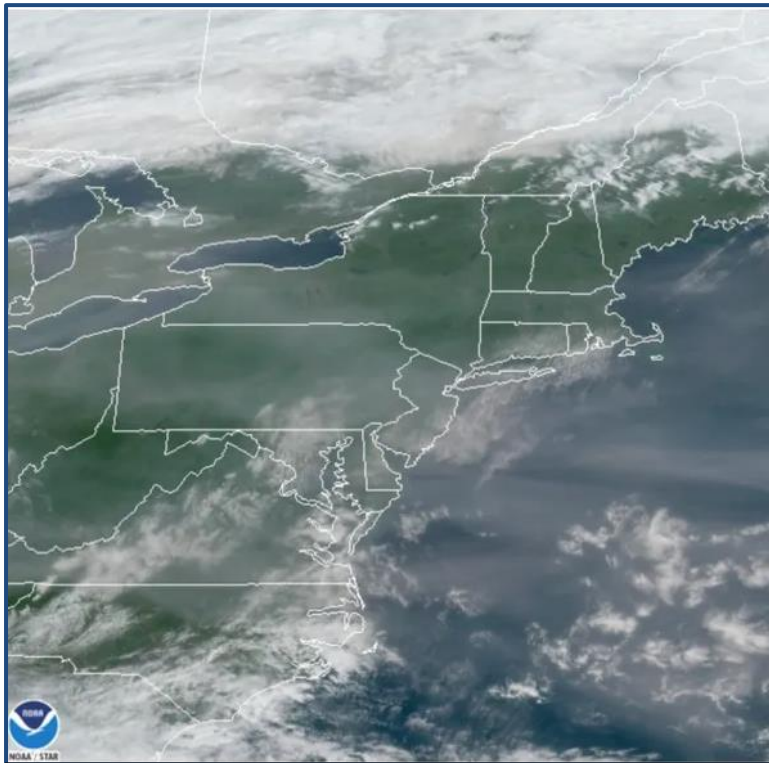
“We have to vote for people who are going to take this seriously and who are going to help us transition to renewable energy sources,” Wexler said.

Margolis hopes that the youth who grow up experiencing wildfires and poor air quality will be the ones to spark change—their health and safety depend on it.

“We know not everyone has lived up to the responsibility of taking care of this planet and keeping it safe, but I think more and more people are becoming aware,” Margolis said. “Don’t give up. Join forces. You have an extraordinary voice and ... you are powerful.”

How can smoke from West Coast fires cause red sunsets in New York?

Date:-22-Sept-2020, Source: theconversation.com



The thin haze, easily visible in this satellite photo over Pennsylvania and New York, is smoke that traveled over a thousand miles on air currents from the fires on the West Coast. NOAA

If you are one of the millions of people in the Midwest and Eastern U.S. who turned your gaze toward the sky recently, you may have noticed the Sun shining through an odd, milky haze. This widespread opaque veil was caused not by clouds, but rather by smoke from wildfires in the Western U.S.

The smoke was cruising by in the middle levels of the atmosphere many thousands of feet above the ground. While far too high to smell, it caused spectacularly hued sunsets from New York to D.C. to Missouri.

Red sky at night

Lasting for about a week from Sept. 12 to Sept. 19, the smoke could be seen in satellite images as wisps and patches of light gray and was especially apparent over the darkly contrasting water of the Atlantic.

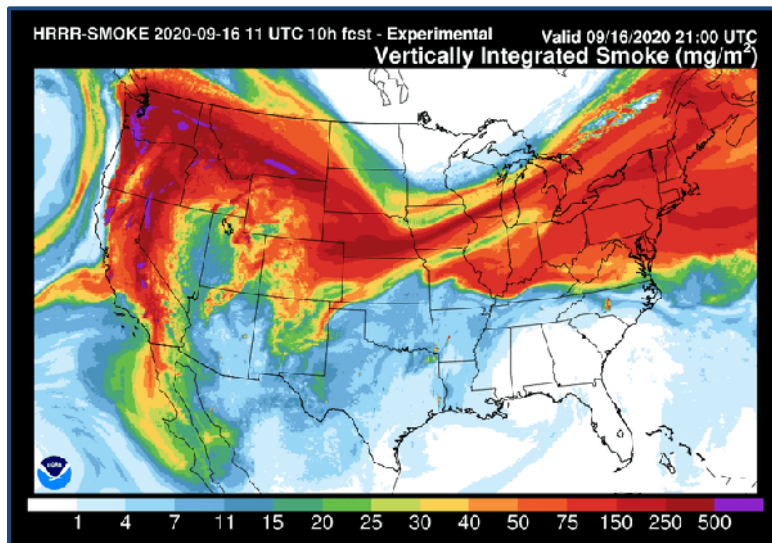
Soot particles are much larger than air molecules and are more adept at scattering the yellow, orange and red wavelengths of sunlight. The enhanced oranges, pinks and reds during sunset occur when the Sun's rays have to travel through more smoke. That happens when the Sun is very low near the horizon rather than when it is directly overhead, hence the fiery sunsets.

Riding the jet stream

The smoke on the East Coast is coming from the horrifically large and persistent wildfires in the Western states. Smoke from those fires is showing up not only on the Eastern Seaboard, but even across the Atlantic in Europe.

How has all that smoke migrated so far? Blame this on the vagaries of the jet stream.

The jet stream is a high-altitude belt of fast wind that sails from west to east around the hemisphere in the middle latitudes. The jet stream is always present, but its wind speeds and exact path around the globe vary daily.



In early September, the jet stream's path abruptly dipped south, draping it through the Western states. When this happened, the air current picked up the rising plumes of smoke and transported them across the U.S. in a layer of air between 10,000 and 20,000 feet above sea level. As the smoke layer raced eastward at up to 100 mph, it spread over cities along the way – dimming

the Sun and creating red sunsets.

A connected world

Smoke isn't the only aerosol that can sail around the Earth on wind currents. Pollution from China regularly travels to the U.S., where it's been detected along the East Coast. Fine dusts lofted from the Sahara Desert in Africa can be swept westward to the Southeastern U.S., as happened just a few months ago.

After a week of hazy skies, a large air mass from Canada blew into the East Coast bringing in smoke-free air. But the Western U.S. fire season continues, and if the jet stream dips south again, the East could experience additional blasts of smoke-laden air. The globe may be vast, but wind currents connect us all.

Some Cities See Air Pollution Surge After Covid Lockdowns

Date:-23-Sept-2020, Source: forbes.com

As countries have emerged from strict Covid-19 lockdowns over the past months, air pollution has seen a significant surge, according to a new report released today.

New York, Los Angeles, Beijing, Melbourne, Madrid, and Cape Town saw a double-digit increase in PM2.5 levels since lockdown ended, according to an analysis by global workplace specialist Instant Offices.

Out of the 15 cities analyzed, New York City saw the biggest increase with a 33% surge in PM2.5 air pollution in June and July. This compares to a 59% drop in PM2.5 levels during the

most stringent lockdown period in April and May. Cape Town saw a 23% increase, while Madrid saw 21%, according to data from the World Air Quality Index.



Mumbai, India

The dramatic decrease in air pollution during lockdowns in the Spring, due to a dramatic decrease emissions from commuting, offices and industrial activity, received widespread media attention.

“Earlier this year, we saw an unprecedented pause in global activity as most countries went into lockdown to stop the spread of COVID-19,” says

Instant Group head of marketing John Williams. “Just two weeks in, PM2.5 levels plunged across some of the world’s busiest cities, leading to improved air quality, increased visibility and even some historical moments, like the Himalaya’s becoming visible for the first time in 30 years in India.”

“Now, as life slowly returns to normal around the world, our air quality comparison across 15 major cities reveals that while some are still benefitting from cleaner air, others have seen pollution skyrocket.”

PM 2.5 air pollution surged in 6 of the 15 cities analyzed. Cities in Asia and Oceania have seen the smallest bounceback in air pollution after lockdowns. Hong Kong (down 16% during lockdown), Sydney (down 13%) and Singapore (down 14%) have all seen their air pollution decrease trend continue into the post-lockdown period. In the post-lockdown period, Hong Kong saw decreases of 127%, Sydney 35% and Singapore 23%.

Some European cities also saw air pollution continue to decrease in June and July, such as London, Hamburg, Rome and Paris. Madrid is the exception with a 21% increase in June and July.

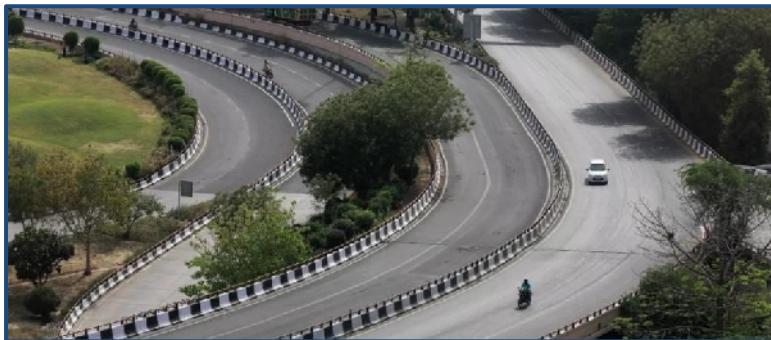
Particulate Matter (PM) are minuscule airborne pollutants that come from vehicles, industrial and agricultural emissions, residential heating and manufacturing plants.

The experience of traffic-free cities has spurred movements across the world to continue the new way of life by converting more cities to pedestrian-only zones. Several European cities have put in place such plans.

Emissions fell during lockdown. Let's keep it that way

Date:-24-Sept-2020, Source: weforum.org

- As the focus shifts to recovering from COVID-19, will we take decisions that restore economies and support the “green” agenda?
- Or are we stuck on the notion that we need to choose between them?
- There will be no point in rebuilding economies and lives if we sacrifice the future of the planet.



Emissions fell 17% in early April compared with 2019 levels.

We're at a pivotal moment when it comes to global warming. As the focus shifts to rebuilding and recovering from COVID-19, we need to make decisions to restore shattered economies, but will they also

contribute to the commitments in the Paris

Agreement?

If there is a silver lining to something as catastrophic as COVID-19, it's the environmental boost and the slowdown in greenhouse gas emissions that we experienced in the early part of the year.

As industrial output plummeted, and as cars disappeared from roads, and planes were grounded, people worldwide noticed a positive effect on their surroundings. The air was cleaner, there was less pollution, and nature began to restore the balance.

Surely after experiencing this glimpse into a 1.5°C future we won't go back to our carbon-intensive lifestyles?

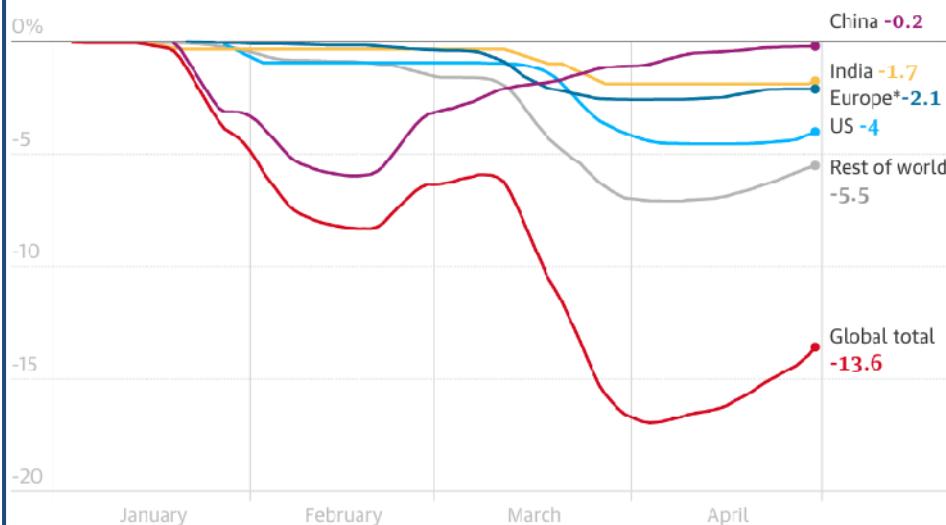
But the fear is that we could. Even before the pandemic struck, there were concerns about achieving the UN target to limit global warming to 1.5°C. Now COVID-19 may undermine concrete action as well as good intentions.

Are lower emissions just a short-term blip?

The International Energy Agency reported that global greenhouse gas emissions are predicted to fall by 8% in 2020 compared with 2019, to levels of 10 years ago. At their peak in early April 2020, daily global emissions decreased by 17% compared with the mean 2019 levels, according to the Global Carbon Project.

Daily global fossil CO2 emissions fell by 17% in early April 2020 compared with 2019

% change in global daily fossil CO2 emissions attributed to each country or region



Guardian graphic. Source: Nature Climate Change. Note: Europe = EU27 plus UK

But by early June, the Global Carbon Project found that emissions had rebounded to within 5% of 2019 levels as countries lifted lockdown measures. This appears to indicate that any reduction in emissions is purely temporary and

that we're set to return to the same depressing upwards trajectory.

We have already seen resolve weaken in the quest to build back regardless, rather than to build back better, with some governments relaxing or suspending environmental protection regulations to stimulate industrial activity.

As governments, businesses and individuals focus on restoring economies and livelihoods, it is too easy to be stuck on the notion that the old unsustainable practices are the only practical option, with green now merely "nice to have".

Repeating mistakes?

This wouldn't be the first time an economic recovery comes at the detriment of the environment. The 2008–2009 global financial crisis saw global CO2 emissions decline by 1.4% in 2009, immediately followed by growth of 5.1% in 2010, well above the long-term average. Emissions soon returned to their previous path almost as if the crisis had not occurred.

Let's not repeat the same mistake. We must separate our economic priorities from the slower-moving, but ultimately greater, threat from climate change.

If we neglect climate change as the most important existential global risk, there will be no point in rebuilding economies and lives if we sacrifice the future of the planet.

The recovery from COVID-19 is not a choice between economic recovery versus a green agenda, but an opportunity to achieve one with the other. We must take decisions in the

firm belief that embedding green policies can be a catalyst for economic growth, while having a positive impact on our health and wellbeing.

Unless we build a green stimulus into all our recovery plans, we'll suffer the long-term consequences. It's the wrong moment to slow the momentum, for example, for carbon pricing, or to ease up on the removal of fossil fuel subsidies.

No quick-fix vaccination

Nor must we be diverted from developing cleaner and more efficient forms of energy, or lose enthusiasm for investments that promote sustainability. Now is the time to redouble our green efforts.

It won't be easy. Transitioning to a global economy that decarbonizes, maintains prosperity, and decreases inequality at the same time will be a Herculean challenge. There is no quick-fix vaccination.

But COVID-19 provides hope. Governments and businesses across the world have shown in their response to the pandemic that they have the power, flexibility, and speed to deal with a global crisis. With the same determination, they can tackle the climate change crisis.

As we come to this climate crossroads, we are clear at Zurich that our path has not changed. We remain committed to the UN Business Ambition Pledge we signed in June 2019 to limit global temperature rise to 1.5°C.

We need everyone to follow a green path. COVID-19 brought us all together as a global community to combat one of the deadliest pandemics to hit our planet in the past 100 years. Let's use that same spirit and solidarity to tackle the biggest existential threat over the next century.

The number of deaths attributable to air pollution has increased

Date:-25-Sept-2020, Source: greennews.ie

The amount of premature deaths attributable to air pollution has increased from 2016, according to new data released by the EPA.

The agency published its annual Air Quality report today and found in their latest estimates that 1,300 premature deaths per annum are due to air pollution, up from the 2016 figure of 1,180.

Levels of air pollution were found to be above WHO guidelines at 33 monitoring stations across the country, and breaches were mostly the result of solid fuel burning in cities, towns and villages.

The combustion of solid fuels are particularly high during the winter months due to the elevated use of materials such as coal, turf and wet woods.

A move towards “cleaner modes of home heating fuels” will see air quality subsequently improve, the EPA recommends.

The impact of traffic-related nitrogen dioxide pollution is increasing, according to the report, and the EU limit value on the pollutant was exceeded at one Dublin traffic monitoring location.

These types of breaches will continue unless we curb our reliance on fossil fuel powered transport, particularly diesel cars, the body warned.

“Ireland is renowned for its countryside and clean fresh air, but we can no longer take this for granted,” Director of the EPA’s Office of Radiation Protection & Environmental Monitoring Dr. Ciara McMahon said.

“Poor air quality impacts people’s health and quality of life, so it is now time to tackle the two key issues that impact negatively on air quality in Ireland – transport emissions in large urban areas and emissions from burning of solid fuels in our cities, towns and villages,” she added.

Air pollution and stroke

Just a month prior to the publication of this report, a study led by the Royal College of Surgeons Ireland (RCSI) found last month that higher levels of air pollution in winter is linked to increased stroke hospitalisations in Dublin.

The study was the first of its kind to demonstrate a clear link between short-term air pollution and stroke in Ireland.

Air pollutants like nitrogen dioxide and sulphur dioxide narrow blood vessels in the body, and they can trigger clots to form in arteries and cause a stroke, lead report author Dr. Colm Byrne told The Green News.

The pollutants can also trigger heart rhythm problems, like atrial fibrillation, that can also lead to a stroke. Their presence can also cause neuro-inflammation.

Additionally, small particles that pollute the air can also cross into the blood and cause effects directly to blood vessels and the brain.

The consequences of air pollution can be seen “very quickly”, often in a matter of hours or days, Dr. Byrne said.

Nationwide smoky coal bans

In July the Minister for Climate Action Eamon Ryan signed regulations that will extend a ban on the burning of smoky coal to all towns with populations over 10,000 people with the aim of improving public health outcomes.

In the Programme for Government the coalition of Fianna Fáil, Fine Gael and the Green Party will “move towards a full nationwide ban” but the document did not provide detail on how it would get there.

Cooler air blamed for PM2.5 rise

Date:-26-Sept-2020, Source: bangkokpost.com



A cloud of ultra-fine dust particles known as PM2.5 has returned to Bangkok due to cooler temperatures.

A cloud of ultra-fine dust particles known as PM2.5 has returned to Bangkok due to cooler temperatures, with air quality indicators across the capital registering unhealthy levels of the harmful micro pollutant.

According to the Pollution Control Department (PCD), the concentration of PM2.5 pollutants in Bang Phlat reached 53 microgrammes per cubic metre ($\mu\text{g}/\text{m}^3$) yesterday

-- exceeding the PCD's safe threshold of $50 \mu\text{g}/\text{m}^3$.

The PCD said PM2.5 levels are likely to increase in the next couple of days across the city, and warned residents about the health risks posed by the micro pollutant.

Officials said a high pressure system above China -- which has lowered temperatures in the northern part of Thailand -- is causing dust to accumulate as the air stagnates.

While Bangkok has not registered unhealthy levels of PM2.5 pollutants in the past several months, earlier in the year PM2.5 levels soared beyond unhealthy levels, prompting officials to adopt emergency measures -- including spraying water from high-rise buildings.

Northern California faces more fires amid record-breaking heat, poor air

Date:-27-Sept-2020, Source: nypost.com



A firefighter waters down a hillside as smoldering fires from the Bobcat Fire continue burning in the Angeles National Forest

Worsening wildfires and poor air quality are set to hit Northern California Sunday and Monday amid potentially record-breaking heat, meteorologists said.

The dry, hot forecast puts a massive swath of land from Redding down to the Bay Area under a “red flag warning,” the National Weather Service’s most severe level of fire alert, the Weather Channel reported.

Inland temperatures will hit around 100 degrees Sunday, and peak on Monday, ABC said.

California has seen over 8,000 wildfires so far this year. The inferno has torched 5,600 square miles of forest, destroyed more than 7,000 buildings and left 26 people dead.

On Saturday, Pacific Gas & Electric announced plans to shut off power to 15,000 customers in 16 affected counties to prevent electrical equipment from contributing to the fires.

The customers are expected to get power back on Monday night, the company said.

Bay Area Air Quality Management District rep Kristine Roselius told the San Francisco Chronicle that the increased heat and smoke will combine with existing air pollution to create a “triple whammy” threat to the region’s air quality.

Roselius said Bay Area residents should “try to limit outdoor activities and exertion” to avoid breathing “unhealthy air.”

China’s Success in Improving Air Quality by Cutting Polluting Emissions May Worsen Climate Change

Date:-29-Sept-2020, Source: scitechdaily.com

China’s success in improving air quality by cutting polluting emissions may have a negative knock-on effect on climate change overall, a new study has found.



The research, by scientists from Carnegie Institution for Science, USA, Chinese Academy of Environmental Planning, China, Tsinghua University, China, and the University of California Irvine, USA, used modeling to analyze the effect China's success in reducing emissions such as sulfur dioxide, black carbon, and organic carbon, has had on

global climate change. Their results are published today in the IOP Publishing journal *Environmental Research Letters*.

Lead author Dr. Yixuan Zheng, from Chinese Academy of Environmental Planning, a former postdoc at Carnegie Institution for Science, said: "Economic growth and industrialization in China over the recent decades has been supported by increasing consumption of energy from coal, making China the world's largest emitter of major air pollutants such as sulfur dioxide and black carbon. These pollutants have significant impacts on air quality and public health, so China put stringent measures in place to reduce them. The measures were effective, and aerosol pollution in China was substantially alleviated after 2013, with notable public health benefits."

However, changes in pollutants such as sulfur dioxide and black carbon also affect radiative forcing — the determinant of the earth's temperature — with sulfate aerosol the dominant cooling agent in the atmosphere. It and other aerosols scatter and absorb incoming solar radiation and interact with clouds, affecting regional and global climate.

Dr. Zheng said: "Anthropogenic sulfate aerosol was estimated to cool the earth on average by half a degree centigrade in 2010, equivalent to 76 percent of all-anthropogenic-aerosols-induced cooling. Black carbon, on the other hand, absorbs heat in the atmosphere and warms the Earth. So, understanding the effect reduction in these materials could have on warming is essential for future climate mitigation strategies."

To understand the full range of impacts of China's clean air actions, the researchers analyzed the near-equilibrium radiative and climate effects of China's reductions in aerosol (and precursors) emissions from 2006 to 2017, simulated in a fully coupled ocean and atmosphere climate model.

They examined the climate effects of the reductions under the assumption these reductions continue, and that the climate system is linear enough that the climate effect of the aerosol emission changes can be considered additional to the climate effects of other forcing.

They found the potential climate effects of China's air pollution control policies — enacted between 2006 and 2017 — were expected to result in more than 0.1 °C warming over the northern hemisphere. The emission reductions in China exert warming effects not only locally but also remotely.

Co-author Professor Steven J Davis, from the University of California Irvine, said: "From 2006 to 2017, China's carbon dioxide emissions grew by around 54 percent, along with around 70 percent reductions in sulfur dioxide emissions, a 30 percent reduction in black carbon emissions, and a 40 percent reduction in organic carbon emissions.

The decoupling of carbon dioxide and aerosol emissions is mainly caused by installing end-of-pipe control devices, which reduce aerosol emissions but not carbon dioxide. Such decoupling exacerbated the global warming effects of China's carbon dioxide emissions."

Carnegie's Professor Ken Caldeira, also a co-author, said: "Cleaning up aerosol emissions has tremendous health benefits, but unmask some global warming.

While this may seem like a climate setback, we need healthy people to help tackle the climate problem, and if we are to have more resources to allocate to better energy systems, we need to be spending less on the health damage caused by our aerosols. Helping people to become healthier can be a win for the climate system, even if it does directly lead to some warming."

Clean air campaign encourages Scottish motorists to give up driving

Date:-30-Sept-2020, Source: forecourttrader.co.uk

Environmental Protection Scotland (EPS), which is coordinating Scotland's Clean Air Day on behalf of the Scottish Government, has launched a new radio and video campaign which highlights the significant improvements to air quality and public health when vehicle use declined during the lockdown period.

The campaign will be focused on vehicle users and will be broadcast on Bauer Media Group's Clyde, Forth, Tay, Borders, West Sound, North Sound and MFR in Inverness radio stations.

John Brynoth, from Environmental Protection Scotland (EPS), said: "Air pollution is bad for your health; bad for your child's health and bad for people with pre-existing health conditions, including older people.

"A lot of people will recall how much quieter, less polluted and safer the roads felt during the recent national lockdown as people took up cycling and walking as part of their daily piece of exercise.



A new campaign will encourage Scottish motorists to give up driving as part of Clean Air Day.

“As winter looms it takes a lot more commitment cycle or walk, or leave the car behind on the school run – but it’s definitely worth it in the long run as it brings health benefits and cuts down on congestion and air pollution.

“It would be great to see the upsurge in cycling and walking continue into the autumn months, especially given initiatives such as the Spaces For People cycling and walking scheme in Scotland.”

October 2020

2020 becomes another historic year for good air quality in Virginia

Date:-1-Oct-2020, Source: wsls.com

2020 has seen 34 more 'good' air quality days than 2017, the previous record



Claytor Lake

RICHMOND, Va. – We can take all the good news we can get. In this case, it was the air quality in Virginia that's been good in a historic way. The Virginia Department of Air Quality says the forecasting season for ozone pollution came to an end earlier this

week, and it did so with 34 more 'good' air quality days

than the previous record year in 2017. In fact, 96% of ozone pollution monitors across the state never reported unhealthy air quality this year. The Loudon County sensor did once but only on one day.

David Paylor, Director of the DEQ, says, "“For too many years, we experienced extreme air pollution but through the development of more stringent pollution regulations and controls, I'm happy to say that ozone pollution isn't the threat it used to be.” Paylor considers this to be a success story in Virginia.



Scale of air quality levels

In addition to pollution regulations, the COVID-19 pandemic may have also contributed to this. Michael Dowd is the Air and Renewable Energy Division Director, and says, "The COVID-19 pandemic has resulted in many drivers staying off the road and that has had an effect on Virginia's low ozone readings; however, the low levels of pollution we are seeing this year are certainly in line with the long-

term trend of lower ozone concentrations.”

Ozone is comprised of three oxygen molecules. In the stratosphere, ozone is a good thing as it keeps Earth habitable. At ground level, though, an increased amount of it can lead to breathing and health problems.

Depending on how much ozone there is, the air quality forecast goes from Good to Hazardous.

Ozone levels typically increase on hot, sunny days. Main sources of the chemical compound, according to the Virginia DEQ, are “motor vehicle exhaust, power plants, industrial emissions and solvents.”

Wildfire Smoke Is Laced with Toxic Chemicals

Date:-2-Oct-2020, Source: earthisland.org

Pollution from power plants, pesticides, fertilizers, and more can make its way into trees and plants, adding to health risk of smoke exposure.

When you breathe in smoke from a wildfire, you’re probably inhaling more toxic chemicals than you realize.

Pollution from power plants and vehicles, pesticides, fertilizers, and chemicals in waste can all make their way into trees and plants. When those trees and plants burn, chemicals are released along with health-harming particulate matter in the smoke, gas, and ash.



Smoke plumes from the Slater and Devil fires in Northern California. When the materials in homes and other buildings burn in these fires it adds more harmful pollutants to an already unhealthy mix.

Millions of people have been breathing that smoky air this year as the western US experiences another extreme fire year. More than 4 million acres had burned in the West by October 1, California had nearly doubled its previous record for acreage burned, and several weeks of wildfire risk

were still ahead.

As an engineer and scientist who studies air pollution, I have been looking into how

those chemicals compound the health effects of particulate matter from fires to create

respiratory and cardiovascular problems, including asthma and cardiac arrest. To understand the risks, it helps to understand what chemicals people are breathing and how those chemicals get into smoke in the first place. Here are answers to four key questions.

How do chemicals get into wildfire smoke?

Several factors affect the toxicity of wildfire smoke. These include the type of fuel that is burning, the fire conditions, such as whether it is smoldering or burning, and the distance between the wildfire and the person breathing the smoke, as well as how long that person is exposed.

The chemicals involved also make a difference. The chemicals that end up in wildfire areas can come from fertilizers and pesticides from farms, waste and sewage from factories and communities, vehicle exhaust and many other sources. It's well known that trees absorb large amounts of carbon dioxide from the air. But ground-level pollution can also be decomposed by microorganisms in the soil and taken up through the roots. And chemicals from pesticides or fertilizers can collect on leaves and plants, as can particulate matter from vehicles and factories.

When trees and plants burn, chemical reactions create and release many different pollutants that are harmful to human health. Among them:

Carbon monoxide and nitrogen oxides have been associated with respiratory and cardiovascular problems.

Volatile organic compounds like benzene, cresols, diphenyl, hydrogen cyanide, naphthalene, and polycyclic aromatic hydrocarbons can cause difficulty breathing, headache, fatigue, nausea, vomiting, and corneal damage. Most of these are not regularly monitored, even during wildfires.

Fine particulate matter, or PM2.5, is one of the biggest wildfire concerns in terms of health, and the most prevalent. The tiny particles become suspended in the air and can penetrate deep into the lungs. Depending on the dose, frequency and duration, the inhaled particles can cause conditions such as asthma, bronchitis, and heart failure. Epidemiological studies have connected exposure to PM2.5 in wildfire smoke to early death, respiratory diseases, and cardiovascular diseases.

These pollutants are not only harmful for sensitive groups, such as older people, young children, and people with chronic diseases; they are also a risk for firefighters who are exposed to the smoke day after day. When the materials in homes and other buildings burn, that adds more unhealthy pollutants to the mix.

What we do not yet know is the level of health effects from many of those chemicals and pollutants, such as benzene, polycyclic aromatic hydrocarbons, and hydrogen cyanide, that are not regularly monitored the way ozone and PM2.5 are.

Is smoke that travels long distances still harmful?

Air pollutants can travel hundreds of miles, and wildfire smoke can affect people even if it isn't visible.

Wildfire smoke can also grow more toxic as it ages, creating a higher risk for people downwind. When smoke is in the air, its particles chemically react with other molecules through oxidation, creating more reactive compounds called free radicals that can damage human cells. Researchers in Europe found the toxicity doubled within about five hours and became as much as four times more potent over time.

The fine particulate matter in wildfire smoke is easily inhaled deep into the lungs and embedded in the tiny air sacs there called alveoli. It can cause inflammation and oxidative stress, leading to lung damage and worsening of various respiratory diseases, including asthma.

Why does wildfire smoke worsen asthma?

When there are enough wildfire smoke particles in the air, human airways are prone to inflammation. That's a problem for people with asthma.

Asthma is characterized by chest tightness and pain, cough, fatigue, headache, shortness of breath, rapid heartbeat, and wheezing.

In a recent study, my colleagues and I used chemical transport models, remote sensing, and ground measurements to separate PM_{2.5} in wildfire smoke from PM_{2.5} from other sources. We found a substantially stronger association between smoke and asthma than previously reported. The toxicity of the smoke, including chemicals not often measured in ambient air, like benzene, formaldehyde and nitrogen cyanide, likely has something to do with it.

How can people in smoky areas stay safe?

There are several steps people can take to protect their health when the air is smoky.

(1) Pay attention to the local air quality index. Avoid spending too much time outdoors when there is a lot of smoke, and minimize strenuous activities outdoors.

(2) Keep indoor air clean. Close doors and windows when there is smoke, and use a free-standing indoor air filter that can remove particles. Do not increase indoor pollution by using candles and fireplaces, and avoid using vacuum cleaners that can stir up dust. Do not smoke.

(3) Follow your doctor's advice. If you have asthma or other lung or cardiovascular diseases, make sure you have an emergency plan.

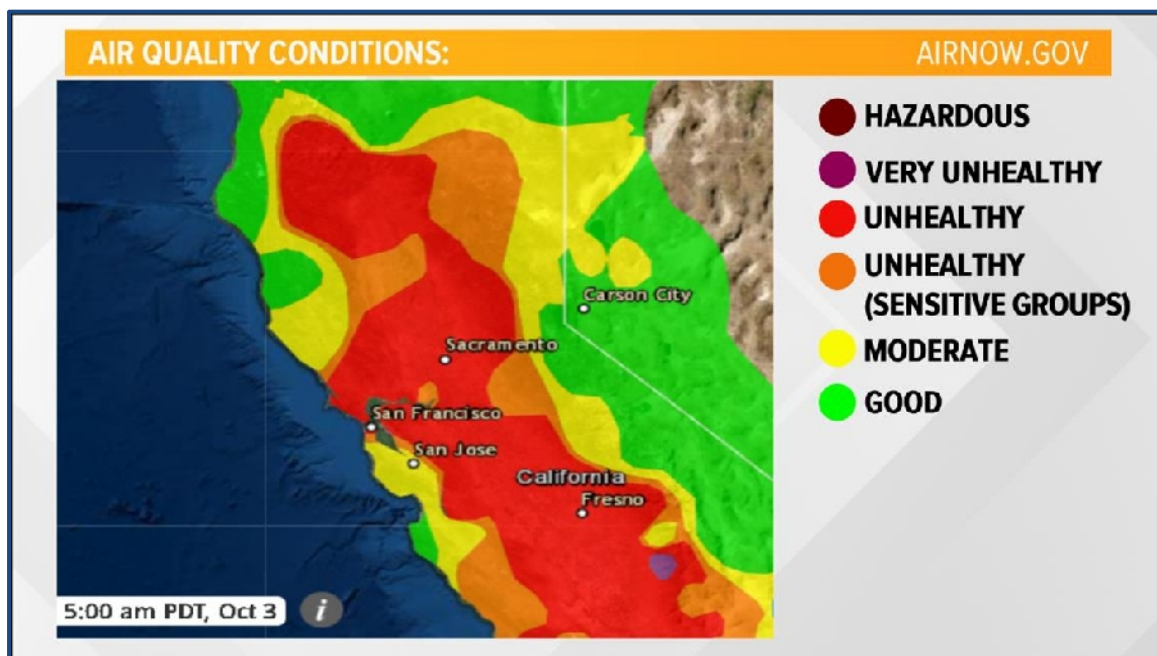
(4) Use an N-95 face mask. If there is a wildfire in your area or wildfire smoke, you should wear a mask when you go out to prevent harmful particles from entering your lungs.

Air quality still an issue through the weekend

Date:-3-Oct-2020, Source: abc10.com

Warm temperatures and calm to light winds will leave pollutants almost stagnant Saturday.

Air quality continues to be an issue for Northern California and the Central Valley. An air quality alert has been issued for the San Joaquin Valley until the fires are extinguished near Yosemite. The Creek Fire and SQF Complex Fire have been causing unhealthy to hazardous air for San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and portions of Kern counties.



High pressure over the west coast will bring calm to light winds, keeping pollutants almost stagnant for many valley spots through Saturday. By Saturday evening, air conditions may improve to "unhealthy for sensitive groups."

Saturday evening winds will slightly pick up to a light breeze of 4 mph to 10 mph inland. Areas around the coastal ranges into Santa Rosa and Napa/Sonoma Counties may see winds closer to 15 mph to 20 mph. This still won't be a major concern even as wildfires burn in the area. A Fire Weather Warning has expired for the Glass Fire as of Saturday morning.

Change is on the way. As the high pressure overhead weakens and shifts east, this will allow for more cool air to move through the delta. Temperatures will gradually drop and air quality will begin to improve as early as Sunday morning.

Expect weather conditions to continually improve through the work week as air quality becomes moderate to good, and temperatures reach the 80s by Wednesday.

Denver weather: Wildfires fuel poor air quality across much of the Front Range Sunday

Date:-4-Oct-2020, Source: denverpost.com



The downtown Phoenix skyline is easier to see, Tuesday, April 7, 2020, as fewer motorists in Arizona are driving, following the state stay-at-home order due to the coronavirus, and it appears to be improving the air quality and decreasing the effects vehicle emissions have on the environment.

Denver, Douglas, Jefferson, Adams, Broomfield, Boulder, Larimer and Weld counties are under an air quality alert until 4 p.m. Sunday

Air quality will be generally poor across the Denver area Sunday as wildfires continue to spread particulates and smoke throughout the Front Range.

Denver, Douglas, Jefferson, Adams, Broomfield, Boulder, Larimer and Weld counties are under an air quality alert until 4 p.m. Sunday, according to

the National Weather Service at Boulder.

While air quality will be better than previous days in much of the Front Range, the Cameron Peak and Mullen wildfires are still sending out fine particles, and those who live close to the fires, particularly in central and western Larimer County, will see the worst conditions.

Despite the smoke, the region will see sunny skies Sunday with a high of 80 degrees.

The warm weather will continue through the week, with highs in the low 80s most days, and overnight lows in the upper 40s.

Sunny weather and clear skies are expected throughout the week.

The minister said the Delhi government presented its plan to tackle stubble burning in the city during the meeting with Javadekar.

He said a centre is being set up in Kharkhari village in Najafgarh where “bio-decomposer” solution will be prepared in around 400 containers starting Tuesday.

IARI's new technology involves a liquid formulation prepared using bio-decomposer capsules, fermenting it over 8-10 days and then spraying the mixture on crop residue to ensure speedy bio-decomposition of the stubble.

Capsules worth Rs. 20 can effectively deal with 4-5 tonnes of raw straw per acre.

Rai said the Centre has been providing subsidies up to 80 percent on farm machinery, but farmers still have to pay from their own pocket to use it. "The Pusa bio-decomposer capsule is an economically viable option. We have estimated that only Rs. 20 lakh is needed to manage stubble in 800 hectares of agricultural land in Delhi," he said.

Air Pollution Will Kill More People This Year Than Coronavirus. What's to Be Done?

Date:-5-Oct-2020, Source: globalcitizen.org

As the world suffers through a respiratory pandemic, the need to breathe clean air has never been more apparent.

But, with the World Health Organization estimating that 9 out of every 10 of us live in zones where the air exceeds guideline limits of pollutants, breathable air is becoming a rarity.

Air pollution contributes to the deaths of an estimated 7 million people worldwide annually, far exceeding the amount of deaths expected from COVID-19 this year, yet as a protracted public health emergency it is woefully underreported.

Bashing Asia about poor air quality has become a global pastime in the west. While this sense of superiority has been tempered by the Chinese Communist Party (CCP)'s recent carbon neutrality pledge, according to the AirVisual and Greenpeace index released last year all of China and South Asia remains dangerously polluted.

The study was something of an exercise in negative returns, however. China is becoming comparatively less polluted while the rest of the world, particularly low and middle-income countries like India and Indonesia, industrialize and become more polluted.

And the west isn't doing much better: while the average air quality in the US and Canada is good in global comparison, historic wildfires over the past few summers have led to a dramatic decrease in average air quality across the continent.

Europe, for its part, is struggling particularly in its east, with eight cities in the Balkans among the top 10% of the world's most polluted urban areas.

The upshot of the data suggests that more than 90% of the people on Earth, living in both cities and small communities, are breathing dangerously polluted air.

Air pollution and the human body

The issue of dirty air has been emphasized this year by growing evidence of its link with coronavirus. Several studies have suggested that long-term exposure to poor air quality leaves people at greater risk of contracting COVID-19 and dying from it after infection.

An inquiry in the Netherlands found that even a small increase in particulate matter concentration is associated with an almost 17% increase in the COVID-19 death rate.

These findings are not at all surprising considering past data on the effect of dirty air on noncommunicable diseases.

According to the WHO, air pollution is far and away the most important environmental risk factor in exacerbating major diseases like asthma, cancer, pulmonary illnesses, and heart and lung disease.

The main substances affecting health in a polluted atmosphere are nitrogen oxides (NO_x), sulphur oxides (SO_x), and ozone and particulate matter — with the latter of greatest concern, as these tiny particles penetrate deep into the lungs, affecting both the respiratory and vascular systems. Both extent and duration of the exposure influence health outcomes.

The WHO estimates that each year 4.6 million deaths worldwide can be attributed to these particles alone — a number greater than the global deaths caused by automobile accidents. While we cannot yet conclusively calculate how many more coronavirus deaths can be chalked up to dirty air, it certainly didn't improve the situation.

Air pollution and the developing world

Typically, those most at risk from this protracted public health emergency are people already disproportionately vulnerable to climate change and degradation.

A 2018 report by the UN's Intergovernmental Panel on Climate Change (IPCC) found that air pollution and climate change are closely interlinked — as the same emissions that heat the atmosphere influence our air quality, and both outdoor and indoor pollutants are more likely to be found in low-income cities.

Low and middle-income countries generally have less rigorous policies when it comes to clean air solutions.

As their economies rush to industrialize, cities urbanize at a rate that exceeds their ability to be properly planned. Residential neighborhoods are placed near industrial plants whose fumes are poorly regulated by bifurcated and often ineffective local governments.

In fast growing cities like Kolkata and Chennai, in India, public transport is underfunded and underdeveloped, and so heavily emitting, cheap cars are the main form of transport. This is particularly damaging given the WHO conclusion that mobile sources, principally

automobile, are the greatest cause not only of CO₂ emissions, but emissions of dangerous particulate matter.

Indoor air pollution is also far more common in poorer nations, where houses are often built cheaply and with low-quality materials. Poorly ventilated, damp homes are the norm for the approximately 1 billion people who currently live in urban slums, and those with access to fuel for cooking and heating are at constant risk of gas leaks due to faulty infrastructure.

The situation, as is so often the case when it comes to developing nations, is lose-lose. In the short term, the lungs of the world's poorest are disproportionately filled with a plethora of harmful chemicals from global industry concentrated on their comparatively low-cost shores.

In the long term, as these pollutants drift north towards the Arctic, depleting light refraction and causing ice to melt, the world's poorest are again worse off; already delicate agricultural economies will struggle to feed and employ their population in a changing climate and to deal with the inevitable rising tide of climate migration.

What's to be done?

The two most important pillars of remedying air pollution are effective policy-making, and better urban planning.

Though it's become a climate hawk cliché, it's an unavoidable truth that nothing is going to sanitize our air like clean energy.

The burning of fossil fuels in factories, engines, and our homes is a leading contributor towards climate change and air pollution. Coal is toxic, and burning it releases elements like arsenic and mercury, as well as small particles of soot.

The world desperately needs to implement clean energy solutions — you've heard these all before, but they bear repeating: we must tax carbon and introduce pollution permits for industry, subsidize alternative energy solutions, implement national pollution limits, and incentivize ethical consumer behavior by, for example, investing in solar power to bring down its market cost.

These solutions are likely to be most effective in the developed world, where administrations and independent bodies can more easily regulate corporate behaviour. But there's also great opportunity for change in the developing world. As the global South constructs the blue-prints of its future outline on the world stage, the international community must incentivize cleaner and more efficient city planning through bilateral trade agreements.

Polluted air is all around us. As you've been reading this article, we've all the while been taking in harmful pollutants.

Unlike COVID-19, air pollution isn't a sudden or dramatic reversal of the world's fortunes, but a slow and insidious poisoning. We've been cooking in this dirty pot for too long now, and we're not getting any cleaner.

Tiny air pollution particles linked to Alzheimer's and Parkinson's disease are found in the brain stems of young people

Date:-6-Oct-2020, Source: dailymail.co.uk

Evidence of tiny particles from air pollution has been discovered in the brainstems of children and young adults.

It is believed these nanoparticles can cause damage to molecules in a similar way to conditions such as Alzheimer's and Parkinson's, The Guardian reports.

More than nine in ten people worldwide live in areas where the air is deemed unsafe due to pollutants.



Evidence of tiny particles from air pollution has been discovered inside the brainstems of children. It is believed these nanoparticles can cause damage to molecules as seen in conditions such as Alzheimer's and Parkinson's

Previous studies have also found air pollution is correlated with rates of neurodegenerative diseases but there has never been a confirmed causal link.

Researchers hope this study can shed light on a possible physical mechanism that could explain how high levels of pollution leads to a heightened risk of Alzheimer's.

Brains of 186 deceased young people from Mexico City who died suddenly were dissected

as part of the study.

They range in age from 11 months old up to 27 years of age.

All of the studied individuals had evidence of pollution in the grey matter and the researchers believe they entered the organ after being inhaled into the bloodstream.

The nanoparticles were discovered in the substantia nigra, an area which is crucial to the progression of Parkinson's disease.

It is also possible the particles wormed their way into the human organs via the nose or gut.

However, in the brains of people who lived in unpolluted areas, and not the smoggy capital of Mexico, there was no sign of the toxic pollutants.

Professor Barbara Mather from Lancaster University told The Guardian that the study is still observational, and it does not imply causality.

'But how could you expect these nanoparticles containing those metal species to sit inert and harmless inside critical cells of the brain?', she says.

'That's the smoking gun – it seriously looks as if those nanoparticles are firing the bullets that are causing the observed neurodegenerative damage.'

Children are useful for this field of research despite not normally suffering from Alzheimer's or Parkinson's, because their brains are unaffected by other factors, such as alcohol, which can be seen in adult organs.



Researchers hope this latest study sheds light on a possible physical mechanism that could explain just how high levels of air pollution lead to heightened risk of Alzheimer's

While the study is concerning and opens up the possibility for future research, it is being taken with some skepticism.

David Dexter, associate director of research at Parkinson's UK says that although the study builds on research linking air quality with neurodegeneration, the damage to the brains is significantly different to those that have been previously studied.

The authors of the latest study believe the difference in molecular damage might be down to the fact that the study's specimens were from Mexico City, while the Parkinson's UK brain bank houses organs primarily from the UK.

Dr Susan Kohlhaas, director of research at Alzheimer's Research UK, said: 'Air pollution is linked to many adverse health conditions and a growing body of evidence suggests this includes our risk of developing dementia.'

'Proteins do build up in the brain years before we see visible dementia symptoms, but more research is needed before we can suggest air pollution drives brain changes associated with disease in children.'

Clean air day: York on buses, pollution and banning cars

Date:-7-Oct-2020, Source: yorkpress.co.uk



Cllr Andy D'Agorne and Marc Bichtemann, managing director of First Bus York - pictured before the coronavirus pandemic

TODAY marks Clean Air Day - and city transport leaders have highlighted ways they are working to cut pollution.

First Bus has committed to going zero carbon by 2035.

A third of the company's vehicles in York are soon set to be electric - with the remaining buses meeting Euro 6 emission standards.

But the company still faces challenges to meet net zero carbon emissions, including

from the way the electricity used to power the buses is generated.

John Dowie, director of strategy at First Bus, said: "That's where, as a country, we are on a journey.

"It isn't totally de-carbonised. Gas still has a prominent part.

"The well to the wheel isn't carbon zero, but this is a big step forward."

Emissions are still less than half those of diesel buses. Mr Dowie said diesel buses produce 974g of emissions per kilometre, whereas the electric buses charged on the grid produce 429g. Bus batteries need to be replaced after about eight years.

York put a bid to government to become the UK's first electric bus city earlier this year and Mr Dowie said he is expecting an announcement in the autumn - but a date has not been set yet.

He added: "It's so easy to be lost in the current challenges. But we are focused on planning optimistically for the future because that's the best way to make it happen."

Marc Bichtemann, managing director of First Bus York, said if the bid is successful the city could become a world leader in innovative public transport.

"We really want to demonstrate that this is happening now. It is not an experiment," he said. First York now boasts one of the largest electric vehicle fleets in the UK.

"The real benefit is the smoothness, which is something the drivers like as well.

"First York bus drivers are at the forefront - they know how to operate electric vehicles. They are a group of people who play a significant role in making this a success."

He highlighted safety measures, including live tracking for passengers of how much space is left on each bus, to boost customer confidence.

And occupancy has increased, from 30 per cent over summer to 50 per cent of normal levels.

Mr Bichtemann said: "We are at 50 per cent passenger levels of what we had last year. That will be an ongoing recovery, influenced by external factors.

"Technology is something that has accelerated through the pandemic."

He added that if York gets the all electric bus town funding, First's new electric infrastructure would allow it to roll out charging points "relatively quickly".

Pollution dropped by at least 30 per cent during lockdown, which council transport lead Cllr Andy D'Agorne says is a sign of the impact of traffic on air quality.

"I would hope the attraction of these new buses would get more people using public transport," he said.

And he said cutting pollution could help people suffering from respiratory illnesses, like coronavirus.

When asked about the council's commitment to ban non-essential car journeys in the city centre by 2023, he said: "It's part of our plan but I haven't got a date for it yet.

"In discussions with officers we have really ambitious plans already. We are still waiting to hear about the second tranche of active travel funding from the government. That's more immediate."

Covid-19 deaths exacerbated by urban air pollution

Date:-8-Oct-2020, Source: eandt.theiet.org

Urban air pollution could make people more susceptible to Covid-19, according to researchers at Emory University.

The researchers analysed key urban air pollutants, including fine particle matter (PM2.5), nitrogen dioxide (NO2) and ozone (O3) across 3,122 counties in the US from January to July 2020.

To examine the association between ambient air pollutants and the severity of Covid-19 outcomes, they investigated two major death outcomes: the case fatality rate (number of deaths among people diagnosed with the virus) and the mortality rate (number of Covid-19 deaths in the population).

Of the pollutants studied, NO₂ had the strongest independent correlation with raising a person's susceptibility to death from Covid-19. A 4.6 parts per billion (ppb) increase of NO₂ in the air was associated with 11.3 per cent and 16.2 per cent increases in Covid-19 case fatality and mortality rate, respectively.

The researchers believe that just a 4.6 ppb reduction in long-term exposure to NO₂ would have prevented 14,672 deaths among those who tested positive for the virus.

The team also observed a marginally significant association between PM_{2.5} exposure and Covid case fatality rate, although no notable associations were found with O₃.

"Both long-term and short-term exposure to air pollution has been associated with direct and indirect systemic impact on the human body by enhancing oxidative stress, acute inflammation and respiratory infection risk," said researcher Donghai Liang.

"Long-term exposure to urban air pollution, especially nitrogen dioxide, might enhance populations' susceptibility to severe Covid-19 death outcomes," he added.

"It's essential to deliver this message to public health practitioners and policymakers in order for them to consider protecting vulnerable populations that lived in [places with] historically high NO₂ pollution, including the metropolitan areas in the state of New York, New Jersey, California and Arizona."

Liang also said that air pollution is a health equity issue: the burden of NO₂ pollution is not evenly shared. People with lower income and people of colour often face higher exposure to ambient air pollution and may experience a more significant impact from the pollutants. Not having many choices in residency, many live by highways or industrial sites, which makes them especially vulnerable to air pollution.

"The continuations and expansions of current efforts to lower traffic emissions and ambient air pollution might be an important component of reducing the population-level risk of Covid-19 case fatality and mortality in the United States," Liang said.

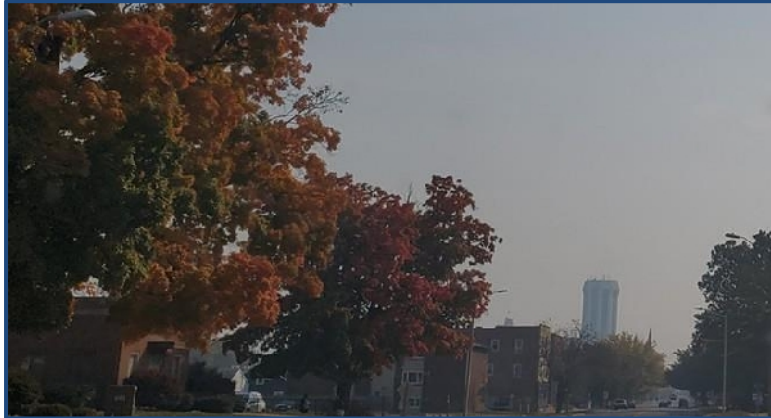
The global lockdowns resulting from the pandemic have been shown to lower air pollution in many areas, with one study estimating that 11,000 lives were saved in Europe as a result of lower emissions due to fewer cars on the road and reduced industry activity.

However, a recent analysis in Scotland found that the level of toxic fine particles in the air had not declined at all, despite a 65 per cent reduction in the number of vehicles on the country's roads.

Furthermore, while China saw a temporary respite in its air pollution levels during the height of lockdown, as soon as restrictions were eased, levels rose again to a peak higher than pre-lockdown conditions.

Hazy skies

Date:-9-Oct-2020, Source: illinoistimes.com



Skies in downtown Springfield were hazy on Friday morning.

Air quality in Springfield is poor due to wildfires according to state EPA.

Springfield air quality was reported as "unhealthy" as of noon on Friday according to a government system tracking wildfires and air quality. A spokesperson for the Illinois EPA told Illinois Times the smoke is "being transported

from wildfires."

A city spokesperson also said Friday that there has been misinformation about controlled burns in the area. The National Weather Service had apparently reported that CWLP, the public utility, was conducting controlled burns. That is not the case, though Friends of Sangamon Valley is apparently conducting controlled burns at Nipper Wildlife Sanctuary in Loami, the spokesperson wrote in an email. A CWLP spokesperson also told city officials that land managers near Lake Springfield report dust in the air due to harvest season.

The State Journal-Register reported last month that hazy air observed in central Illinois was also due to western wildfires, according to a meteorologist for the National Weather Service.

The Illinois EPA spokesperson added via email on Friday afternoon that the monitor tracking air quality in Springfield is "continuous" which means "the air quality at the moment is above the federal standard, but the standard is a 24-hour standard, so the area will likely drop below that level for the 24-hour period. Still, residents should be aware and take necessary precautions."

"When air quality is at the orange (unhealthy for sensitive groups) category or above, sensitive individuals (including those with respiratory or pulmonary disorders) should take special precautions and follow physician prescribed regimen. All residents should limit outdoor physical activity when air pollution levels are high," the spokesperson wrote.

The Illinois EPA provides daily air quality forecasts. An alert was issued for Springfield on Friday.

Clean Air Day protest highlights air pollution in Wandsworth

Date:-10-Oct-2020, Source: inyourarea.co.uk



Supporters of Extinction Rebellion gathered at Tooting Broadway.
CREDIT: Extinction Rebellion Wandsworth

Supporters of Extinction Rebellion gathered together at Tooting Broadway to highlight the toxic emissions that are happening daily on the A24.

Submitted by Caroline Hartnell

Supporters of Extinction Rebellion (XR) gathered together at Tooting Broadway on Clean Air Day, October 8 in Wandsworth, South London to the A24, which is one of the

The protesters took to the road when traffic was at its heaviest between 8am and 9am, they moved into the road with their banners when the 'green man' light stopped the traffic and moved back when it went off so they didn't stop the traffic.

Police officers gave the group the all clear to protest peacefully and members of the public were mostly supportive and grateful for their efforts. 20 to 30 XR members took part in the action and they were joined by members of Wandsworth Stand Up To Racism.

Local resident and Extinction Rebellion member, Ben Mango said: "This action was not about civil disobedience, but about educating and highlighting the effects of pollution on Clean Air Day. During the Covid-19 lockdown we experienced cleaner air and saw massive shifts to low pollution behaviours. Let's keep up the momentum and keep our air clean."

The A24 is three times over the legal air pollution limits and is on the red list of the worst roads to live on. See the air pollution levels interactive map [here](#).

Ben said: "Driving should be treated in the same way as smoking is, it should have a hazard warning and be discouraged as much as possible."

Extinction Rebellion Wandsworth would like to see local council and government initiatives encouraging people to walk or cycle or take public transport whenever possible rather than

taking the car. The aim should be to make the use of cars and vans the least favourable method of transport.

Clean Air Day is the UK's biggest air pollution campaign. Schools, hospitals, workplaces and communities across the UK run activities and take action to inspire people to find out more about air pollution and to take simple steps to protect their health, and their families' health, from it.

Call to action - Become an Area Ambassador

Shine a spotlight on your neighbourhood by becoming an Area Ambassador.

African countries need more air quality data - and sharing it unlocks its benefits

Date:-11-Oct-2020, Source: theconversation.com

The harm that air pollution is doing on the African continent seems to be growing. Estimates of premature mortality attributed to air pollution have increased from about 570,000 in 1990 to over 700,000 in 2013. In the same period, premature deaths from unsafe water, unsafe sanitation and childhood malnutrition have decreased across Africa.

Many challenges also remain for the continent to reach the Sustainable Development Goals related to air quality.

But these estimates have high levels of uncertainty, because of the shortage of air quality data they're based on. So while it appears that the scale of the problem is large and increasing, it's difficult to quantify it accurately. What's needed is monitoring on the spot.

Current assessments rely heavily on a limited number of terrestrial measurements of air pollution. They use air quality models and information from satellites to fill in the gaps. In areas where there's less information on pollution sources and levels, filling in the gaps accurately is harder to do. This is the case across Africa.

In turn, the sketchy picture of Africa's air quality leaves gaps in the world pollution picture.

Lack of accurate estimates

A study by UNICEF estimated that only 6% of African children live within 50km of an air quality monitor. In North America and Europe this figure is over 70% of children. This analysis for Africa is most likely an overestimate, as it included some low-cost air quality monitors. These have much shorter lives and are less accurate than reference instruments, such as those used in most monitoring by government regulators.

The recent OpenAQ Global Assessment of Government Monitoring collated information on the availability of open air quality measurements from government-run monitoring

networks globally. The assessment found that only 49% of countries' governments produce open air quality data. This leaves about 1.4 billion people living in countries without access to such data.

Nine of the 13 most populous countries where governments don't have a long-term outdoor air quality monitoring programme are in Africa. Their combined population is about 700 million people.

To tackle the problem of poor air quality and its effect on people's health, it's necessary to understand how much air pollution people are exposed to. This is achieved through air quality monitoring.

Open access to data unlocks new ideas

The need is not only for more monitoring infrastructure. The data it produces should be accessible, so that they can be used to make a difference.

By making monitoring information open, its value and impact is greatly increased beyond the needs of the immediate data owner or user, which is often a government entity or industrial facility. By opening data, governments and industry can increase people's trust in the findings. It can also create opportunities for a wider community of users to analyse and reuse the information.

Opening data includes more than just making air quality indices public. And it's more than making data available to researchers upon request, or even downloadable from a website – such as from the City of Cape Town Open Data Portal. The real value of open data is unlocked when creative intermediaries, such as app developers and designers, are able to develop novel interactions and visual experiences with the data, to engage specific audiences in new ways.

Some examples of applications are those that combine air quality data with other information to offer advice on travel routes, where to live and even to encourage medication adherence. This is only possible when there is a reliable supply of credible, detailed data through “programmable” interfaces. These allow developers to connect their applications directly to the data source rather than having to download and import the data manually.

In addition, access to the measurements from robust and accurate reference instruments are needed to assess the performance of lower-cost air quality sensors. These sensors can provide “hyper-local” information on air quality which won't be possible with reference instruments.

By opening data, official monitoring and reporting on air quality can be complemented by data from other sources and sectors. The result will be more localised and relevant solutions to support decisions.

Getting more from the infrastructure

South Africa has some of the most mature air quality legislation and infrastructure in Africa, providing a relatively consistent supply of quality data. There's a network of government-run stations and some industry-run stations reporting to the South African Air Quality Information System.

Much of this data is available in near real-time and can be viewed or downloaded from the website. But, as pointed out by OpenAQ, the system doesn't provide programmatic access to its data. That makes it less useful. A better programming interface might require additional technical resources and data publishing controls, but it's possible. A similar service has been developed with the South African Weather Service for weather measurements, forecast and alert data.

South African Air Quality Information System data is used by public officials, the research community, and some civil society organisations. But, there's a broader group of young engineers, scientists, journalists and activists who could use and apply the data. Some of these potential uses are local and personal. The data can answer questions like "why is my asthma worse in winter?" or "is this power station polluting our town's air?".

Finally, as the open data charter emphasises, it's not sufficient to simply open data. Governments, civil society and technical partners need to build capacity for reusing and innovating with air quality data, and understanding what it means for long-term health, the local economy, and day-to-day decisions.

By making air quality information more accessible and by enabling a wider community of data users, open data unlocks the potential of the large investment by governments into long-term monitoring infrastructure for a much larger range of applications and benefits to society.

North Charleston area will be tested for toxic air pollutant with new EPA grant

Date:-12-Oct-2020, Source: postandcourier.com

South Carolina has been awarded a grant to test air in the North Charleston area for a pollutant that's known to cause cancer.

The sampling could answer whether a chemical facility in the Neck Area is emitting enough toxic gas to raise the risk of illness or whether there's another source of a chemical that regulators are still trying to understand.

Ethylene oxide, a colorless, flammable gas, has been identified by the Environmental Protection Agency as a carcinogen. The National Cancer Institute links it to lymphoma, leukemia, stomach and breast cancers.



Part of the Lanxess facility on King Street Extension. The site had two chemical spills in 2019, and also emits ethylene oxide, a gas linked to various cancers.

The EPA has awarded the S.C. Department of Health and Environmental Control a grant of more than \$260,000 to study how much of the gas might be in the air over the Neck Area. The funding was given in a \$5 million round of awards to 11 state and local agencies to track air toxics.

“We’re hoping that we can assist with EPA’s research on the pollutant because there’s so many unknowns (about)

where it’s coming from,” said Rhonda Thompson, chief of DHEC’s Bureau of Air Quality.

According to the EPA’s 2018 National Air Toxics Assessment, 109 census tracts around the country showed an increased risk of cancer. That meant a chance for 100 or more out of every million people in those areas to develop cancer if they breathed the air over the course of a lifetime. Air samples for the study were taken in 2014.

Just two census tracts in South Carolina showed elevated cancer risk. The areas are contiguous, stretching along the narrowest section of the Charleston peninsula, between Interstate 26 and the Cooper River. The area starts just north of U.S. Highway 17 in the northern end of Charleston and ends at Reynolds Avenue, in the southern part of North Charleston.

The report pinned much of this cancer risk on ethylene oxide. Thompson said it pointed to the Lanxess chemical plant on King Street Extension as a potential source. The plant reported releasing 1,668 pounds of the gas into the air last year, according to data from EPA. Its emissions of the gas have been generally falling since 2010, when 3,130 pounds were released.

Michael Mackin, a spokesman for Lanxess, said the facility uses the gas as a material in “a ripening agent for various crops, including cotton, sugar cane, nuts and fruit.” The plant has a system designed to limit emissions of the gas, he said, and the firm is planning to invest more in curbing releases.

“Since acquiring the plant from Solvay in 2018, we have been working to modernize the plant and reduce emissions, while working cooperatively and proactively with federal, state and local authorities,” Mackin said in an email. “We have made significant progress already, but the work is ongoing.”

The same plant was also the site of a fire and two chemical spills last year.

Ethylene oxide has been found even in remote areas with no evident polluters nearby, Thompson said. She said there are some signs that it may be released by cars and trucks.

DHEC's sampling will start in the second or third quarter of 2021, after EPA has approved its testing plan. Air samples will be taken every week for a year, and the collected data will be public, Thompson said.

DHEC plans to sample four sites — two in the Neck Area, one near heavy vehicle traffic, and one near Cape Romain — so that samplers have a baseline reading in a remote, undeveloped location.

The gas is used to produce some textiles, plastics, antifreeze and other products. It's also used to sterilize medical equipment that can't be cleaned with steam, like some plastic devices.

Recently, commercial facilities that sterilize medical tools have come under increased scrutiny for emitting the gas, particularly a Sterigenics plant in Atlanta-area Cobb County. The plant had paused work this spring when Georgia Gov. Brian Kemp asked it to restart, citing the need for clean medical equipment to stem the coronavirus pandemic.

EPA Administrator Andrew Wheeler praised the move this spring in a press release.

"While we must take into account the risks from emissions of ethylene oxide, and addressing those risks remains a major regulatory priority for the agency, it's important to bear in mind those risks are linked to exposure over an entire lifetime — over a 70 year period," Wheeler said in the statement. "However, COVID-19 poses an immediate threat to our nation during this crisis."

In North Charleston, there's also a medical sterilization plant recently constructed for the Medical University of South Carolina that opened in September 2019. That facility does not use ethylene oxide, MUSC spokeswoman Heather Woolwine said.

Soluble iron in skies over China's cities could create health risk – study

Date:-13-Oct-2020, Source: birmingham.ac.uk

Industrial and vehicle pollution in the skies above East China's major cities is boosting the amount of atmospheric soluble iron particles – creating health risks for citizens, a new study reveals.

Research indicates that acidic gases emitted from power generation, industry and vehicle exhausts are helping to dissolve insoluble iron particles in Beijing, Handan, Zhengzhou and Hangzhou.



Smog in Beijing

The tiny soluble iron-containing particles created as a result of this can be inhaled by people – causing respiratory illness, as well as being transported by winter winds into the Pacific Ocean, affecting the oceanic ecosystem.

Researchers at the University of Birmingham worked with partners at Zhejiang University, Hangzhou; China University of Mining and Technology, Beijing; Hebei University of Engineering, Handan; and Zhongyuan University of Technology, Zhengzhou – publishing their findings in *Environmental Pollution*.

Study co-author Zongbo Shi, Professor of Atmospheric Biogeochemistry at the University of Birmingham, commented: “Our research shows that chemical processing is a key reason behind greater amounts of soluble iron in the atmosphere on haze days when atmospheric pollution from man-made sources is higher.

“Acidic ‘man-made’ pollution helps to dissolve iron out of larger ‘mixed’ pollution particles – this is concerning because large amounts of tiny iron-containing particles can be inhaled and cause adverse health effects through the generation of oxygen free radicals.”

Iron carried in airborne particles is an essential external source for phytoplankton growth in large parts of remote oceans and indirectly affects the seas’ capture of planet-warming carbon dioxide, playing a significant positive role in the global carbon cycle and climate. There are natural sources of iron, such as desert dust and soil dust, and anthropogenic (man-made) generators such as fossil fuel combustion and steel industrial activities.

Researchers discovered that concentration of soluble iron particles was higher over the northern cities of Beijing, Handan and Zhengzhou than the southern city of Hangzhou. The experts selected the four cities to represent typical urban environments, with their respective populations of 21.5 million, 9.5 million, 10.1 million and 9.8 million citizens.

Beijing mainly suffers from road traffic pollution with pollutants from surrounding industrial regions, while heavy industry in Handan uses large amounts of energy, resulting in copious emissions of air pollutants. Zhengzhou is a major road, rail and air transport hub suffering from serious vehicle exhaust pollution, as does Hangzhou which is also polluted with contaminants blown in from surrounding industrial regions.

“Large amounts of soluble iron may be the catalyst for creating secondary sulphate particles in East China’s polluted atmosphere,” added Professor Shi. “We need further research to

understand how this situation changes the creation of atmospheric oxygen free radicals which can pose significant health risks.”

Global CO2 emissions dive 8.8% in first half of 2020

Date:-14-Oct-2020, Source: energylivenews.com



The drop is larger than during the financial crisis of 2008, according to a report.

Global carbon dioxide emissions fell by 8.8% within the first half of 2020, compared to the same period last year.

That's according to a new study by an international team of researchers, which estimates the decline in carbon dioxide emissions, a total of 1,551 million tonnes, is larger than during the financial crisis of 2008, the oil crisis of 1979 and World War II.

The scientific team suggests the decline of daily global emissions reached a peak in April, but emissions began to recover later this month and in May, as economic activities resumed in China and parts of Europe.

In June, the power sector's emissions were only 1.1% lower in 2020 than in 2019, compared to being 9.7% lower in April, according to the analysis.

The findings of the report, which was published in Nature Communications, reveal the largest drop in emissions occurred in the US, followed by the EU and the UK and were observed mostly in transportation and aviation.

Zhu Liu, the Lead Author from the Department of Earth System Science at Tsinghua University in Beijing, said: "In April, at the height of the first wave of corona infections, when most major countries shut down their public life and parts of their economy, emissions even declined by 16.9%.

"Overall, the various outbreaks resulted in emission drops that we normally see only on a short-term basis on holidays such as Christmas or the Chinese Spring Festival."

Hans Joachim Schellnhuber, Founding Director of the Potsdam Institute for Climate Impact Research, commented: "While the carbon dioxide drop is unprecedented, decreases in human activities cannot be the answer. Instead, we need structural and transformational changes in our energy production and consumption systems. Individual behaviour is

certainly important, but what we really need to focus on is reducing the carbon intensity of our global economy.”

Clean Air Zones: Encouraging Sustainable Travel After Covid-19

Date:-15-Oct-2020, Source: [airqualitynews.com](https://www.airqualitynews.com)

Air quality has long been a pressing issue at both national and regional levels – but since Covid-19 it has been brought into even sharper focus, writes Ashley Bijster, managing director of Imperial.

During the lockdown, cities across the UK enjoyed suddenly improved air quality as people stopped driving cars and planes were grounded.

Daily CO2 emissions fell by 17% – half of which was attributed to reduced road congestion.

And it is not extravagant to suggest that this improvement was also felt at a global environmental level, given that transport contributes 23% of all CO2 emitted – three-quarters of which comes from congestion.

Analysing Changing Behaviour Patterns

However, as people have emerged from lockdown it has become apparent that confidence in public transport has been badly compromised.

National Geographic reports that we could face a post-Covid future with more traffic, more pollution, and a climate crisis moving faster than ever.

The same National Geographic article states that CO2 levels have already returned to near 2019 levels – and that’s with many ‘normal’ activities yet to fully restart.

The number of vehicles on UK roads has almost completely returned to ‘normal’: since July 6, daily lorry traffic has been at 90% or above pre-lockdown levels, while daily van traffic has peaked at 94% of the previous level.

In summary, during the early days of the pandemic, it seemed that improved air quality might be a solitary ray of light to emerge from the situation. Today that hope appears sadly misguided.

Using Technology to Protect Urban Environments

We need to rapidly ensure that appropriate and effective systems are in place to encourage the kinds of travelling behaviour that will protect our urban environments.

Fortunately, proven technology already exists which can be used to deliver Clean Air Zones (CAZ). Indeed, such a system is already being implemented in Birmingham and Leeds. These systems are underpinned by CCTV cameras which track vehicles and automatically identify

emissions-based charges and exemptions, identifying any penalties due; and a backend system to then process them.

Such solutions are flexible and can be adapted for the requirements of each city. For example, in Leeds, only commercial businesses are held accountable for their vehicles, whereas in Birmingham the technology is applied to residents also.

Exemptions are of course easily accommodated – for example in the instance of a children's hospital located within Birmingham's CAZ, which parents can visit without penalty.

Managing the Process End-to-End

While CAZs are a new concept in some regions, in principle the processes are very similar to the management of bus lanes.

This means that local authorities can take advantage of proven existing solutions, minimising cost and risk.

This also means that the entire CAZ enforcement process can be managed via a single IT system, including emissions-based permits, notice issue, reviews, processing and enforcement.

A truly end-to-end Clean Air Zones solution is not only possible – it is already being delivered in UK cities right now.

Conclusion

Following Covid-19 there are many unknowns, but we do know that travel patterns, modes and behaviours will not simply return to their prior state.

While there are currently understandable safety concerns in relation to public transport, we must ward against the risk that people settle into a 'new normal' where everybody simply chooses to drive everywhere. There is a very real risk that even after emerging from Covid-19 we will continue to feel its impacts long into the future through poor air quality and wider environmental damage.

But a better outcome is possible here too. We have an opportunity to emerge from Covid-19 stronger than before: Clean Air Zones can help us to build better urban environments and a healthier future for the planet.

And best of all, we already have all the tools: we just need to use them.

EPA: New England experienced fewer unhealthy air quality days during summer 2020 compared to summer 2019

Date:-16-Oct-2020, Source: newscentermaine.com

The EPA said Maine had only one unhealthy ozone day this summer.

MAINE, USA — The U.S. Environmental Protection Agency (EPA) New England Regional Office confirmed Friday that New Englanders experienced a decreased number of unhealthy air quality days this past summer, compared to summer 2019.

Based on preliminary data collected between March and September 2020, there were 18 days when ozone monitors in New England recorded ozone concentrations above levels considered healthy.

By contrast, there were 23 unhealthy ozone days in New England in 2019.

The number of unhealthy ozone days in each state this summer, and for last summer are as follows, according to the EPA:

17 days in Connecticut (compared to 20 in 2019)

3 days in Massachusetts (5 in 2019)

4 days in Rhode Island (2 in 2019)

0 days in New Hampshire (1 in 2019)

1 day in Maine (1 in 2019)

0 days in Vermont (0 in 2019)

“We can all feel proud of the progress we have made in reducing ozone pollution over the past several decades,” Dennis Deziel, regional administrator of the EPA’s Region 1 office, said. “Unfortunately, portions of New England, especially coastal Connecticut, continue to experience too many days with unhealthful air quality. EPA is taking steps to improve ozone air quality, such as implementing rules to reduce air pollution from passenger cars and trucks and power plants.”

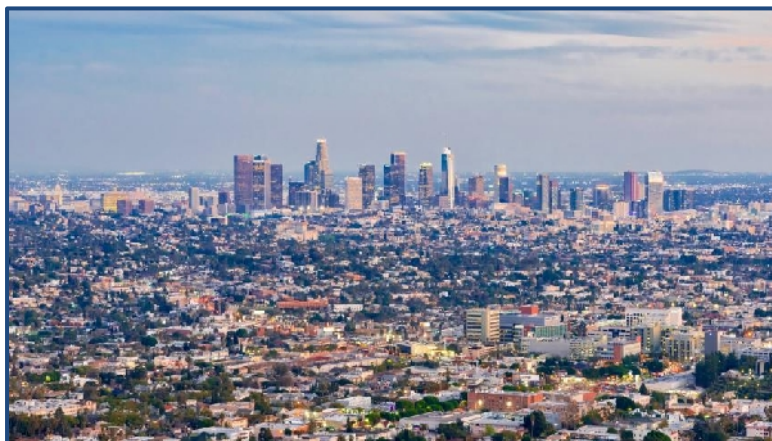
Ground-level ozone is formed when volatile organic compounds and oxides of nitrogen chemically react in the presence of sunlight. In New England, cars and trucks give off the majority of the pollution that makes ozone. Emissions from power plants, which run at high capacities on hot days generating electricity, also emit substantial amounts of ozone-making pollution. Gasoline refilling stations, print shops, household products like paints and cleaners, as well as gasoline-powered lawn and garden equipment, also contribute to ozone formation.

The number of unhealthy days (when ozone concentrations exceed the 0.070 parts per million standard) vary from year to year due to weather conditions. Hot, sunny, summery weather is conducive to ozone formation. For 2020, a cool, wet spring contributed to the record low number of exceedance days.

Since 1983, New England has experienced a decrease in the number of unhealthy ozone days. In 1983, New England had 118 unhealthy days compared with only 18 this year. This downward trend is due to a reduction in emissions that form ozone. Although the 2020 ozone season is ending, pollution from small particles in the air is a year-round concern.

Unhealthy Air Forecast for Sunday in East San Fernando Valley

Date:-17-Oct-2020, Source: nbclosangeles.com



Los Angeles, United States

People who are sensitive to air pollution should avoid prolonged or heavy exertion outdoors, consider moving activities indoors, stay indoors as much as possible and watch for symptoms.

Air quality will be unhealthy tomorrow for everyone in the east San Fernando Valley, according to the South Coast

Air Quality Management District.

The AQMD also reported that air quality will be unhealthy for sensitive individuals in the west San Fernando Valley, east, west and south San Gabriel Valley, San Gabriel Mountains, Pomona/Walnut Valley and Santa Clarita Valley.

In areas with air quality unhealthy for all, Los Angeles County's health officer, Dr. Muntu Davis, advises people living or working in those areas to minimize outdoor activities, reduce prolonged or heavy exertion outdoors, and take more breaks during all outdoor activities.

People who are sensitive to air pollution should avoid prolonged or heavy exertion outdoors, consider moving activities indoors or rescheduling to a time when air quality is better, stay indoors as much as possible and watch for symptoms, he said.

In areas with air quality unhealthy for people who are sensitive to air pollution, such as older adults, children and those with heart or lung disease, they are advised to reduce prolonged or heavy exertion outdoors, keep activity outdoors short, and watch for symptoms.

Health experts note that air pollution can cause symptoms even in people who are healthy. Symptoms can include coughing, wheezing, shortness of breath/difficulty breathing and chest tightness or discomfort with activity or deep breaths.

"If symptoms occur, these are signs to take it easier, stop all activity, go indoors, or use quick-relief medicines as prescribed," according to a county health advisory. "If symptoms don't improve, get medical help."

This city's AQI rating is worst in the world. No, it's not Delhi!

Date:-18-Oct-2020, Source: indiatvnews.com



This city's AQI rating worst in the world. No, it's not Delhi!

In Bangladesh, the AQI is based on five pollutants: Particulate Matter (PM10 and PM2.5), NO₂, CO, SO₂ and Ozone, The Daily Star newspaper reported.

The Air Quality Index (AQI) of Dhaka, one of the most polluted cities in the world, was on Sunday ranked as the worst in the world. In Bangladesh, the AQI is based

on five pollutants: Particulate Matter (PM10 and PM2.5), NO₂, CO, SO₂ and Ozone, The Daily Star newspaper reported.

At 10,24 a.m. on Sunday, Dhaka had an AQI reading of 188 and the air was classified as "unhealthy".

Pakistan's Lahore and India's New Delhi occupied the second and third spots on the list with scores of 178 and 176 respectively. The AQI, an index for reporting the daily air quality, informs people how clean or polluted the air of a certain city is and what associated health effects might be a concern for them.

According to an IQAir AirVisual report, Bangladesh topped the list of the world's most polluted countries in 2019 for PM2.5 exposure.

Heavy smoke from wildfires, expected to worsen as the climate changes, adds to public health concerns about air quality

Date:-19-Oct-2020, Source: thenevadaindependent.com

Even before wildfire smoke billowed into Nevada from a record-setting California fire season, Jennifer Cantley monitored the air quality near her Carson City home. But when the smoke blocked the sky and mountains behind her home over the summer, that checking increased.

“I am literally deciding whether my children can go outside for 10 minutes,” said Cantley, the parent of two sons with asthma and an organizer for a group advocating for better air quality.

“This is not normal,” she said in an interview last month. “It’s September.”

As fires burned across California in August and September, satellite images showed smoke extending across Nevada, particularly affecting northern Nevada communities around Reno, Carson City, Minden and Gardnerville. Las Vegas also recorded 14 days of subpar air quality that were likely attributable to wildfires, according to preliminary data shared by Clark County.

For parents such as Cantley, the heavy smoke from wildfires deepens existing concerns around the health effects of poor air quality, especially during the COVID-19 pandemic. COVID-19 targets the respiratory system and has been shown to worsen symptoms in areas grappling with pollution.

Not only is the heavy smoke a public health concern for sensitive groups, it can also ripple out through the economy, threatening the safety of outdoor workers. Nevada’s Occupational Health and Safety Administration, or OSHA, does not have regulations for handling the risks of wildfire smoke, but some companies voluntarily follow California’s standards for protecting workers.

Days with unhealthy air quality could increase as the climate continues warming. Scientists say the effects of climate change on temperature, aridity and vegetation, combined with decades of fire suppression, have created prime conditions for more extreme wildfires — and more smoke.

Over the past two decades, the three years with the poorest air quality in Reno are fairly recent: 2013, 2018 and 2020. Each year overlapped with significant fire activity in and around Nevada.

According to data from the Washoe County Health District, 2020 has already eclipsed 2013 and 2018 as the year with the greatest number of days considered unhealthy for sensitive



A smoke column from the North Complex Fire in the Plumas National Forest northwest of Reno

groups or unhealthy for the whole population. The year with the second highest number of days was 2018.

Brendan Schnieder, an air quality specialist with the health district, said that in a year without extreme wildfires, officials would

expect to see unhealthy air quality in the winter as wood stoves and fireplaces emit

small particulate matter, known as PM 2.5, that can get trapped in the lungs.

“When you add in a wildfire, it throws off a lot of things,” Schnieder said.

Between Aug. 16 and Oct. 1, the health district counted 24 days that exceeded U.S. air quality standards. One exceedance was related to dust. But the rest were likely caused by wildfires.

Over the smoky summer, air quality monitors across the state registered high levels of PM 2.5, particles that are 2.5 micrometers in diameter or less. Such fine particles can get lodged in the lungs and bloodstream. Wildfire smoke can also contribute to elevated levels of ozone pollution.

The Centers for Disease Control and Prevention reports that heavy wildfire smoke can increase hospital visits for respiratory and cardiovascular conditions. In August, a report in Environmental Health found that medical visits for asthma patients at a Reno hospital increased by 6.1 percent on days with high PM 2.5 levels from wildfire smoke, when compared to other pollution sources.

The study, backed by the Desert Research Institute, the Renown Institute for Health Innovation and the Washoe County Health District, looked at data from 2013 to 2018, and was focused on patients who visited Renown Hospital’s regional health care system, which includes Carson City.

Daniel Kiser, a lead author for the study, cautioned that it was “observational” and said it should be viewed as one contribution to a larger body of science. But, Kiser added, the findings appear to suggest that “particulate matter from wildfires might be more harmful than other sources.”

For sensitive groups, those with pre-existing respiratory illnesses, wildfire smoke only adds to existing concerns. Cantley knows this firsthand. She recounted how her son Gabe, age 9,

woke up around 2 a.m. with a severe asthma attack on a hot summer night, smoke lingering in the air.

Cantley was prepared. She said she quickly found a breathing treatment mask and used ice packs to cool him down. But the experience, she said, was “scary” and personalized the issue.

“I’m still having a hard time working through that,” said Cantley, who is also an organizer for Moms Clean Air Force, an Environmental Defense Fund project aimed at curbing air pollution.

For all three of her sons, the wildfire smoke made it hard to go outside, one of the few escapes in the COVID-19 pandemic. With school online, they are already spending more time at home.

“It wasn’t really a good time to be out, and you’re trapped inside even more,” said Joey, 10.

Air quality issues arising from wildfire smoke can also have a rippling effect on the thousands of workers whose jobs require them to be outside. Unlike California, Nevada workplace regulators do not have guidelines or standards for how employers should address health risks from smoke.

But wildfire smoke is a major issue for contractors across Northern Nevada.

Brendon Carlson, the regional safety manager for Granite Construction, said his company and others in the region look to the California standards. He said federal workplace regulators and the Mine Safety and Health Administration, or MSHA, also have some guidelines to follow.

“Everyone is managing the best they can right now,” he said.

The first option for protecting workers would be to rely on “engineering controls,” Carlson said. For equipment operators, that might mean working closed cabs with an air ventilation system.

But for workers on the ground, protective measures can be more complicated. Some workers are required to wear occupational respirators. Some workers have medically evaluated, and occupational clinics are operating with limited resources amid the pandemic. When air quality was poor, Carlson said his company decided to shut down some projects until the following day.

“It’s not fair to put our guys in a respirator all day,” he said, noting that the heavy-duty masks are more cumbersome than typical face masks. “It’s uncomfortable and hot, and hard to breathe.”

The problem everyone faces, from parents to businesses, is that it is often difficult to know how unhealthy the air quality is. The data often lags real-time conditions, and there are major gaps.

Cantley, on the western side of Carson City, relies on a reader miles away. It leaves her asking: "What can we do to make sure everyone has accurate readings for air monitoring systems?"

In addition to the timing of data, there are areas of the state where there is no official data at all. Across rural Nevada, there are also major holes in state and federal air quality monitoring. The Associated Press reported last month that nine of Nevada's 17 counties lack air quality readers.

Rudy Zamora, the Las Vegas-based program director for Chispa Nevada, said he was also closely monitoring air quality data over the summer. He has a five-year old with asthma.

Like checking the weather, checking air quality became "one of the things we do," he said.

Zamora, whose group is focused on organizing in the Latino community as part of the League of Conservation Voters, said he saw a direct connection between the smoke and climate change.

"Communities have a right to breathe clean air," Zamora said in a recent interview. "It's really one of the basic needs to exist. We want to make sure that there's aggressive climate action to improve the air quality and prevent future wildfire seasons like the one we've seen this year."

Air pollution, he added, tends to disproportionately fall on communities of color. Data analysis in other cities has pointed to an overlap between areas with air pollution and COVID-19 positivity.



Tallac Hotshots respond to the Numbers Fire near Gardnerville

"When you combine the pandemic and the way that our air quality has been lately, it truly puts Black and brown communities at a higher risk of getting sick," Zamora said.

Despite a federal government that has downplayed, and at times denied, the increasing threat of climate change, the connection between warming and wildfire smoke is made explicit on a CDC web page that

is dedicated to the subject. “Climate change,” the website simply states, “is projected to increase wildfire risks and associated emissions, with harmful impacts on health.”

It’s a connection that is not lost on Joey, Cantley’s eldest son. He pointed to fires from California to Oregon as a reason the federal government should take action on climate change.

“This is not my future,” he said. “It’s millions of kids’ futures.”

Some air pollutants increased in Austin during the pandemic. The big question is why?

Date:-20-Oct-2020, Source: austinmonitor.com

As Covid-19 spread across the globe in the spring, people noticed a strange side effect of the pandemic: The air was getting cleaner. Stay-at-home orders, along with the economic crash caused by the outbreak, meant less industrial and transportation-related pollution.

But not necessarily in Austin.

A review of Austin air quality by the Capital Area Council of Governments released earlier this year found that some harmful pollutants, like nitrogen dioxide and ground-level ozone, did decrease in March and April. But the levels of other air pollutants, like fine particulate matter and carbon monoxide, actually increased in those early months of lockdown.

Andrew Hoekzema, director of regional planning and services at CAPCOG, called the findings “somewhat surprising,” because vehicle traffic, the main source of much of the region’s air pollution, had dropped significantly even while emissions rose.

CAPCOG is now partnering with the city of Austin to figure out why this happened.

“With particulate matter, the question is, just how much of an impact does transportation have on these concentrations anyway?” Hoekzema said. “The more surprising (result) perhaps was carbon monoxide, because transportation is more than half of the source of carbon monoxide emissions within our region.”

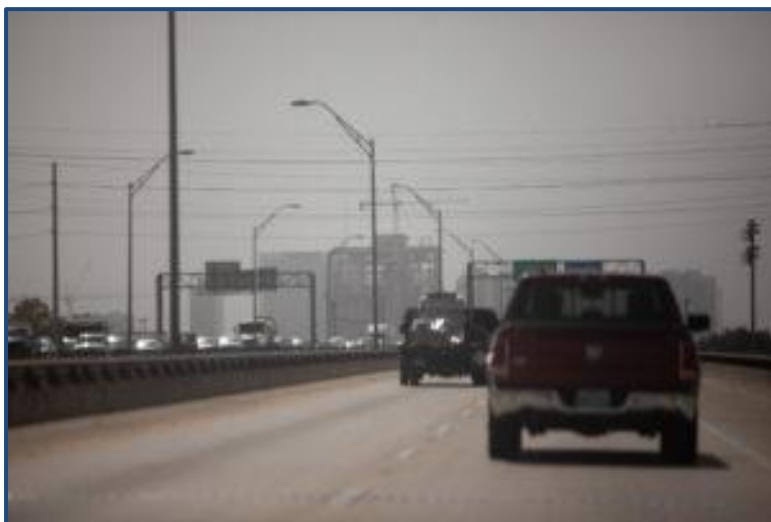
Hoekzema said getting answers will require untangling the “complex interaction” between vehicle emissions, meteorology and other factors that impact air quality.

POSSIBLE CAUSES

People tend to think of vehicle-related air pollution as the result of a simple process. Fuel goes into a car, is burned for energy and results in emissions from the tailpipe.

While that is true, the amount and kind of air pollution caused by the process can vary depending on certain factors.

“A 50 percent reduction in traffic does not necessarily mean a 50 percent reduction in emissions,” Hoekzema said. “That may not mean that there’s also a 50 percent reduction in freight traffic, and freight and trucks is a very significant source of air pollution.”



Cars drive down I-35 on a hazy day in October

He said the speed at which personal vehicles and trucks move, as well as the type of fuel used, can change their emissions.

At the onset of the pandemic, federal and state environmental authorities issued waivers to refineries allowing them to change the content of their gasoline.

“It is possible that those waivers had some impact on the carbon monoxide emissions from these vehicles,” Hoekzema said.

Local temperature and sunlight also affect how some pollution, like ozone, forms in the air, and weather patterns move pollution in and out of the area from other parts of the world.

To untangle how all these various inputs may have contributed to air quality this year, Hoekzema said CAPCOG will review data from more air monitors and from longer periods of time.

THE PLAN

During its initial air quality review, CAPCOG used information from three Texas Commission on Environmental Quality air quality monitors in the Austin area. Typically, more data would have been available, but a fourth TCEQ monitor, located at Murchison Middle School in Austin, was offline because of construction at the school.

The new study will include records from other ozone monitors CAPCOG operates and independently operated air sensors that share data with the EPA. It will also look at a longer time frame to compare how local air quality has changed through the years.

The study could also include computer modeling to reveal how bad the pollution would have been this spring without a reduction in vehicle traffic.

Modeling is important to understand why Austin had higher levels of some pollution because it “controls for all of the other factors that could influence it,” Hoekzema said.

GOOD POLICY

Right now, policy to fight air pollution in Central Texas focuses on reducing traffic congestion. Officials hope that the study will result in better policy by clarifying the link between vehicle emissions and pollution.

Phoebe Romero, an environmental program coordinator with Austin's Office of Sustainability, said the research should help evaluate the effectiveness of telecommuting as a pollution-mitigation strategy.

CAPCOG's Hoekzema agrees. "If we can take what's happened here as far as a sort of major unintended social experiment in behavior change and figure out what we can learn from it," he says, "it should result in better health outcomes."

Air pollution 'costs the average London citizen £1,180 every year'

Date:-21-Oct-2020, Source: energylivenews.com

Residents across 432 cities face an estimated cost of €166 billion as a result of high levels of air pollution, according to a new report.



Air pollution costs the average London citizen £1,180 every year.

That's according to a report by the European Public Health Alliance (EPHA), which examined 432 cities in all EU countries and the UK, Norway and Switzerland and found air pollution cost city residents

across these regions a total of €166 billion (£151bn) per year, which is equal to an average of €385 million (£351m) per city.

These figures represent the costs related to health problems caused by the polluted air.

The study, conducted by the independent research and consultancy organisation CE Delft, shows Bucharest in Romania tops the European chart for highest costs faced by the average city resident – Bucharest residents face an average cost of €3,004 (£2,742).

Residents in Santa Cruz de Tenerife face the lowest costs at €382 (£348).

Researchers, who took the latest complete data from Eurostat and official monitoring stations from 2018 to calculate the harm caused and the related costs, found that a number

of Italian cities, including Milano, Venezia and Torino also prominently feature in the top 10 list of the cities with the highest cost.

As well as London, other cities in the UK that rank high in the list of the pollution-related costs for citizens are Manchester with €864 (£788), Glasgow with €728 (£664) and West Midlands with €715 (£652).

The report shows particulate matter causes the majority of costs, almost 82.5% on average, followed by nitrogen dioxide which adds 15%, while ozone represents 2.5%.

EPHA Acting Secretary-General Sascha Marschang said: “Our study reveals the magnitude of the damage toxic air is causing to people’s health and the huge health inequalities that exist between and within countries in Europe.

“To a large extent, the situation can be influenced by transport policies and cities can reduce costs by switching to zero emission urban mobility.”

Chinese air pollution to blow into Taiwan on Friday

Date:-22-Oct-2020, Source: taiwannews.com.tw

Thick layer of smog from China expected to trigger orange alerts across Taiwan on Friday, Saturday

TAIPEI (Taiwan News) — The Environmental Protection Agency (EPA) is predicting orange Air Quality Index (AQI) warnings across much of the country as air pollution drifts down from China on Friday (Oct. 23) and Saturday, resulting in unhealthy air quality.

The first wave of smog from China is expected to affect Taiwan on Friday, according to the EPA. On Oct. 20, dust storms appeared over Inner Mongolia and the Hetao region of China, while smog began to accumulate in Beijing. The EPA predicts that northeast winds will strengthen on Friday morning, blowing the dust and smog southward, affecting northern, central, and southern regions of Taiwan, and triggering orange warnings in those areas.

The EPA said that according to AQI forecast data, the pollution will hit northern Taiwan first, while central and southern regions will begin to flash orange warnings by the afternoon. The degree of impact may vary depending on the accumulation of pollutants and rainfall.

Strong winds could also bring dust to Taiwan's coastal areas. The EPA predicts that air quality will gradually start to improve on Oct. 24.

On Oct. 20, the highest hourly concentration of suspended particles on the order of 10 micrometers or less (PM10) in the air was 789 micrograms (one-millionth of a gram) per cubic meter air or µg/m³ in Inner Mongolia. In Beijing and Shanghai, the concentration of fine inhalable particles, with diameters that are 2.5 micrometers and smaller (PM2.5) in the air ranged between PM2.5 186 and 103 µg/m³.

The EPA predicts that on Friday, Taiwan will see a PM10 level of 150 $\mu\text{g}/\text{m}^3$, while the PM2.5 concentrations will reach 50 $\mu\text{g}/\text{m}^3$. As Taiwan's air quality may be affected by pollution from abroad, the EPA reminds the public to pay attention to prevention, with sensitive groups, elderly, children advised to reduce physical exertion and outdoor activities, and wear masks when necessary.

Tough air quality rules are making a difference, says London's mayor

Date:-23-Oct-2020, Source: weforum.org



A number of schemes have been brought in to reduce emissions in the capital

- Across Europe, poor air quality cuts half a million lives short every year.
- London has shown how cracking down on polluting vehicles can make a difference.
- But the city still exceeds WHO guidelines on acceptable levels of pollution.

Londoners worrying about air quality can now breathe a little easier, thanks to news from the city's mayor.

There have been "dramatic improvements in London's air quality across the capital since 2016," the office of London Mayor Sadiq Khan says.

Those improvements include a 94% reduction in the number of people living in areas that exceed the legal limit for nitrogen dioxide (NO₂) levels. There has also been a marked improvement in the air quality surrounding schools, the Air Quality in London 2016-2020 report says.

The ULEZ example

While some of the more recent improvements in air quality might be due to reduced emissions levels during the pandemic, the report states there had already been a 35% fall in central London's NO₂ levels between 2017 and the pre-lockdown part of early 2020.

Much of the achievement has been attributed to the city's ultra-low emission zone (ULEZ), which came into force in April 2019.

The London ULEZ was the first of its kind and has some of the world's toughest standards. Older vehicles and those with high emissions are subject to a daily charge of around \$16.

That's in addition to a charge of around \$20 to drive in central London's Congestion Charge zone. The ULEZ is being gradually widened to cover a greater area of London in late 2021. Similar schemes are now commonplace across much of Europe.

It isn't all good news for London, though. Many thousands of its residents are affected by air pollution levels that exceed World Health Organization (WHO) guidelines.

The problem particularly impacts inner-city parts of London, and the Mayor's office warns that "deprived Londoners and [those] from Black, Asian and Minority Ethnic communities" are likely to be "exposed to the worst air pollution".

Not the worst – or the best

When compared with the rest of Europe, London's air quality is among neither the worst nor the best. According to a study conducted by Greenmatch, the three most polluting countries are Turkey, Poland and Latvia. The three with the cleanest air are Sweden, Finland and France.

Across Europe, more than 500,000 early deaths per year have been blamed on poor air quality.

The European Environment Agency looked at data from 40 countries across the continent and calculated the effects on mortality of ozone, PM_{2.5} fine particulate matter and NO₂.

Meanwhile, the UK's fuel-derived CO₂ emissions are slightly better than the European average, according to an analysis of data from WHO, International Energy Agency and Data Worldbank, carried out by the energy service Greenmatch.

In France last year, a court ruled that the state had taken "insufficient measures concerning the quality of air" in Paris between 2012 and 2016, the BBC reports. The case in question was brought by a woman and her daughter who claimed polluted Parisian air had harmed their health.

UK vs. the Europe's Average		
Metric	UK's Result	Europe's Average
Carbon dioxide emissions from fuel combustion (tCO ₂ /capita/year)	5.65	6.70
Annual mean concentration of PM _{2.5} in urban areas (ug/m ³)	11.00	13.36
Deaths attributable to air pollution, per 100,000 capita per year (crude rate)	26.00	35.00
Waste (kg/capita/year)	481.59	500.90
Forest area (% of total land)	13.00	34.40
Forest and marine protected area (% of total land)	28.80	22.01

Denmark discards the most waste per year

Worldwide, as many as 600,000 children are thought to have died in a single year because of poor air quality. “Polluted air is poisoning millions of children and ruining their lives. This is inexcusable. Every child should be able to breathe clean air so they can grow and fulfil their full potential,” Dr Tedros Adhanom Ghebreyesus, WHO Director-General, wrote in a report in 2018. Analyzing data from 2016, the report also concluded that around 93% of children younger than 15 routinely breathe “air that is so polluted it puts their health and development at serious risk”.

Clouds of Concern Linger as Wildfires Drag into Flu Season and Covid-19 Numbers Swell

Date:-24-Oct-2020, Source: insideclimatenews.org

The deadly virus adds new uncertainties, while a growing body of research shows significant and enduring health risks from wildfire smoke.

Wildfire smoke had choked the mountain valleys of western Montana for nearly two months when a team of university researchers landed in Seeley Lake in the fall of 2017. Students and faculty left their labs behind, headed to the small community and launched a study on how the relentless wildfire smoke was affecting the health of the people breathing it.

The results of their study, published in the journal *Toxics* this summer, were stunning. They showed that lung function in the 100 Montanans who participated declined the year after the fires and stayed compromised the year after that, said lead researcher, Christopher T.



The smoke wave and pyrocumulus clouds from the East Troublesome Fire on the Front Range of the Colorado Rocky Mountains on Wednesday, Oct. 21. The prominent peak on the left is Bald Mountain at the south end of Indian Peaks Wilderness. Credit: Amanda Windischmann.

Migliaccio, whose work at the University of Montana focuses on how environmental factors affect respiratory function and immunity, with an emphasis on wildfire smoke exposures.

“Seeing that there is this long-term effect is new,” he said, in telling how the findings

showed that short-term symptoms like scratchy throats and persistent coughing were only part of the story.

In a year when wildfires have burned 8 million acres across America, findings like these have raised concern to new levels—not only because Colorado and California both suffered through their largest fires in history this year, but also because of the global pandemic.

Worry is only growing as the fire season expands into the flu season, and continues to choke the air with wildfire smoke, while the risk of Covid-19 infections swells, too. Roughly 78 million people who live in the smoky West also face heightened health risks from two viruses, the common flu and the strange and unchecked coronavirus that has claimed more than 223,000 American lives in a matter of months.

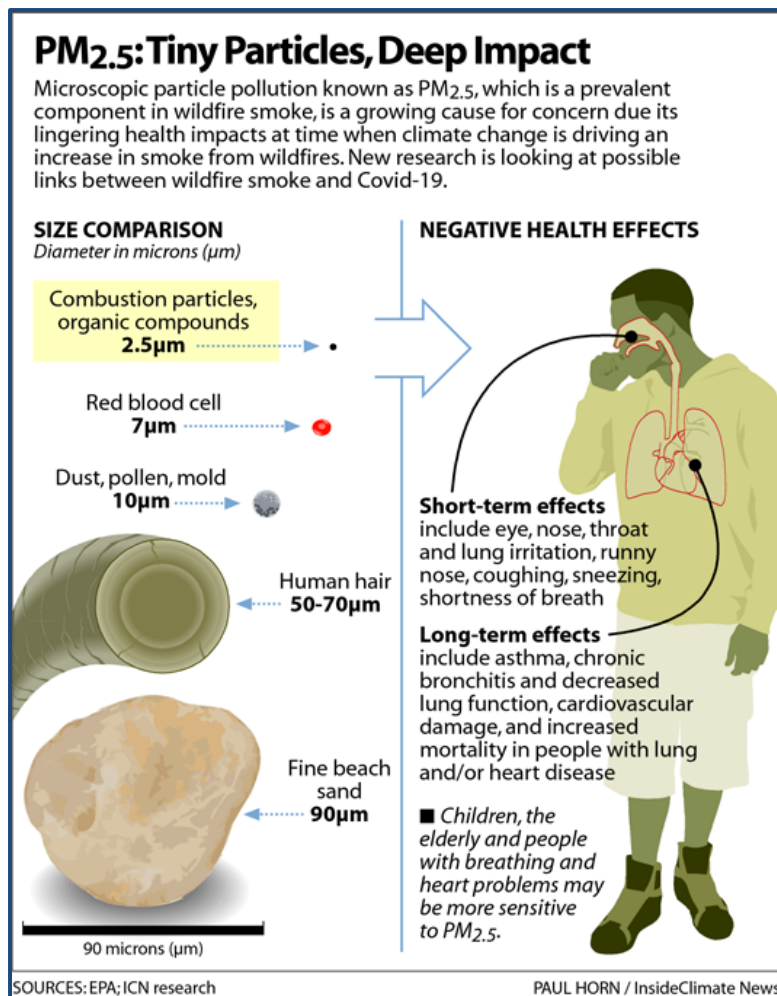
Concern about the health risks from wildfire smoke is growing

More than a dozen studies have emerged from around the world in recent weeks on how air pollution affects Covid-19, but many urgent questions remain. Will I get sicker from the coronavirus because I inhaled so much wildfire smoke for so long? Am I more likely to die from Covid-19 because I live downwind of these massive wildfires? As a coronavirus survivor, am I more vulnerable to wildfire smoke? Does wood smoke harm my health even more than urban pollution?

“When it comes to how we might expect wildfire smoke to exacerbate Covid-19 risks, we don’t know yet, since we are just now experiencing our 2020 wildfire season with this new emerging infectious disease,” said Erin Landguth, an associate professor in the Center for Population Health Research at the University of Montana. “However, we have a lot of pieces to this puzzle that warrant concern.”

Solid answers about the connection between air pollution and Covid-19 are probably two years away, said C. Arden Pope, a researcher at Brigham Young University who pioneered air pollution epidemiology.

But, he added, “It would not surprise me if air pollution contributes to the risk of coronavirus infection.”



Pope’s own research, reported two years ago in the American Journal of Respiratory Critical Care Medicine, has linked PM_{2.5} air pollution—particulate matter that is smaller than 2.5 microns, or about 30 times smaller than a human hair—to the influenza virus.

And even though that link has been well established in research, the most prominent study so far linking air pollution with the coronavirus has taken heat, Pope noted. The T.H. Chan School of Public Health at Harvard University last spring projected an 8 percent increase in mortality for increased pollution concentrations as small as 1 microgram of PM_{2.5} per cubic meter of air.

Since then, other studies have linked higher air pollution exposures to increased severity of Covid-19 infections. But so far, no research specifically ties wildfire smoke exposure to increased infection from the coronavirus or severity of symptoms, scientists told InsideClimate News.

Air pollution, regardless of its source, harms health

How PM 2.5 makes people sick has been the subject of thousands of studies over decades. These microscopic particles of soot, which come from fossil fuel combustion as well as from burning forests and grasslands, burrow into the sensitive lining of the lungs, triggering heart and lung damage. They also are sometimes small enough to pass into the bloodstream.

The World Health Organization blames indoor pollution from burning wood and other fuels used for cooking and heating for 4 million premature deaths a year—just as many as from outdoor pollution sources.

Landguth pointed out that groups considered “sensitive” to air pollution make up about 30 percent of the U.S. population. Children under 18, adults over 65, women who are pregnant and those with medical conditions such as heart or lung disease, COPD, asthma, diabetes or compromised immune systems are included in that group. So are those who work outdoors or who have lower socioeconomic status, such as people who are homeless and those with limited access to medical care.

A subset of studies has begun drilling down into the health impacts of pollution from wildfires. One was led by Landguth, who reviewed a decade’s worth of data on PM 2.5 from wildfires in Montana and hospitalizations and urgent-care clinic visits for influenza.

Past studies of wildfire smoke have focused on acute cardiopulmonary health effects that happen within days or weeks of exposure. Landguth said that’s the timeframe the researchers expected to see increased treatment for flu in this study. Her team, however, was shocked to find delayed effects, as well.

After bad summer fire seasons, influenza was three to five times worse during the traditional flu season of fall and winter. After four bad fire years, including 2017, the number of annual flu cases in Montana jumped from the typical 3,000 to around 12,000.

“We were just—we couldn’t believe it,” she said, noting that the lag time was months, rather than days or weeks.

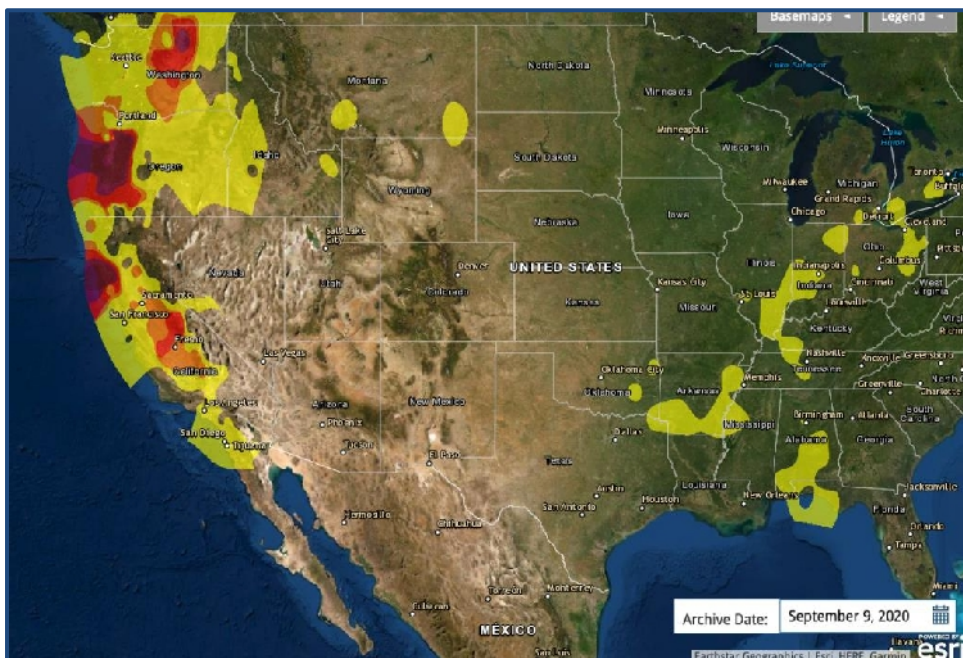
“We’re furiously pulling in that data right now trying to see if this association is gonna hold across other states [because] wildfire season is a lot longer in California, and it’s different in Oregon and Washington and Colorado,” she said. “We don’t know. We need to investigate that.”

Even though there hasn’t been enough time to compile the peer-reviewed research that doctors and public health professionals rely on, the coronavirus-wildfire smoke connections are already seen as significant. The federal Centers for Disease Control and Prevention updated its coronavirus website this summer to say that people with Covid-19 are at increased risk from wildfire smoke, Landguth pointed out.

“Wildfire smoke can irritate your lungs, cause inflammation, affect your immune system and make you more prone to lung infections, including SARS-CoV-2, the virus that causes COVID-19,” the CDC page says. “Know how wildfire smoke can affect you and your loved ones during the COVID-19 pandemic and what you can do to protect yourselves.”

The size and duration of this summer's western wildfires have prompted a growing urgency to find answers to questions about the smoke-pandemic dynamic. But researchers mention longer-term concerns too.

Climate change is increasing the likelihood of wildfire, and the health burden of fire pollution on public health is growing, too. And the addition of the coronavirus to the mix adds still more concern.



A study published this week in Nature Sustainability underscores the scope of the potential impacts from the converging trends. In it, researchers detailed how the health care costs associated with PM 2.5 from the 2019-20 Australian megafires was

nearly \$1.4 billion (in U.S. dollars), with 3,230 hospital admissions for cardiovascular and respiratory disorders and 429 premature deaths attributed to the smoke.

Scientist Marshall Burke, associate professor in Stanford University's Department of Earth System Science, is researching the overall health costs of exposure to six weeks of smoke from the recent wildfires across the West Coast. Early findings suggest that the smoke impacts are huge, possibly responsible for serious disease or death in thousands of people.

"It's really important in thinking about the overall cost," he said, "putting a sort of a back of the envelope magnitude, on how large these hidden costs could be."

Burke said he needs to see more data before he would conclude that a bad fire year will cause more severe illness and more frequent death from Covid-19. Studies only suggest "the plausible biological story that exposure to air pollution worsens immune function," he said.

"We've seen that it causes you to either be more susceptible to viral infection or more harmed by it if you are exposed or infected," he said. But "there has not been the smoking gun study that totally proves that true."

Many experts on air pollution and health have been fielding questions about Covid-19 and the wildfire smoke all summer. It's hard to find the right answer, said Colleen E. Reid, an

assistant professor in the department of geography at the University of Colorado in Boulder, who has literally been in the thick of it, as hundreds of thousands of acres burn in her state.

“The recommendations we have for protecting health need to be studied more to know what’s really effective,” she said, noting that most recommendations are based on common sense and good judgment.

Some are asking how to tell if their cough is from Covid-19 or from breathing wildfire smoke for days. People who live in poorly insulated or leaky homes might seek relief from the heat and smoke at a mall or public library with better ventilation, but that could increase the risk of being exposed to the coronavirus.

“We need more evidence,” she said, “about the efficacy of different specific interventions that could protect people from smoke.”

Migliaccio, the University of Montana researcher, has also been fielding calls about managing personal risk as coronavirus case rates climb in his state and the flu season picks up. Some of those calls are from the 109 people who participated in the Seeley Lake study two years ago.

The pandemic prevented researchers from doing followup spirometry tests this summer, he said, so his team hasn’t been able to measure how much those research subjects have healed from the smoke of 2017. Migliaccio said he talks to them about the importance of taking precautions against the flu, such as getting the annual vaccine, as well as the masks and social distancing credited with the spread of Covid-19.

“Be even more vigilant” about taking steps against the twin viruses, he said he tells them, “because you’re going to be a little bit compromised, unfortunately.”

What's in Mount Isa's plume and how is the air quality monitored?

Date:-25-Oct-2020, Source: abc.net.au



The stack's main emission is sulphur dioxide.

Houses, parks and schools in Mount Isa sit as close as 45 metres away from a lead and copper smelter that towers over the Queensland town.

Mount Isa is known for its proximity to the mine and the plume that flows from the smelter on most days, filling the sky with a thin, dark cloud.

The stacks raise lots of questions from visitors and new residents, many of whom are unsure of what they do and what the plume contains.

The plume is sulphur dioxide, produced as part of the copper smelting process at the mine.

Due to environmental concerns and increased regulation, since 1975 the Mount Isa Mines' air quality centre has become one of the most extensive of its kind in Australia.

Key points:

- The Air Quality Control unit inside Mount Isa Mines has been monitoring sulphur dioxide and metal levels since 1975.
- A dozen monitoring sites are located in the city.
- State Government guidelines on sulphur dioxide emission limits are reviewed every 10 years, most recently in 2019.

How is the air monitored?

Residents and visitors to the town can access real-time air quality data provided by 12 monitoring stations via a mobile phone application or Glencore's website. Mount Isa Mines senior air quality and noise environmental advisor, Kelly Malone, said no resident in Mount Isa city was more than 1.2 kilometres away from a monitoring station. The stations measure sulphur dioxide and dust for metals such as lead and copper.

Ms Malone said all units were monitored 24 hours a day from the control centre at the mine. At night the monitoring is automated, though a technician is on call at all times.

"The monitors look at real-time data of sulphur dioxide coming in, and we check those to see how we're tracking with the license conditions we have in place," she said.



There's no escaping the heavy industry of Mount Isa, but residents can access real-time information about air quality.

What's a healthy level?

The Department of Environmental Science categorises emissions from health action level 1 (good) to health action level 5 (extremely poor), depending on sulphur dioxide readings collected within a single hour.

The index value is the pollutant concentration expressed as a proportion of the National

Environment Protection Measure for Ambient Air Quality (Air NEPM) standard, or the Air Environmental Protection Policy (EPP) objective.

That means there is an agreed safe proportion of pollutants in the air — measured through the concentration of pollutants at monitoring stations — that must be adhered to.

The Queensland Government's air quality index website indicates the values are a single number which is equal to "100 times the amount obtained with the division of pollutant concentration by pollutant goal concentration".

The index is separated by colour with a number scale to rate air quality from very good (0–33) to very poor (more than 150), which can cause health concerns.

Despite the index being a 0–150+ numerical scale, sulphur dioxide is measured in parts per million (ppm). The recommended hourly exposure standard is 0.20 ppm.

What to do if air quality deteriorates



The Mount Isa Mines copper smelter in north-west Queensland

The Queensland Government's sulphur dioxide fact sheet states that sulphur dioxide can affect the respiratory system and irritate the eyes.

It also has the potential, when combined with air and water, to create acid rain that can cause corrosion and damage to buildings and plants.

The website states that if the health action level is at a 2 (listed as "fair"), sensitive people (including people with asthma, pregnant women and infants and children) should monitor the situation and close windows and doors.

As the ratings intensify the suggested actions also include minimising outdoor physical activity. People may experience coughing or shortness of breath.

Inside the centre

Mount Isa Mines has a team of air quality controllers monitoring meteorological conditions.

The control centre features a desk of monitors all showing different maps, indexes and comparison data.

"We look at hourly limits, 24-hourly limits, and annual averages for sulphur dioxide," Ms Malone said.

"The [staff] here at the control centre monitor the real-time data coming in, so we can see how we're tracking against those licensing conditions.

But when wind conditions change in the warmer months emissions can flow directly over Mount Isa's homes, parks, gardens and schools.

"Our air quality controllers, through looking at all the meteorological data, would predict those changes," Ms Malone said.

"They then monitor it throughout the day and they apply restrictions to our operations at the mines."

New UN report details environmental impacts of export of used vehicles to developing world

Date:-26-Oct-2020, Source: [unenvironment.org](https://www.unenvironment.org)

Nairobi, 26 October 2020 - Millions of used cars, vans and minibuses exported from Europe, the United States and Japan to the developing world are of poor quality, contributing significantly to air pollution and hindering efforts to mitigate the effects of climate change, according to a new report by the UN Environment Programme (UNEP).

The report shows that between 2015 and 2018, 14 million used light-duty vehicles were exported worldwide. Some 80 per cent went to low- and middle-income countries, with more than half going to Africa.

Used Vehicles and the Environment - A Global Overview of Used Light Duty Vehicles: Flow, Scale and Regulation, the first-ever report of its kind, calls for action to fill the current policy vacuum with the adoption of harmonized minimum quality standards that will ensure used vehicles contribute to cleaner, safer fleets in importing countries.

The fast-growing global vehicle fleet is a major contributor to air pollution and climate change; globally, the transport sector is responsible for nearly a quarter of energy-related global greenhouse gas emissions. Specifically, vehicle emissions are a significant source of the fine particulate matter (PM2.5) and nitrogen oxides (NOx) that are major causes of urban air pollution.

"Cleaning up the global vehicle fleet is a priority to meet global and local air quality and climate targets," said Inger Andersen, Executive Director of UNEP. "Over the years, developed countries have increasingly exported their used vehicles to developing countries; because this largely happens unregulated, this has become the export of polluting vehicles."

“The lack of effective standards and regulation is resulting in the dumping of old, polluting and unsafe vehicles,” she added. “Developed countries must stop exporting vehicles that fail environment and safety inspections and are no longer considered roadworthy in their own countries, while importing countries should introduce stronger quality standards”

The report, based on an in-depth analysis of 146 countries, found that some two-thirds of them have ‘weak’ or ‘very weak’ policies to regulate the import of used vehicles. However, it also shows that where countries have implemented measures to govern the import of used vehicles – notably age and emissions standards – these give them to access high-quality used vehicles, including hybrid and electric cars, at affordable prices. For example, Morocco only permits the import of vehicles less than five years old and those meeting the EURO4 European vehicles emission standard; as a result, it receives only relatively advanced and clean used vehicles from Europe.

The report found that African countries imported the largest number of used vehicles (40 per cent) in the period studied, followed by countries in Eastern Europe (24 per cent), Asia-Pacific (15 per cent), the Middle East (12 per cent) and Latin America (nine per cent).

Through its ports, the Netherlands is one of the exporters of used vehicles from Europe. A recent review conducted by The Netherlands of its exports found that most of these vehicles did not have a valid roadworthiness certificate at the time of export. Most vehicles were between 16 and 20 years old, and most fell below EURO4 European Union vehicles emission standards. For example, the average age of used vehicles exported to the Gambia was close to 19 years old, while a quarter of used vehicles exported to Nigeria were almost 20 years old.

“These results show that urgent action needs to be taken to improve the quality of used vehicles exported from Europe. The Netherlands cannot address this issue alone. Therefore, I will call for a coordinated European approach, and a close cooperation between European and African governments, to ensure that the EU only exports vehicles that are fit for purpose, and compliant with standards set by importing countries” Stientje Van Veldhoven, The Netherlands Minister for the Environment, said.

Poor quality used vehicles also lead to more road accidents. According to the report, many of the countries with “very weak” or “weak” used vehicles regulations, including Malawi, Nigeria, Zimbabwe, and Burundi, also have very high road traffic death rates. Countries that have introduced used vehicles regulations also see safer fleets and fewer accidents.

UNEP, with the support of the UN Road Safety Trust Fund and others, is part of a new initiative supporting the introduction of minimum used vehicles standards. The initiative’s first focus will be countries on the African continent; a number of African countries have already put in place minimum quality standards – including Morocco, Algeria, Côte d'Ivoire, Ghana and Mauritius – with many more showing interest in joining the initiative.

“The impact of old polluting vehicles is clear. Air quality data in Accra confirms that transport is the main source of air pollution in our cities. This is why Ghana is prioritizing cleaner fuels and vehicle standards, as well as electric bus opportunities. Ghana was the first country in the West Africa region to shift to low sulphur fuels and this month has imposed a 10-year age limit for used vehicle imports,” said Prof. Kwabena Frimpong-Boateng, Ghana’s Minister for Environment, Science, Technology & Innovation.

Last month, the Economic Community of West African States (ECOWAS) set cleaner fuels and vehicle standards from January 2021. ECOWAS members also encouraged the introduction of age limits for used vehicles.

The report concludes that more research is needed to detail further the impacts of the trade in used vehicles, including that of heavy duty used vehicles.

What are Light Duty Vehicles (LDVs)?

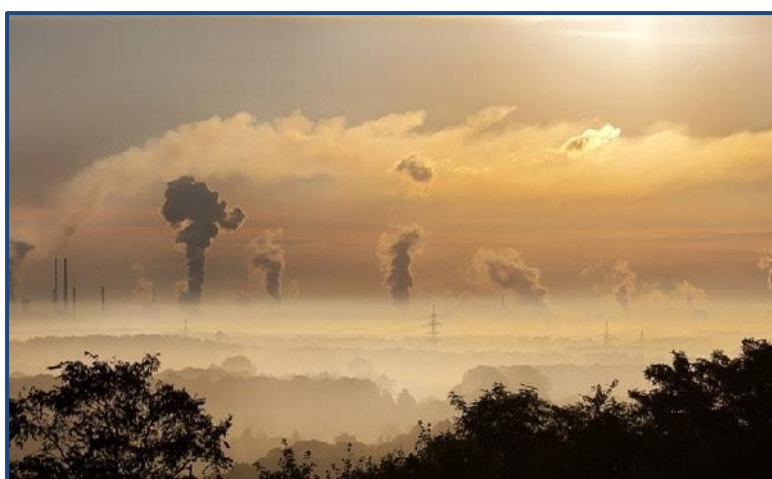
In general LDVs do not exceed a gross weight of 3.5 tons, and include saloon cars, SUVs and minibuses. Vehicles above 3.5 tons are categorized as Heavy Duty Vehicles (HDVs) and these include different types of trucks and buses.

About the UN Environment Programme

UNEP is the leading global voice on the environment. It provides leadership and encourages partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations.

Air Pollution Linked With 15% COVID-19 Deaths Worldwide: Study

Date:-27-Oct-2020, Source: ndtv.com



A new study says deaths from COVID-19 may be linked to long-term exposure to air pollution

Researchers, including those from Max Planck Institute for Chemistry, Germany, found that in Europe the proportion of COVID-19 deaths linked to air pollution was about 19 per cent, in North America it was 17 per cent, and in East Asia about 27 per cent.

Berlin: About 15 per cent of deaths worldwide from COVID-19 may be linked to long-term exposure to air pollution,

according to a study published today.

Researchers, including those from Max Planck Institute for Chemistry, Germany, found that in Europe the proportion of COVID-19 deaths linked to air pollution was about 19 per cent, in North America it was 17 per cent, and in East Asia about 27 per cent.

The study, published in the journal Cardiovascular Research, is the first to estimate the proportion of deaths from the coronavirus that could be attributed to the exacerbating effects of air pollution for every country in the world.

The team noted that these proportions are an estimate of the fraction of COVID-19 deaths that could be avoided if the population were exposed to lower counterfactual air pollution levels without fossil fuel-related and other anthropogenic - caused by humans - emissions.

This attributable fraction does not imply a direct cause-effect relationship between air pollution and COVID-19 mortality, the researchers said.

Instead it refers to relationships between two, direct and indirect, i.e. by aggravating co-morbidities, or other health conditions, that could lead to fatal health outcomes of the virus infection, they said.

The researchers used epidemiological data from previous US and Chinese studies of air pollution and COVID-19 and the SARS outbreak in 2003, supported by additional data from Italy.

They combined this with satellite data showing global exposure to polluting fine particles known as 'particulate matter' that are less than or equal to 2.5 microns in diameter (known as PM2.5), information on atmospheric conditions and ground-based pollution monitoring networks.

The researchers created a model to calculate the fraction of coronavirus deaths that could be attributable to long-term exposure to PM2.5.

The results are based on epidemiological data collected up to third week in June 2020 and the researchers say a comprehensive evaluation will need to follow after the pandemic has subsided.

Tough air quality rules are making a difference in London

Date:-28-Oct-2020, Source: qrius.com

- Across Europe, poor air quality cuts half a million lives short every year.
- London has shown how cracking down on polluting vehicles can make a difference.
- But the city still exceeds WHO guidelines on acceptable levels of pollution.

Londoners worrying about air quality can now breathe a little easier, thanks to news from the city's mayor.

There have been “dramatic improvements in London's air quality across the capital since 2016,” the office of London Mayor Sadiq Khan says. Those improvements include a 94% reduction in the number of people living in areas that exceed the legal limit for nitrogen dioxide (NO₂) levels. There has also been a marked improvement in the air quality surrounding schools, the Air Quality in London 2016-2020 report says.

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It isn't all good news for London, though. Many thousands of its residents are affected by air pollution levels that exceed World Health Organization (WHO) guidelines. The problem particularly impacts inner-city parts of London, and the Mayor's office warns that “deprived Londoners and [those] from Black, Asian and Minority Ethnic communities” are likely to be “exposed to the worst air pollution”.

Not the worst – or the best

When compared with the rest of Europe, London's air quality is among neither the worst nor the best. According to a study conducted by Greenmatch, the three most polluting countries are Turkey, Poland and Latvia. The three with the cleanest air are Sweden, Finland and France.

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Metric	UK's Result	Europe's Average
Carbon dioxide emissions from fuel combustion (tCO ₂ /capita/year)	5.65	6.70
Annual mean concentration of PM _{2.5} in urban areas (ug/m ³)	11.00	13.36
Deaths attributable to air pollution, per 100,000 capita per year (crude rate)	26.00	35.00
Waste (kg/capita/year)	481.59	500.90
Forest area (% of total land)	13.00	34.40
Forest and marine protected area (% of total land)	28.80	22.01

Denmark discards the most waste per year

In France last year, a court ruled that the state had taken “insufficient measures concerning the quality of air” in Paris between 2012 and 2016, the BBC reports. The case in question was brought by a woman and her daughter who claimed polluted Parisian air had harmed their health.

Worldwide, as many as 600,000 children are thought to have died in a single year because of poor air quality. “Polluted air is poisoning millions of children and ruining their lives. This is inexcusable. Every child should be able to breathe clean air so they can grow and fulfil their full potential,” Dr Tedros Adhanom Ghebreyesus, WHO Director-General, wrote in a report in 2018. Analyzing data from 2016, the report also concluded that around 93% of children younger than 15 routinely breathe “air that is so polluted it puts their health and development at serious risk”.

Smog Could Increase COVID-19 Deaths by 15% Worldwide

Date:-29-Oct-2020, Source: usnews.com

THURSDAY, Oct. 29, 2020 (HealthDay News) -- Long-term exposure to air pollution is tied to an increased risk of dying from COVID-19, a new study finds.



About 15% of deaths from COVID-19 worldwide could be due to long-term exposure to air pollution, the researchers said. In Europe, the proportion was about 19%, in North America about 17% and in East Asia about 27%.

These proportions are an estimate of "the fraction of COVID-19 deaths that could be avoided if the population was exposed to lower

counterfactual air pollution levels without fossil fuel-related and other anthropogenic [caused by humans] emissions," the team of German scientists reported.

But this "attributable fraction does not imply a direct cause-effect relationship between air pollution and COVID-19 mortality (although it is possible)," the study authors added in a news release from the European Society of Cardiology.

For the study, the researchers used data from previous U.S. and Chinese studies of air pollution and COVID-19, the SARS (severe acute respiratory syndrome) outbreak in 2003, and additional data from Italy. The investigators combined this with satellite data showing global exposure to fine particles known as "particulate matter" that are less than or equal to 2.5 microns in diameter -- called PM2.5.

"When people inhale polluted air, the very small polluting particles, the PM2.5, migrate from the lungs to the blood and blood vessels, causing inflammation and severe oxidative stress, which is an imbalance between free radicals and oxidants in the body that normally repair damage to cells," said researcher Thomas Munzel, from the University Medical Center of the Johannes Gutenberg University, in Mainz.

"This causes damage to the inner lining of arteries, the endothelium, and leads to the narrowing and stiffening of the arteries. The COVID-19 virus also enters the body via the lungs, causing similar damage to blood vessels, and it is now considered to be an endothelial disease," Munzel said.

According to the report, "A lesson from our environmental perspective of the COVID-19 pandemic is that the quest for effective policies to reduce anthropogenic emissions, which cause both air pollution and climate change, needs to be accelerated. The pandemic ends with the vaccination of the population or with herd immunity through extensive infection of

the population. However, there are no vaccines against poor air quality and climate change. The remedy is to mitigate emissions," the researchers said.

"The transition to a green economy with clean, renewable energy sources will further both environmental and public health locally through improved air quality and globally by limiting climate change," the team concluded.

Air quality in Spokane moves to 'unhealthy' range as dust fills the sky

Date:-30-Oct-2020, Source: krem.com



The dusty skies on Friday aren't due to wildfire smoke like earlier in the year, but are instead being caused by a cold front from the Columbia Basin.

SPOKANE, Wash. — Air quality in Spokane has dropped into the "unhealthy" range on Friday afternoon as high winds fill the sky with dust.

The air quality index is sitting at 175 out of 500 as of 5:35

p.m. on Friday.

A Blowing Dust Advisory has been issued for central Washington areas including Moses Lake, Ritzville, Davenport, and Grand Coulee until 6 p.m. Sudden reductions in road visibility is likely along Highway 2 and I-90, and other roads in the northern Columbia Basin.

The hazy skies felt somewhat reminiscent of wildfire smoke and reduced visibility from earlier this year. While today's foreboding skies look similar to those of this past summer, the cause is very different.

A cold front swept the Northwest early Friday morning. The Cascades and Northern Rockies were able to squeeze a little moisture out of it, but it was too dry to offer much moisture to lower elevations. As wind picked up following the frontal passage, dust and ash from the Columbia Basin was kicked up in the air.

At this time, the dust and ash in the air is not coming from a major wildfire like earlier this summer. Instead, widespread wind gusts near 40 mph were enough to kick the loose dust and ash from the ground high into the air, carrying it from the Columbia Basin into the Spokane metro area. The dust was thick enough to be picked up by satellite imagery.

Strong wind is expected to continue through Friday evening. Gusts will approach 40 miles per hour in the Columbia Basin and close to 35 miles per hour near Spokane. That means the dust is here to stay through the end of the day. Some locations will see visibility reduced to less than a mile at times.

Note that on the satellite imagery provided by the National Weather Service, the driest areas indicated in the purple shades, seems to take origin from the Cold Springs Fire burn scar in Okanogan and Douglas counties. This suggests that the excess ash and dust is getting picked up by the high winds.

Thankfully the weather pattern shifts on Saturday, offering much calmer conditions. We will likely stay dry through much of next week before the next storm offering any moisture moves into the Inland Northwest.

This dust and ash in the air is also what gave our sunrise that beautiful glow earlier this morning.

November 2020

Scotland consults on proposals to improve air quality

Date:-2-Nov-2020, Source: energylivenews.com



Plans include taking forward potential measures to control the supply of the most polluting domestic fuels, including wet wood and house coal.

The Scottish Government has launched a consultation and is seeking views on a number of proposals to further reduce air

pollution.

The draft five-year Cleaner Air for Scotland 2 strategy has set out plans to improve air quality, including taking forward potential measures to control the supply of the most polluting domestic fuels, including wet wood and house coal.

The strategy also includes proposals to work with the agriculture sector to develop a voluntary code of good practice to help reduce emission of air pollutants, a new approach to public engagement and behaviour change in relation to air quality and a continued shift to more sustainable transport modes.

The proposals in the consultation have been shaped by the work of an independent panel of experts led by Professor Campbell Gemmell, an environmental policy adviser to the World Bank and Deputy Chair of the UK Committee on Radioactive Waste Management.

Environment Secretary Roseanna Cunningham said: “The air that we breathe is fundamental to human life and the quality of our environment. It should protect and enhance our health and wellbeing. Despite the undoubted improvements in air quality over recent years, there is more we can and must do. The proposals set out in this strategy are essential if we are to ensure Scotland has the best air quality in Europe.

“Since our original Cleaner Air For Scotland strategy was published five years ago, we have introduced some of the most ambitious climate change legislation in the world, published our Environment Strategy, updated our National Transport Strategy with an emphasis on greener travel and began the introduction of Low Emission Zones.

“The COVID-19 pandemic has shown that it is more important than ever that we design a better future and a more sustainable, green economy which will better support our

communities health and environment as we head for net zero by 2045. So I would encourage people and organisations to engage in this consultation and work together for a better, cleaner future for our planet, this generation – and those to come.” The consultation is open until 22nd January 2021.

Study estimates the proportion of COVID-19 deaths due to air pollution

Date:-3-Nov-2020, Source: news-medical.net

Long-term exposure to air pollution generated by human activity is linked to about 27 per cent of COVID-19-related deaths in East Asia and 15 per cent mortality in South Asia and worldwide. These deaths could be largely prevented by adopting air quality regulations, says a new study.

Published in Cardiovascular Research on 27 October, the study estimates for each country the proportion of deaths from coronavirus that could be attributed to anthropogenic pollution.

Ninety-one per cent of the world's population lives in places where air quality exceeds the World Health Organization guideline limits. Around 2.3 billion people in the Asia Pacific region, which has some of the highest recorded levels of air pollution, are exposed to air pollution levels several times the WHO guideline for safe air.

In addition, Lelieveld notes, the aerosol particles, which are micro-droplets that contain the virus, are generated by breathing and speaking (and especially by singing).

The researchers characterized global exposure to fine particulate matter of 2.5 microns or less in diameter (PM2.5), based on satellite data, and calculated the anthropogenic fraction with an atmospheric chemistry model.

"When people inhale polluted air, the PM2.5 migrates from the lungs to the blood vessels. This causes damage to the inner lining of arteries, the endothelium, and leads to the narrowing and stiffening of the arteries."

"The COVID-19 virus also enters the body via the lungs, causing similar damage to blood vessels, and it is now considered to be an endothelial disease," says co-author Thomas Münzel from the University Medical Centre, Johannes Gutenberg University and the German Centre for Cardiovascular Research, Mainz.

Czech Republic tops all countries on the percentage of COVID-19 mortality attributed to all anthropogenic emissions with 29 per cent and followed by Poland with 28 per cent. China and North Korea came in third at 27 per cent.

Bangladesh leads South Asia with 23 per cent (beating Bhutan's 21 per cent and India's 17 per cent), while Lesotho posted the highest figure for Africa at 20 per cent edging South Africa and Swaziland both with 18 per cent. Topping South America are Ecuador and Paraguay both with 15 per cent.

Globally, around half of the attributable man-made air pollution cause is related to fossil fuel use. It is up to 70-80 per cent in Europe, West Asia and North America.

"The switch from fossil to clean, renewable energy sources is a highly effective health promotion intervention. For example, in Europe, emissions control could save around 400,000 lives. The WHO recommends $10\mu\text{g}/\text{m}^3$ in Europe and we have $25\mu\text{g}/\text{m}^3$. We need new guidelines lowering the limits for PM_{2.5}," Münzel tells SciDev.Net.

There is limited representation of low-income countries in the study's findings. The data for the study has been collected only from middle- and high-income countries, but the calculations are carried out for the whole world.

"This study adds COVID-19 to the list of infectious diseases possibly exacerbated by air pollution. The development transition in many countries is accompanied by hazardous levels of exposure to air pollution from diverse sources, including transport and energy generation, and also agricultural burning and domestic cooking and heating," says Guy Marks, head of the Respiratory and Environmental Epidemiology group, Woolcock Institute of Medical Research, Sydney.

"These countries face a double jeopardy in dealing with the public health challenge of controlling COVID-19 transmission and its consequences for health services and the economy, and controlling emissions. We need global action to combat this hazard," Marks adds.

Can Air Pollution Make COVID Even Deadlier?

Date:-4-Nov-2020, Source: usnews.com

People with long-term exposure to air pollutants may be more likely to die from COVID-19, according to a new study.

In an analysis of more than 3,000 U.S. counties, researchers found that just a small increase in long-term average exposure to fine-particle pollutants (PM_{2.5}) upped the risk of death from COVID by more than 10%.

The study was published Nov. 4 in the journal Science Advances.



A new study looked at countywide death data for the coronavirus and compared it to estimated daily PM2.5 concentrations across the United States for 2000-2016.

Air pollution also makes flu and other lung diseases more severe, so it's not surprising that PM2.5 increases the risk of death from COVID-19, said Jeremy Jackson, a research associate at the American Museum of Natural History in New York City. He coauthored an accompanying journal

editorial.

"This paper had a checkered history," said Jackson, noting

the study didn't follow the usual pattern where researchers gather at least 20 years of data.

"But I think we're on the right track," he said, adding the authors' work "has stimulated something like 45 or 50 other studies around the world."

The finding of increased risk can't pinpoint precisely who might succumb to the virus, said study co-author Xiao Wu, from the department of biostatistics at Harvard's T.H. Chan School of Public Health. But he hopes the findings encourage policymakers to reexamine the harms of air pollution.

"Research on how modifiable factors may exacerbate COVID-19 symptoms and increase mortality risk is essential to guide policies and behaviors to minimize fatality related to the pandemic," said Wu.

"Such research could also provide a strong scientific argument for revision of the U.S. national PM2.5 standards and other environmental policies in the midst of a pandemic," especially in areas where PM2.5 levels are high, he said.

In addition, the county-level associations "can inform important immediate policy actions that will benefit public health," Wu said. These might include allocating personal protective equipment and hospital beds to areas with historically higher air pollution, he noted.

The study looked at countywide death data for the coronavirus and compared it to estimated daily PM2.5 concentrations across the United States for 2000-2016. Researchers found that a small increase in pollution -- just 1 microgram per cubic meter -- was tied to an 11% hike in a county's COVID death rate.

Jackson believes that air pollution levels considered safe by the U.S. Environmental Protection Agency are too high. "I think most scientists would agree with that," he said.

Global warming by itself won't have an effect on pandemics, but by switching to renewable energy and electric cars, which are responsible for most PM2.5, the air might just get cleaner, Jackson said.

He noted that in many cities around the world, including New York, PM2.5 levels dropped significantly during the pandemic lockdowns and rose again when a sense of normalcy resumed.

"It's discouraging that pollution levels bounce back, but it's extraordinarily important that in fact, a massive experiment was done all over the world showing how readily we can reduce extreme pollution if we set our mind to it," Jackson said.

EU urged to correct transport decarbonisation 'anomaly' to reach climate targets

Date:-5-Nov-2020, Source: euractiv.com



Decarbonising Europe's transport, which is responsible for some 25% of the overall fossil GHG emissions, has been a long-standing headache for EU policymakers.

The EU should scale up the use of sustainable renewable fuels in road transport and the different departments within the European Commission should join forces in legislation if Europe's ambitions for a decarbonised economy are to become a reality by 2050,

stakeholders have said.

Decarbonising Europe's transport, which is responsible

for some 25% of the overall fossil greenhouse gas (GHG) emissions, has been a long-standing headache for EU policymakers.

Particularly road transport is almost entirely dependent on fossil fuels (95%) and the EU executive admits that by 2030 things will not change dramatically.

Electric vehicles have emerged as a solution to speed things up. However, poor infrastructure and the high cost of electric vehicles give them more chances to develop only after 2030.

Until then, EU policymakers have to come up with realistic alternatives to replace fossil fuels in the existing and upcoming vehicles on the road.

On 17 September, the European Commission presented its 2030 Climate Target Plan, raising the EU's ambition on reducing greenhouse gas emissions to at least 55% below 1990 levels by 2030. The plan is considered as a transition period for the ultimate objective of a carbon-free Europe by 2050.

Critics suggest that with the current trend, the GHG reduction requirements for 2030 (and beyond) cannot be met without renewable fuels, especially when it comes to heavy-duty vehicles.

Several pieces of legislation have been put in place such as the revised Renewable energy Directive (RED II) and the Fuel Quality Directive (FQD). Both are expected to be revised as part of Europe's new Green Deal.

The FQD requires a reduction in the carbon intensity of fuels by 6% by 2020 e.g. through blending with biofuels. Together with the RED II, it also regulates the sustainability of biofuels.

A way to introduce sustainable biofuels in the market is by gradually increasing the share of renewable fuels in the market gasoline and diesel fuels.

People nowadays fill up their cars at service stations with biofuels blended into fossil fuel (up to 10% for ethanol and up to 7% for biodiesel).

Sources have told EURACTIV that neither the current RED nor the FQD include a blending obligation for biofuels. Revised RED II does so, but this new Directive needs to be transposed into national legislation in the EU27 only by June 2021.

"The recast Renewable Energy Directive requires the member states to set out an obligation on fuel suppliers to supply renewables in the transport sector, including biofuels, but this new Directive needs to be transposed only by June 2021," the sources said.

ART Fuels Forum, an industrial forum of demand and supply Industries in alternative and renewable transport fuels, says consistency is much needed in relevant policies.

In addition, dedicated engines and vehicles for high-blends and pure (100%) renewable fuels should be put in place. However, this requires incentivising them through FQD.

"Other DGs are responsible for each Directive/Regulation and this can result in a fragmented policy landscape," the forum said.

"Particularly, to adequately reflect the combined CO2 reduction benefits from renewable fuels and energy-efficient engine and vehicle technology, a well-to-wheels approach should be applied," the forum added. Well to wheels means assessment of the environmental impact of a product throughout its lifespan.

“This implies a need to coordinate and ‘co-optimize’ the legislations on fuels -namely, the FQD and REDII- and the vehicle CO2 legislations,” the forum emphasised.

Correcting the ‘anomaly’

Producers and importers of used cooking oil (UCO) and animal fats for biofuels (EWABA) say that in line with the EU Climate Target Plan, the transport sub-target in the REDII should also be revised upward.

Referring to the Commission’s plan which says, “bioenergy production should come from better use of biomass wastes and residues”, EWABA emphasised that waste-based feedstocks, such as cooking oil-UCO and animal fats, are placed at the core of the new system.

“We are extremely hopeful with the Commission’s intention to put forward revisions of the REDII and FQD in June 2021 because in accordance with the Climate Target Plan, the EU framework would need to be fine-tuned to terminate existing artificial limitations of sustainable biofuels,” EWABA told EURACTIV.

“In this context, the existing 1.7% soft limitation in the REDII should be eliminated as its rationale will be by then more flawed than ever before (in presence of revised, more stringent, certification schemes and a pan-EU track and trace database for all biofuels and bioliquids),” EWABA added.

Regarding the FQD, EWABA said it should allow for higher sustainable biodiesel blends beyond the current B7 limit.

“Any diesel vehicle refuelling on EU petrol stations is compatible with a B10 blend. B7 operates as some sort of ‘political standard’ while third countries in other continents moved ahead with higher blends like B10, B11, B12, B15, B20, B30 or even B50 and B100 – it’s high time this anomaly is corrected,” they said.

In October 2019, Farm Europe, a lobby group, published an opinion piece on EURACTIV saying that a certain amount of imported UCO in Europe is falsely declared as UCO biodiesel – which is not genuine UCO but “more than likely comes from virgin palm oil”.

NGO Transport and Environment (T&E) also hinted in a report that it is suspicious to see large supplies of UCO coming from Malaysia (12%) and Indonesia (7%), the world’s two biggest palm oil producers, and from China (34%).

Referring to the Farm Europe op-ed, EWABA reacted strongly, saying that no established association defending the interests of EU farmers, oilseed and protein or crop-based biofuels “has echoed those vile attacks against UCO biodiesel”.

“UCO is one of the most highly regulated commodities in the world. Complete traceability exists from where it originates (restaurants, food processing facilities or household collection points) until the end of the value chain,” EWABA said.

“Like any industry in a period of significant growth, the UCO business has attracted wrongdoers. In May we learnt that a Dutch company not belonging to our association had been engaging in fraudulent behaviour. This regrettable event functioned as a catalyst mobilising the collective knowledge of the industry to curb the possibility of fraud to occur,” EWABA added.

In Europe, air pollution fell while plastic use rose during the lockdown

Date:-6-Nov-2020, Source: zmesience.com



The COVID-19 pandemic and the resulting restrictions in Europe have led to some environmental benefits such as lower emissions and better air quality. But they were temporary and concurrent with an increase in single-use plastic, according to a report by the European Environment Agency (EEA).

The EU agency published the report “COVID-19 and Europe’s environment,” which offers a preliminary view of what the pandemic, and resulting government measures to fight it, have meant for the environment. It highlighted the urgent need to address the environmental challenges Europe faces, its authors said.

One of the most evident short-term effects of COVID-19 lockdowns has been a dramatic improvement in air quality. Although air quality now appears to be returning to near-pre-lockdown levels, this period has revealed some of the benefits that could be achieved from a lasting and sustainable reduction in air pollution.

The EEA’s Air quality and COVID-19 viewer tracks average weekly and monthly concentrations of nitrogen dioxide (NO₂) and particulate matter (PM 10 and PM 2.5). Data show how concentrations of NO₂ — a pollutant mainly emitted by road transport — fell sharply in many European countries.

Concentrations of PM 10 also fell across Europe in this period, but the decrease was less pronounced. Whereas NO₂ emissions are largely attributable to road transport, PM concentrations are influenced by emissions from natural sources as well as man-made

sources such as residential heating, agriculture, and industry. The extent of reductions varied considerably, with the largest of up to 70% seen in urban centers in those countries most affected by COVID-19 at that time. Other cities which were less affected by the COVID first wave and saw activity returning sooner, experienced sharp initial declines in NO₂, followed by a return to pre-lockdown levels.

According to initial evaluations from the International Energy Agency (IEA), global energy demand in 2020 could fall by around 6%. Therefore, the strong contraction in GDP and energy use might help the EU achieve its 20% renewable energy target and its objective to improve energy efficiency by 20% in 2020.

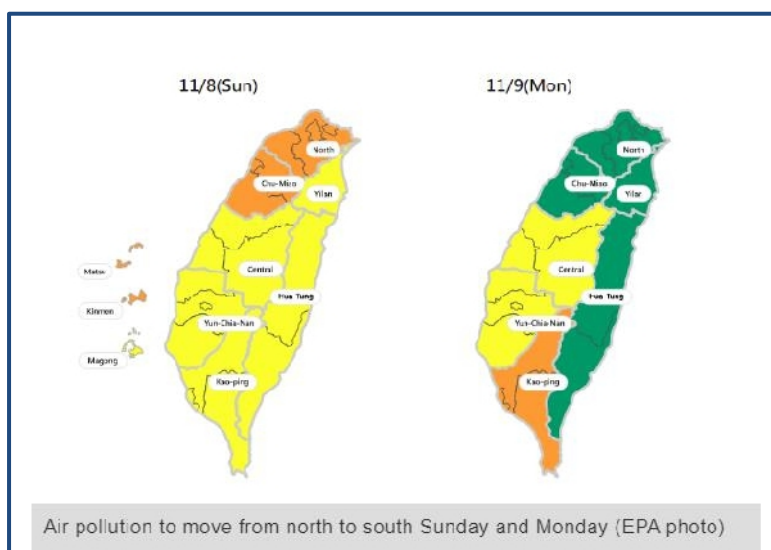
The role of plastics

The pandemic has caused significant changes in the production and consumption of plastics and plastic waste. There was a sudden surge in global demand for personal protective equipment (PPE), such as masks and gloves. During the start of the pandemic, 89 million medical masks were requested globally.

Since most restaurants in Europe were closed for on-site dining, many moved to offering take away and delivery services using single-use plastic containers. Several coffee retailers stopped allowing customers to bring refillable containers, using disposable cups in their place. Meanwhile, online shopping outlets have seen a surge in demand, with many products packed in single-use plastic.

Air pollution from China to cover north Taiwan before moving south: EPA

Date:-7-Nov-2020, Source: taiwannews.com.tw



TAIPEI (Taiwan News) – As Tropical Storm Atsani moved away from south Taiwan, polluted air from China was expected to hit northern regions of the island Sunday (Nov. 8), according to the Environmental Protection Administration (EPA).

The air quality index (AQI) would degrade to an orange warning level in the area north

from Miaoli County, including the capital Taipei, Hsinchu City, Hsinchu County, Taoyuan, New Taipei and Keelung, CNA reported. The outlying islands of Kinmen and Matsu would

also color orange on the air pollution map. The color indicates that the air quality is unhealthy for sensitive groups.

On Monday (Nov. 9), the bad air would move south, covering Kaohsiung City and Pingtung County, and staying there on Tuesday (Nov. 10) as well. In contrast, the north and the east coast counties of Yilan, Hualien and Taitung would go green, indicating “good” air quality, according to the EPA.

The northeasterly winds and eventual rainfall might alter the situation, at times also turning the AQI orange for localized areas in south Taiwan, the forecast warned. The EPA advised people with allergies, elderly people and children to refrain from long stretches of outdoor activities and to use public transportation.

A Moment of Global Respiratory Failure

Date:-8-Nov-2020, Source: brinknews.com



For all the predictions and well-crafted vision boards hanging on our walls for 2020, this is not what we were expecting. As your doctor behind the pen for a moment, I would ask us all to stop, and take a deep breath together. You should do it right now; it feels good, and there are many that could not breathe this

year and died for many causes. Let’s breathe for all of them now.

We Can Survive

In this unprecedented year, we must recognize that we are here together, 7.8 billion strong, and we can change everything. We have survived job losses, human losses, abuses, heartbreaks and, for the first time, mandatory homeschooling. It may be hard to believe, but our collective short term memory loss will make all this fade away quickly in coming months and years as we live in the aftermath.

We have an opportunity to recognize deep truths about this crisis that our collective society has made us vulnerable to, and our capacity to transform as a global community. Through the synergy of interconnected geopolitics, economies and a global media complex that reaches billions of smart phones and home devices in every nook of civilization, a systematic narrative of death struck a chord of fear and paranoia in our minds, and almost overnight changed the lives of every human on earth.

So What Just Happened?

Economies were halted, global transportation and supply chains were shut down to a crawl, hundreds of millions of jobs disappeared, more money was lost by the global public than in any other moment in history and millions of households were pushed deeper into institutionalized poverty.

So far in 2020 we have reported one million deaths related to the global pandemic. Shockingly, the U.S., with just 4% of the global population has suffered more than 20% of global pandemic-related deaths.

But it is important to remember that in the last nine months, the world has seen 44 million deaths from all causes and 107 million births, netting us an additional 62 million humans joining the race. We are right on target with our population growth trends of recent years. So, this was not the pandemic that was going to be the 1918 influenza story. This pandemic, in hindsight, has been but a small vibration, barely registering on the Richter scale of human survival. But like all tremors on the seismometer, it is warning of something much more devastating that is approaching.

The Planet Can No Longer Breathe

COVID-19 is not a virus that threatens our species, and it is unlikely that it ever will be. The vulnerability is much more dire than that. It is human biology and the biology of our planet that is failing. More specifically, the planet and its inhabitants are failing to breathe. Over the five billion years of life on earth, all forms of biology — from the first bacterium to the mammals — have relied on the extraordinary balance between carbon, nitrogen, oxygen and the rest of the elements in our air and bodies.

This balance of the global organism depends most of all on the respiratory system of the planet. On land, it is the soil and all of the plant life within it, and in the oceans, it is the kelp, algae and the salt water itself that constitute this critical respiratory system. Over just the last few decades, we have driven the lungs of the soil and the oceans to critically low function. It is estimated that we have depleted, or severely depleted, 97% of arable soils on earth. We have also eliminated over 90% of the kelp forests and algae diversity within our oceans.

Danger of Chemical Agriculture

There is a morbid, Orwellian-like irony to the reality that we achieved these devastating effects by way of our chemical agriculture system. With the altruistic banner of “feed the world,” large-scale chemical agriculture has only managed to feed 30% of today’s global population (the other 70% still being fed by peasant farmers with less than two acres to an average farm).

With our chemical warfare of the 20th century turned against our weeds and insects in the last 40 years, we have wiped out an estimated 50% of life on earth, accelerating the baseline extinction rate of species by 10,000 times. If we fail to stop, take a deep breath, learn and then change everything, we can expect our own extinction looming within this century.

If that existential threat seems too far off to ring your bells of change, the symptoms of this global respiratory system failure can be seen on a much more approximate timeline.

Every year, in the third week of November, the Northern hemisphere stops breathing. As solar winter sets in, we lose the function of the majority of the steadily diminishing natural plant life for the season, and the planet begins to suffocate.

Suffocation Season

Every year, NASA satellites record the plumes of CO₂, methane and small carbon particulate matter (PM_{2.5}) that begin to circulate from Asia to the U.S., from U.S. to EU, and on around the globe in November.

By the time summer crops take off in June, the entire hemisphere is engulfed in thick clouds of carbon materials of all sorts. We call this influenza season. It is actually suffocation season.

From June through October, the plants, soils and oceans struggle to drink up the excess carbon, but we no longer return to baseline before the cycle accelerates again in the third week of November. The noose tightens again.

Population studies now show us that the accumulation of PM_{2.5} in our cities and heavy agricultural areas are among the best biologic predictors of human chronic disease which accounts for at least 75% of global annual mortality.

Heart attacks, strokes, neurodegenerative conditions, chronic fatigue, chronic pain and cancer all track with the failure of the planet's respiratory function.

The solution to a healthy and vibrant future is simple.

We need to stop and breathe long enough for the planet to breathe again with us — and for us. While we pause, we need to recreate everything.

Certainly agriculture, energy, transportation and our general consumption need radical overhaul.

It will happen when we change our education system. When our children see themselves as an element of nature — and are given the space and freedom to co-create with her — they will create that world that we all would like to see.

Air pollution harms most vulnerable

Date:-9-Nov-2020, Source: theecologist.org



Air pollution is a rising concern with climate change and wildfires having a growing impact on every day life. It's worst impacts hurt vulnerable populations.

Air pollution has been a severe cause for concern in the US since at least the late 1940s. In 1948, a city in Pennsylvania became covered in smog, polluting the air and affecting nearly every resident. Of course, other things would have polluted the air before then, but that was one of the

leading occurrences in history that changed the trajectory for handling air pollution.

What constitutes air pollution, then? Several factors add up to the pollution that is in our environment. Solid particles and gases combine to cause air pollution. These particles and gases can come from car emissions, factories, pollen from plants and trees, smoke and mold. That list is not complete, however.

With the recent wildfires raging in the western part of the United States and with the ongoing conversation about climate change, you may wonder how you or other people are affected by just a few minutes of exposure to the air. Pollution is often invisible and can harm those closest to you. Here are some ways in which air pollution is hurting the most vulnerable groups in our communities.

Young children

Air pollution can cause harm to the youngest of children, including those still inside the womb. Infants and young children are still growing and developing daily. Your lungs don't mature fully until you are in your twenties, and then they begin to decline around age 35.

Children stay active for a large portion of their day. They're constantly running around, and they need a lot of air to keep up with their busy lifestyle.

Because children tend to stay active for more extended periods, they will likely remain outside for longer when given the opportunity. That means they are exposed to polluted air more often than adults might be.

For children who grow up in more polluted areas, like cities, their risk for lung diseases increases, and their lung growth may be stunted. Even pregnant women exposed to higher amounts of air pollutants will see the effects with their newborns, such as premature birth or abnormal birth measurements.

Early on, the human body can be tremendously affected by air pollution. The tiniest of lungs may not be able to reach their full capacity, which is a reason why adults suffer the consequences in the future.

Elderly residents

At the other end of the age spectrum, older adults are at high risk for difficulties due to air pollution. Studies show that even lower levels of air pollution have long-term effects on the elderly. With aging comes reduced lung function. As stated before, the lung function of even a healthy human begins to decline around age 35.

Air pollution has been one of the leading causes of premature death. Elderly residents don't have the lung capacity of younger generations, so if you combine that with low air quality, life expectancy declines.

The microscopic air pollutants can enter the respiratory system through the mouth, nose and even the eyes. They travel to the deepest part of the lungs and cause major reactions and inflammation.

If an older adult is subjected to air pollution, shortness of breath or chronic coughing may occur, which could lead to more serious health concerns. Since pollution levels will likely continue to rise, the elderly should avoid high-traffic areas and check the air quality before going outdoors.

Preexisting conditions

Those who suffer from preexisting medical conditions are more likely to be affected by the detrimental consequences of air pollution. People who are prone to the harmful effects of air pollution include people with:

- Asthma
- Chronic obstructive pulmonary disease (COPD)
- Emphysema
- Heart disease

Nearly 8% of the adult population suffers from asthma in the United States. For children, one in 13 has asthma, so you likely know someone who has the condition. Certain air pollutants can cause more frequent asthma attacks and worsen the symptoms.

For those who have a lung disease like COPD or emphysema, exposure to pollution can advance the disease and worsen the symptoms. Although COPD is most commonly found in smokers, about a quarter of all cases are in non-smokers.

Studies have shown that there are correlations between air pollution and heart disease as well. Long-term exposures to particles and nitrogen oxide — a common pollutant — can age blood vessels and lead to more buildup in arteries, causing blockages that end up putting people at higher risk for a heart attack.

Not only does air pollution worsen these preexisting medical conditions, but air pollution is also a primary contributor to people being diagnosed with them.

How can you help?

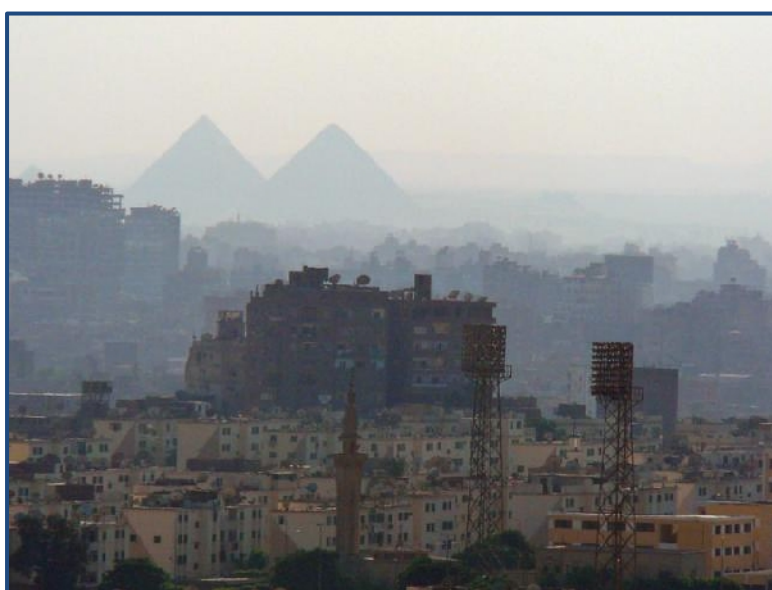
Young children, the elderly and people suffering from lung-related conditions are the most vulnerable to air pollution. It's likely that you know at least one person in one of these categories.

You can help reduce the amount of pollution entering the environment. Consider carpooling or riding a bike to work. Conserve electricity by turning off or unplugging devices you aren't using. Share with others how air pollution may be affecting someone they know.

Simple tasks throughout the day can limit the amount of air pollution released, which in turn helps those who are at risk around you.

Qatar, Egypt most affected Arab countries by air pollution: HEI Report

Date:-10-Nov-2020, Source: menafn.com



(MENAFN - Daily News Egypt)
Qatar and Egypt, respectively, are the two Arab states most affected by air pollution, in a region that already suffers from high levels of particulate matter pollution.

Qatar ranked first in the Arab region, in terms of exposure to concentrations of particulate matter, reaching a concentration of 76 micrograms per cubic metre

(cbm) of air. It was followed by Egypt, which reported a concentration of 67.9 micrograms/cbm of air, according to the State of Global Air Report 2020.

The report was issued by the Health Effects Institute (HEI), an independent scientific institution based in the US capital of Washington, DC. The Institute specialises in research on the health effects of air pollution, and has examined mortality data around the world and hundreds of research studies linking air pollution to health problems.

Saudi Arabia ranked third in terms of exposure to particulate matter pollutants, with a record 61.9 micrograms/cbm of air, followed by Kuwait with 61 micrograms/cbm of air.

The World Health Organization (WHO) sets the average long-term annual exposure to fine particulate matter less than 2.5 micrograms/cbm of air. This average increases in the case of exposure to micro-pollutants up to 10 micrograms, so that the average annual long-term exposure to these particles is 20 micrograms for every cubic metre.

Long-term observations indicate that air quality is still poor in the Arab region due to the extensive use of fossil fuels, and the lax application of measures to reduce harmful emissions.

Mostafa Mourad, Head of the Environmental Quality Sector at Egypt's Ministry of Environment, attributes the presence of these high concentrations of particulate matter and pollutants in the air to human activities and natural factors. He said that Egypt is located within the world's largest desert region, which is one of the causes of the high percentage of air pollutants in all countries of the region.

These activities include burning rice straw, which causes high levels of air pollution, industrial activities, car exhaust, and coal.

"All countries in the region have high levels of particulate matter concentrations," Mourad said, "In our case in Egypt, the desert is responsible for a percentage that may reach in some locations and times to more than 50% of the detected particles."

He added that the timing of occurrence of dust storms could be predicted through mathematical models, but the natural impact remains constant throughout the year.

Regarding the separation, whether in monitoring or control, between natural pollutants and pollutants resulting from human activities, Mourad said that this is done through a specialised monitoring system known as the placement of pollutants to their sources in the case of particles. Egypt is currently working on indigenising this method through the transfer of French expertise as part of cooperation with the World Bank.

Despite its location among the ten countries most exposed to micro-pollutants, the report indicates that Egypt recorded a decline in the amount of particles during the last ten years, estimated at 10.6 micrograms/cbm of air.

The report deals with the health effects of air pollution, with the most important effects being that nearly 500,000 newborn children lost their lives during their first months due to complications from air pollution in 2019.

China topped the list of world countries in terms of the number of infant deaths due to air pollution. The Asian country reported 1.85 million deaths due to air pollution, followed by India with 1.67 million deaths.

Egypt also ranked among the foremost countries according to the number of child deaths related to air pollution, coming second in Africa (after Nigeria, which recorded 198,000 deaths). Egypt was also the first in the Arab world, with 91,700 deaths in 2019, followed by Morocco (29,200 deaths) and Iraq (25,600 deaths).

Regarding the reports figures, Mourad said, 'It must be taken into account that the deaths mentioned in the report or otherwise are not based on direct data from health authorities in different countries, but based on specialised mathematical models for this matter.'

As a result, he believes that, in the event of an increase in population in countries such as Egypt, and even with a decrease in the concentration of pollutants, the case numbers will remain high. This is given the high number of people exposed to concentrations that remain higher than the standard set by the WHO.

Qatar also topped Arab countries in terms of exposure to ozone gas pollutants, which accelerated with the increasing global warming, recording 67.3 parts per billion annually of ozone pollutants. The tiny Gulf Emirate was followed by Kuwait (62.1 parts per billion); Iraq (59.5 parts per billion); then Saudi Arabia (58.2 parts per billion); while Egypt recorded (52.3 parts per billion).

The global lockdown measures, which have also been applied across the Arab region, to confront the novel coronavirus (COVID-19) pandemic, have contributed to reducing the severity of emissions.

"The daily observations from the satellite show that the closure in Egypt led to an unprecedented decrease in nitrogen dioxide levels by about 25% in Cairo, but pollution has returned to normal levels after the closure was eased last June," said Jenney Stavrakou, Atmospheric scientist at the Royal Belgian Institute for Space Aeronomy (Brussels).

Stavrakou said that a similar decrease in nitrogen dioxide was observed in large cities such as Istanbul and Algeria, while the decrease in Baghdad and Kabul was higher, reaching 30-35%.

The researcher said that there is a need to conduct careful research to better understand the effects of the transformations caused by the COVID-19 on human activity. These should then be translated into solutions to reach cleaner air.

"Besides its tragic dimensions, the crisis provides a powerful case for accelerating joint efforts to achieve long-term improvements in air quality," Stavrakou added.

Mourad said that Egypt's Ministry of Environment has expanded the environmental monitoring system and doubled the number of stations to 106 stations. Multiple pollution control programmes have been implemented also, and have been effective to reduce lead pollution, whose concentration of safe levels decreased two decades ago.

Supporting the electric power generation sector to use natural gas as the main fuel, contributed also to the emission control plans. The ministry has also introduced some initiatives for monitoring and follow-up of major industrial sectors. This includes electronically linking 74 major industrial establishments to the Ministry of Environment to conduct around the clock monitoring of emissions from 350 chimneys.

Mourad notes that some of the projects implemented in the transport sector have also contributed to reducing pollutants, such as expanding the public electric transport. He explained that the construction of Cairo's third metro line has resulted in a 3.4% reduction in particulate pollution in the areas surrounding its route.

Pakistan's Lahore Sees Peak Pollution as Coronavirus Surges

Date:-11-Nov-2020, Source: usnews.com



Vehicles drive on a highway as smog envelops the area of Lahore, Pakistan, Wednesday, Nov. 11, 2020. People in Pakistan's cultural capital of Lahore were at risk of respiratory diseases and eye-related problems Wednesday after the air quality deteriorated to hazardous levels due to a quilt of smog over the city, prompting doctors to urge people to stay at home.

Pakistani officials are warning that tens of thousands of Lahore residents risk respiratory disease and eye-related problems as a thick blanket of smog enveloped the country's cultural capital.

LAHORE, Pakistan (AP) — A thick blanket of smog enveloped Pakistan's cultural capital of Lahore on Wednesday, prompting officials to warn that tens of thousands of the city's residents risk respiratory disease and eye-related problems while doctors urged

people to stay at home.

The air quality in Lahore deteriorated to hazardous levels, putting an additional burden on the fragile healthcare system amid a surge in coronavirus deaths and new infections. The Air Quality Index at one point rose to 750 in the city's poorer areas — about 12 times the recommended level.

Earlier in the day, Switzerland-based air quality information platform IQair declared Lahore the second most polluted city, after New Delhi, India's capital. Pollution indexes peak dramatically in Pakistan in winter, when farmers burn off stubble in the fields. Winds worsen the pollution by further spreading smog across the region.

"The air quality level was hazardous today," said Sajid Bashir, a spokesman for Environmental Protection Department.

By mid-day the situation had improved, he said, as authorities took steps to keep smoke emitting vehicles off the roads and shut brick kilns across the province of Punjab, where Lahore is the provincial capital.

Lahore, once dubbed as the city of gardens, remained pollution-free for months after March, when the government imposed a lockdown to contain the spread of coronavirus. But the restriction was lifted in May, allowing a return to industrial activities and normal businesses. With cars back on the roads, the air quality gradually deteriorated, falling again to unhealthy levels.

Pollution is no stranger to Pakistan, a country of 220 million — or Lahore, with some 12 million people. Cars are the top pollutants in Lahore but the city also has other sources of pollution, including the stubble burning, steel manufacturing furnaces and the city's famous brick kilns.

"Coughing, throat infection and irritation in the eyes are common," said Anza Farid, an environmental expert, warning that the situation could worsen in the coming weeks as more people burn garbage in the cities and farmers burn off the stubble in their fields.

Dr. Talha Ayub urged people to wear face masks for protection, both from pollution and the coronavirus. "People should try to stay at home if they can," he appealed.

Pakistan on Wednesday said it registered 21 new COVID-19 deaths and 1,708 new infections over the past 24 hours — despite a government-imposed partial lockdowns in 4,136 residential areas across the country. The government is turning to sealing off hotspots in a bid to contain rising fatalities and infections from coronavirus.

Authorities also banned large gathering, shut shrines, cinemas and theaters to contain the spread of the virus, which has infected more than 348,000 people in Pakistan and killed 7,021 since February.

Exposure to air pollution during fetal period, early life linked with higher blood pressure

Date:-12-Nov-2020, Source: news-medical.net

Exposure to an urban environment characterized by high levels of air pollution and noise in areas with a high building density during the fetal period and in early childhood may contribute to higher blood pressure. This was the conclusion of a study led by the Barcelona Institute for Global Health (ISGlobal) published in *Environment International*. ISGlobal is an institution supported by the "la Caixa" Foundation.

To study the impact of urban exposures on the cardiovascular health of children, the research team analyzed data from 4,279 children living in six European cities (Bradford in the United Kingdom, Poitiers and Nancy in France, Sabadell and Valencia in Spain, and Heraklion in Greece). All the children were participants in the European HELIX project.

The team assessed multiple aspects of the children's environment: initially, during the prenatal period, the place of residence of the mothers during their pregnancy, and subsequently the homes of the children themselves. Factors studied included the built environment, natural spaces, traffic, air pollution, noise, climate and level of social and economic privation. Assessing the children's blood pressure when they were between four and five years of age allowed them to study the long-term effect of the exposures analyzed.

Analysis of the results showed that exposure to higher levels of air pollution, particularly during the first two terms of pregnancy, was associated with higher blood pressure in childhood. Specifically, a 9.1 $\mu\text{g}/\text{m}^3$ increase in NO_2 was associated with a 0.9 mmHg increase in diastolic blood pressure. (A healthy diastolic blood pressure in children is around 50-80 mmHg) The limit value established by the World Health Organisation to protect the population from the damaging effects of NO_2 is 40 $\mu\text{g}/\text{m}^3$, a threshold exceeded on a regular basis in cities like Barcelona and Madrid.

Furthermore, other characteristics of the urban environment during childhood also appear to be important. High building density is associated with higher blood pressure and good urban transport connectivity is linked to lower blood pressure.

Exposure to noise also appears to be associated with higher blood pressure in children.

Based on their analysis of the results, the authors concluded that one in every five children lives in an urban environment characterised by levels of air pollution, noise, and building density that are associated with blood pressure values higher than those observed in children not exposed to these environmental factors.

The role of urbanization in cardiovascular disease

High blood pressure is one of the chief risk factors for cardiovascular disease, a condition which is currently the leading cause of death worldwide. "Numerous studies have shown that children with higher blood pressure are more likely to develop hypertension later in life," says Martine Vrijheid, study leader and director of ISGlobal's Childhood and Environment Programme. "The results of this study show how important it is to identify environmental exposures that contribute to hypertension in early life, from conception onwards."

Given the increasing urbanization of the world's population, the role that urban design and transport plays in health is a topic of growing concern. This study assessed, for the first time, the effects on the cardiovascular health of children of numerous exposures associated with the urban environment. "Our results show that, from conception onwards, the urban environment can affect blood pressure in preschool children" Warembourg points out. "This means that a commitment to urban design and transport planning designed to reduce damaging environmental exposures has the potential to reduce the risk of cardiovascular disease in adulthood".

How Utah's air pollution affects homeless populations

Date:-13-Nov-2020, Source: newswise.com

Newswise — When air quality worsens, either from the smoke and ozone of summer or the inversion of winter, most of us stay indoors. But for individuals experiencing homelessness, that's not always an option. In a new study, researchers from the University of Utah document the effect of air pollution on people experiencing homelessness, finding that nearly all notice and are impacted by air pollution, whether or not they reside in shelters.

The study, funded by the Interdisciplinary Exchange for Utah Science (NEXUS) at the University of Utah, is published in the International Journal of Environmental Research and Public Health.

Life lived outdoors

People experiencing homelessness, particularly those who sleep outdoors at night, are the most vulnerable and exposed population to environmental hazards, says Daniel Mendoza, a research assistant professor in the Department of Atmospheric Sciences and visiting assistant professor in the Department of City & Metropolitan Planning. Mendoza also holds appointments as an adjunct assistant professor in the Pulmonary Division in the School of Medicine and as a senior scientist at NEXUS. "Many individuals sleep near a road or under a bridge," he says, "which leads to exposure to high levels of traffic related emissions. Further compounding the issue is the fact that during sleep, many people breathe through their mouth and breathe more deeply."

This life lived outdoors makes homelessness an environmental justice issue, says Jeff Rose, assistant professor in the Department of Parks, Recreation and Tourism.

“People experiencing unsheltered homelessness often live, eat, sleep, socialize, use the bathroom, and other basic human functions outdoors, with close and regular interaction with the environment,” he says. Environmental justice research looks at uneven exposures to pollution and other environmental risks. “Increasingly, scholars are considering people experiencing unsheltered homelessness as fitting in this framework.”

While other researchers have looked at how people experiencing homelessness experience environmental injustice in the form of access to safe drinking water or parks, the U team says it is among the first to look at how people experiencing homelessness also experience the intermittent poor air quality of Salt Lake County.

Gathering experiences

To collect people’s stories, Angelina DeMarco, a doctoral student in anthropology and Rebecca Hardenbrook, a doctoral student in mathematics, went to several Salt Lake City resource centers to meet with people experiencing sheltered homelessness.

“We sat in the dining hall of each center and invited all residents that came by to interview,” DeMarco says. In partnership with the Volunteers of America outreach team, they also interviewed people at the Salt Lake City library, on downtown streets, outside the St. Vincent de Paul dining hall and at local parks. Outdoor interviews took place often during harsh winter conditions, DeMarco says.

They interviewed everyone they encountered, 138 people total, and asked them open-ended questions about when and how they knew the air was polluted, and how air pollution make them feel. With the interviewees’ permission, the researchers also examined health records kept by the state Homeless Management Information System.

Sheltered and unsheltered

More than half of the participants reported having physical reactions to air pollution including headaches and difficulty breathing, and more than a third reported emotional stress associated with air pollution. 89% reported seeking medical treatment for their symptoms.

But the researchers also wanted to look at whether the duration of homelessness or residing within a shelter would affect individuals’ experiences with air pollution. Surprisingly, they found no significant differences in heart and lung health outcomes between sheltered and unsheltered individuals, as well as between people experiencing chronic (more than a year) or non-chronic homelessness.

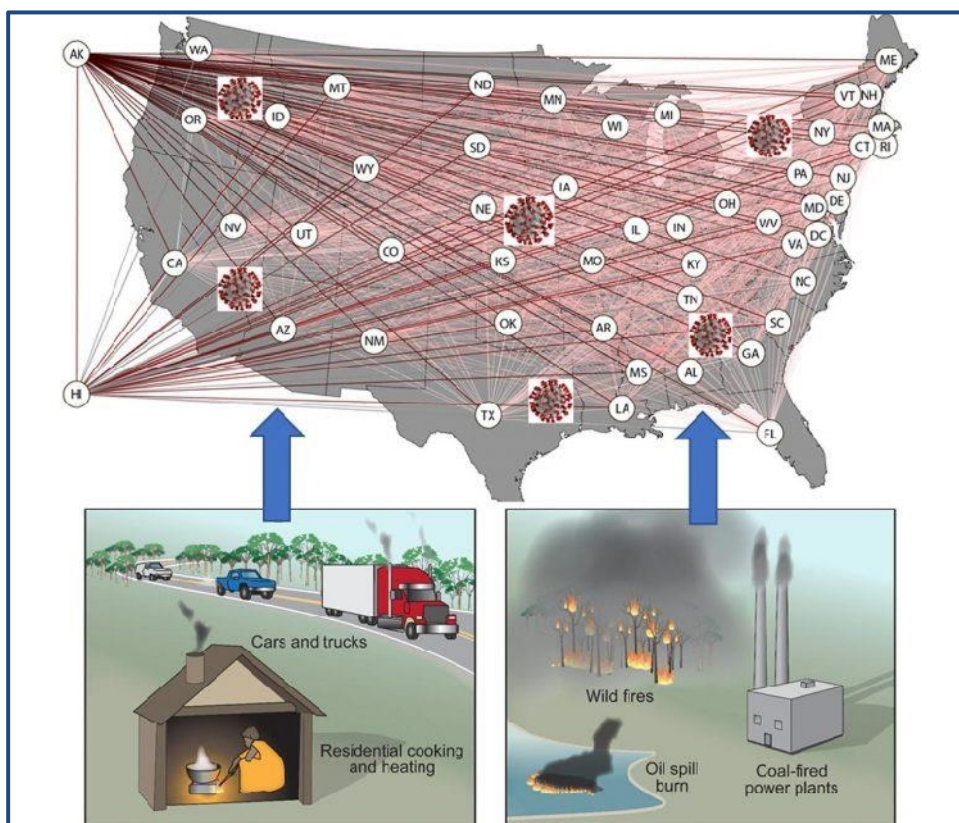
“These results indicate that sheltered and unsheltered, short-term and long-term homeless populations experience negative health outcomes that are associated with air pollution,” DeMarco says. The mental health impacts of air pollution exposure, she says, merit additional study.

The message for governmental leaders, the researchers say, is that shelters and day centers that protect people from the elements aren’t shielding them from air pollution and other environmental impacts, which have a significant effect on their health. Affordable housing policies and efforts to place people experiencing homelessness in housing, they say, may do much more to protect a vulnerable population from an environmental hazard.

The United States May Have Set Itself Up for the Spread of a Pandemic Without Even Knowing It

Date:-14-Nov-2020, Source: scitechdaily.com

Pollution and Pandemics: A Dangerous Mix



According to new research from the McKelvey School of Engineering at Washington University in St. Louis, pollution may bear part of the blame for the rapid proliferation in the United States of SARS-CoV-2, the virus responsible for the spread of COVID-19. Credit: Professor Rajan Chakrabarty, Washington University in St. Louis

The United States may have set itself up for the spread of a pandemic without even knowing it.

According to new research from the McKelvey School of Engineering at Washington University in St. Louis, pollution may bear part of the blame for the rapid proliferation in the United States of SARS-CoV-2, the virus responsible for the spread of COVID-19.

The research, from the lab of Rajan

Chakrabarty, associate professor in the Department of Energy, Environmental & Chemical Engineering, was published online ahead of print in the journal *Science of The Total Environment*.

When it comes to how ill someone gets after contracting COVID-19, medical professionals believe that a person's health — having certain medical conditions, for example — can play a vital role. When it comes to how fast the virus can spread through the community, it turns out the health of the environment is directly correlated to the basic reproduction ratio R_0 , which denotes the expected number of people each sick person can infect.

The reproduction ratio R_0 of COVID-19 associates directly with the long-term ambient PM_{2.5} exposure levels. And the presence of secondary inorganic components in PM_{2.5} only makes things worse, according to Chakrabarty.

"We checked for more than 40 confounding factors," Chakrabarty said. Of all of those factors, "There was a strong, linear association between long-term PM_{2.5} exposure and R_0 ."

PM_{2.5} refers to ambient particles with a diameter of 2.5 micrometers or less; at that size, they can enter a person's lungs and cause damage. For this reason, PM_{2.5} can be detrimental to respiratory health. But how this relates to the spread of COVID-19 through a population had yet to be explored.

Chakrabarty and his graduate student Payton Beeler, both aerosol researchers who have done previous coronavirus modeling, became interested in the relationship after two papers were published in quick succession. First, a July paper in the journal *Science* found that levels of susceptibility to COVID-19 is a driving factor for the pandemic; it is more important than temperature, which researchers initially thought might play an outsized role.

Then in August, research published in the *Journal of Infection* found that the highest number of cases of COVID-19 with severe illness were in places with higher pollution levels.

"I was thinking, why, in the majority of the U.S. states, have we had such a rapid spread of the virus?" Chakrabarty said. Particularly in the earlier stages of the pandemic. "We wanted to confine our study to the point in time when the shutdown was in place. For the most part, people did remain confined from early March until the end of April."

The team decided to look at places where R_0 was greater than one — that's the point at which one person can spread an illness to more than one person, and the illness takes off. In those places, they looked at 43 different factors — including population density, age distribution, even time delays in states' stay-at-home orders.

Then, using pollution estimates across the U.S. between 2012 and 2017 published by Randall Martin, professor in the Department of Energy, Environmental & Chemical Engineering, the team looked for any relationships.

Modeling revealed an increase of almost 0.25 in R0 corresponding to a 10% increase in sulfate, nitrogen dioxide and ammonium, or SNA composition and an increase of 1 µg/m³ in PM2.5 mass concentrations, respectively.

They found these linear correlations to be strongest in places where pollution levels were well below National Ambient Air Quality Standards (NAAQS), the levels of air pollutants that are considered safe for humans.

“Annual mean PM2.5 national standards are set at or below 12 micrograms per cubic meter, below that you are supposed to be safe,” Chakrabarty said. “What we saw, the correlation we’re seeing is well below that standard.” In fact, they saw a rapid increase in R0 when PM2.5 exposure levels were below 6 micrograms per cubic meter.

Chakrabarty hypothesizes this initial increase in R0, which is followed by a plateau once levels hit 6 micrograms per cubic meter, is a result of initial changes in condition; when the air is free of PM2.5, an individual is unaffected. The initial exposure is the catalyst for change in lung health resulting in a change from non-susceptibility to susceptibility, which is reflected in the increasing R0.

And although there was no direct correlation between black carbon — a.k.a. soot — and R0, researchers did find a connection.

“Our collaborators at Saint Louis University suggested a mediation/moderation statistical approach,” a detailed analysis that looks at the way additional variables affect the outcome of the initial relationship. In this case, researchers looked at soot’s effect on R0, considering SNA’s effect.

“We found black carbon acts as a kind of catalyst. When there is soot present, PM2.5 has more of an acute effect on lung health, and therefore on R0.”

The mediation/moderation study was not superfluous — one of the common ways people are exposed to SNA is through pollution emitted from cars and coal-fired power plants. Both of which also emit soot.

“Although decades of strict air quality regulations in the U.S. have resulted in significant reductions of nitrogen dioxide levels,” the authors wrote in the paper’s conclusion, “recent reversal of environmental regulations which weaken limits on gaseous emissions from power plants and vehicles threaten the country’s future air quality scenario.”

“Instead of working to resolve this issue, these reversals may be setting us up for another pandemic,” Chakrabarty said.

Study finds air pollution levels in Education City much lower

Date:-15-Nov-2020, Source: m.gulf-times.com

A study has found air pollution levels in Education City to be much lower than those previously reported for other locations in Doha. Based on the results, a widely applicable calibration scheme for two on-site air quality sensors was developed.

Hamad Bin Khalifa University Press (HBKU Press) has published the findings of the study conducted by five students at Weill Cornell Medicine-Qatar (WCM-Q), as a part of the Student Research Mentorship Programme (SRMP) and in collaboration with Qatar Mobility Innovations Centre in its open access journal, QScience Connect, on QScience.com.

The study aimed to measure and report on air pollution levels, specifically in Education City, to assess air pollution's impact on public health and wellbeing. Undertaken from March 2019 to March 2020, the study assessed air quality samples from two locations in Education City during the summer, fall, and winter seasons whereby the researchers developed a method for on-site calibration of air pollution sensors in real time.

"At HBKU Press, we aim to support local researchers that evaluate pertinent issues related to a wide variety of topics, including public health," explained Dr Rima Isaifan, head of Academic and Journals Publishing at HBKU Press.

"By publishing articles about topical issues without barriers to subscriptions and in open access journals like QScience Connect, local researchers are provided a global platform on which to reach international audiences and local research is made available on global indexing services. In this way, HBKU Press provides a platform for participating in the wider knowledge economy and global exchange of ideas and information."

The findings are of interest to policymakers and public health workers in Qatar and the greater Gulf and Mena region as they seek to mitigate pollution in the naturally arid and dusty climate.

"Air pollution is a universal threat to human health and wellbeing which makes real-time air quality monitoring of paramount importance," pointed out Dr Mohamed Yousef, an associate professor of Physics at WCM-Q and the mentor overseeing the research. "For maximum public health benefits, air pollution monitoring systems should be accurate, robust, and real-time. The findings of this study can support the development of data-driven pollution management policies in the future."

The research was funded by SRMP, which is a unique opportunity for WCM-Q students that generously funds student research initiatives that expose future physicians to research early on in their training. With the help of accomplished and experienced mentors at WCM-Q, students formulate their research questions, carry out the research, and submit a written report.

The authors of the study, Kevin Zhai, Mohamed Bhatti, Omar Khalil, Laila Khalil, and Moza al-Hail, are students in the six-year medical programme at WCM-Q.

Health in dust belt cities and beyond—an essay by Nick Middleton

Date:-16-Nov-2020, Source: bmj.com

Desert dust is associated with morbidity and mortality, and distant spread means lessons for mitigating the harms can be found by looking beyond cities in arid regions, writes Nick Middleton

Every year, usually sometime in December, the residents of cities in west Africa brace themselves for the Harmattan, an annual yellow haze caused by dust blown from the Sahara Desert. It's a time of traffic accidents and flight delays, increased risks of wildfires and medical ailments, from respiratory complaints to skin problems.

The situation is similar across the string of deserts and semi-deserts stretching from the Sahara through the Middle East and central Asia to the Gobi Desert of China and Mongolia (fig 1). The world's greatest dust sources are in this swathe of drylands, dubbed the "dust belt," but airborne dust also affects dry parts of the Americas, Australia, and southern Africa.¹

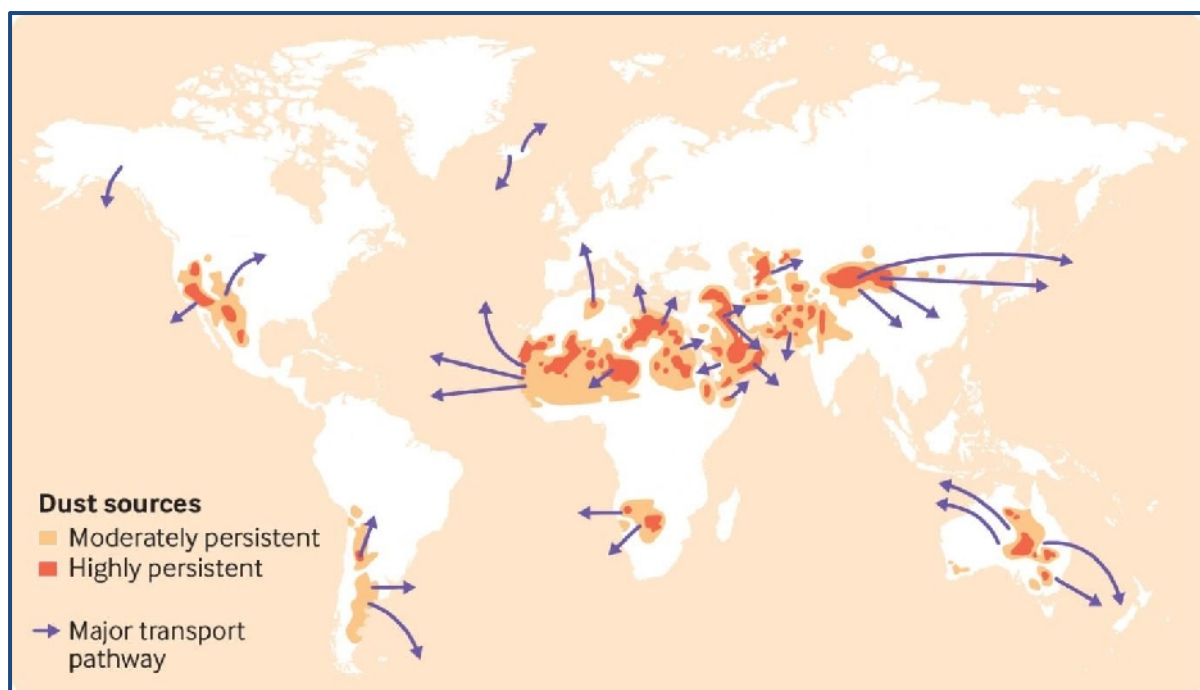


Fig 1

Major global sources of desert dust and pathways of long distance transport (Modified from Muhs et al, 2014).²¹

Globally, an estimated two billion tonnes of fine particles are raised by winds from the world's dryland soil surfaces each year. Urban areas in drylands are worst affected by these

seasonal outbreaks, but fine soil particles are regularly blown over great distances, bringing dust haze to cities well outside areas considered dry. Desert dust is not just a desert problem; it has global ramifications. Dust comprises primarily mineral rock fragments with organic matter, a wide array of microorganisms, plus anthropogenic pollutants from the soil or picked up in transit through the atmosphere.²

Health impacts

Soil particles entrained by turbulent winds can rapidly create a thick dust cloud. The worst cases involve abrupt and total loss of visibility at ground level, which can cause road traffic accidents, sometimes resulting in multiple vehicle pile-ups.³ A series of severe dust events in northern India in May 2018 uprooted trees and damaged housing, leaving more than 125 people dead and many more injured in cities and rural areas of Uttar Pradesh, Rajasthan, Delhi, and Haryana.⁴

A large and growing body of research has looked at numerous infections and diseases associated with desert dust. Exposure to dust in the atmosphere can result in conjunctivitis and dermatological disorders, whereas inhalation can cause respiratory illnesses such as silicosis (also known as desert lung syndrome). Many epidemiological studies show associations between exposure to high dust concentrations and increases in mortality and hospital visits and admissions owing to respiratory and cardiovascular diseases such as bronchitis, emphysema, and chronic obstructive pulmonary disease.⁵⁶ The effect of desert dust outbreaks on asthma incidence has also attracted considerable research, but dust is just one of a host of factors that might influence the development and expression of respiratory allergic diseases such as asthma.⁷⁸



Fig 2

Dust storm engulfs Khartoum Credit: Mahmoud Hjj/Anadolu Agency

In the Sahel region of west Africa, outbreaks of bacterial meningitis are closely associated with the Harmattan season, although the exact nature of the association remains elusive.⁹ In dryland parts of the Americas, dusty conditions are associated with an infectious disease known as valley fever.¹⁰ In this case, a causal link is more clear cut. People contract valley fever by inhaling spores of a soil based fungus (*Coccidioides immitis*

or *C posadasii*) that become airborne during dust storms (fig 2).

Air quality guidelines

Once inhaled, the size of the dust particle is the main determinant of where it comes to rest in the respiratory tract. A distinction is typically made between particles less than 10 microns in diameter (PM₁₀), which can enter the lungs, and those with a diameter of less than 2.5 microns (PM_{2.5}), which can reach deeper into lung tissue.

Based on evidence, the World Health Organization anticipates no minimum threshold for atmospheric concentration that would mean no adverse health effects,¹¹ but it still sets standards for acceptable air quality. National governments adopt WHO's limits or set their own similar guidelines.

Nonetheless, these limits are frequently exceeded during dust storms, sometimes by several orders of magnitude. The WHO guideline for the maximum acceptable 24 hour atmospheric concentration is a mean of 50 µg per cubic metre for PM₁₀. In Zabol, a city in southeastern Iran that frequently tops global league tables for atmospheric pollution, maximum PM₁₀ levels during severe dust storms are more than 10 000 µg per cubic metre. Sometimes these storms continue for several days.

Managing dust sources

Many dust sources are naturally devoid of vegetation, but some environments have become susceptible to wind action through human mismanagement. These situations include agricultural fields left bare after ploughing and harvests, and lake beds desiccated by society's overuse of water. Preventing emissions at source is the most obvious answer to problems presented by dust, and there are numerous tried and tested techniques to prevent wind erosion from agricultural soils.¹² Many of them involve maintaining or restoring some degree of vegetation cover to protect a surface.

Farmers use all sorts of technologies to control wind erosion. These include leaving crop residue in the field after the harvest and erecting windbreaks at right angles to erosive winds. Such barriers might comprise fences made of dead palm fronds, for example, or living plants such as trees or bushes, in which case they are called shelterbelts. Other policy options include set aside schemes designed to allow protective vegetation to grow on former farmland.

Great efforts have been made to promote these techniques to farmers in some parts of the world. In the Canadian Prairie provinces of Alberta, Saskatchewan, and Manitoba, where wind erosion is especially prevalent during recurrent drought periods, numerous initiatives to develop and promote wind erosion prevention were made in the 1980s. A marked reduction in dust in the Canadian Prairies from 1990 onward has been attributed to the positive effects of these soil conservation campaigns implemented by both government agencies and private non-profit organisations.¹³

Other dust sources are more dependent on sustainable water management. The desert city of Zabol receives dust from a series of shallow, marshy lakes that become dry during times of drought, but also when water is taken from rivers for agriculture and municipal use.¹⁴ The lakes, which straddle the border between Iran and Afghanistan, are a unique series of wetlands in an otherwise extremely arid region. They are fed by rivers that flow from the Hindu Kush mountains, but several of these rivers have been dammed on both sides of the border to provide water to irrigation schemes and for domestic use in the region's towns and cities. The best hope for improving Zabol's air quality lies in an international agreement between the governments of Iran and Afghanistan governing water use in the region.

The economic incentive to reach an agreement has been assessed on the Iranian side of the border. In the Zabol region, dust storms cost an estimated \$25m (£19m; €21m) a year in physical damage and loss of productive work hours.¹⁵ Such economic assessments are few and far between. A rare valuation of dust related medical costs, in the US state of Arizona in 2007, showed that 1735 hospital visits for valley fever resulted in \$86m in hospital charges alone.¹⁶

Impact mitigation

Preventing dust emissions at source is not always possible. Harmattan dust, for example, emanates from natural sources in the Sahara Desert, which are too large and remote to stabilize feasibly. In situations like this, a range of monitoring, forecasting, and early warning measures can be implemented to mitigate the numerous effects of dust in the urban environment.

In northeast Asia, governments and their meteorological services cooperate to produce forecasts of transboundary dust events based on an ensemble of computer climate models from China, Japan, and South Korea. South Korea is outside the Asian drylands, but the season of yellow haze created by dust from China and Mongolia is common enough to have a Korean name: *hwang sa*.

The South Korean approach to managing the risks associated with *hwang sa* offers lessons for responses elsewhere. In the capital, Seoul, the metropolitan government issues dust forecasts in weather reports, on the internet, and through emergency broadcasts. It also has a guide on its website advising on what to do before, during, and after a *hwang sa* event.¹⁷ Alerts are issued when a mean hourly PM₁₀ concentration of greater than 800 µg per cubic metre is expected to last more than two hours. The threshold concentration is noteworthy given that Seoul is over 1000 km from the nearest dust source.

During an alert, people are advised to close windows and stay indoors and to avoid secondhand pollution by thoroughly washing hands before processing food and cooking. If people must go outside, they are advised to wear protective glasses, a mask, and long sleeved clothes. Schools are told to cancel classes if necessary and to prohibit outdoor

activities for kindergarten and elementary school students. Outdoor sports events and other open air activities should be stopped or postponed. When the yellow dust has dissipated, everything should be cleaned, and some facilities need to be disinfected.

Alerts of desert dust events are a simple way of reducing harmful health effects if they lead to behavioural changes that lower exposure. Studies of the large “red dawn” dust storm in Australia in 2009, the worst in terms of reduced visibility to have passed through the city of Sydney since the 1940s, found the incidence of adverse health outcomes in Sydney was reduced by public health messages and their widespread media coverage.¹⁸

A pressing matter

Dust storms do not typically result in the substantial destruction of infrastructure and loss of life associated with other natural hazards such as floods or earthquakes. But the cumulative effects on society can be substantial, not least because dust events occur more frequently than most other hazards. The disruption they bring to economic and social activity, including their diverse health effects, is an area of growing concern, albeit that dust events are also important for ecosystem functioning.¹⁹ The effects of climate change only heighten these concerns. Member states of the UN General Assembly have adopted resolutions on combating sand and dust storms each year since 2015 because they realise that these atmospheric phenomena present a severe obstacle to achieving the sustainable development goals.²⁰

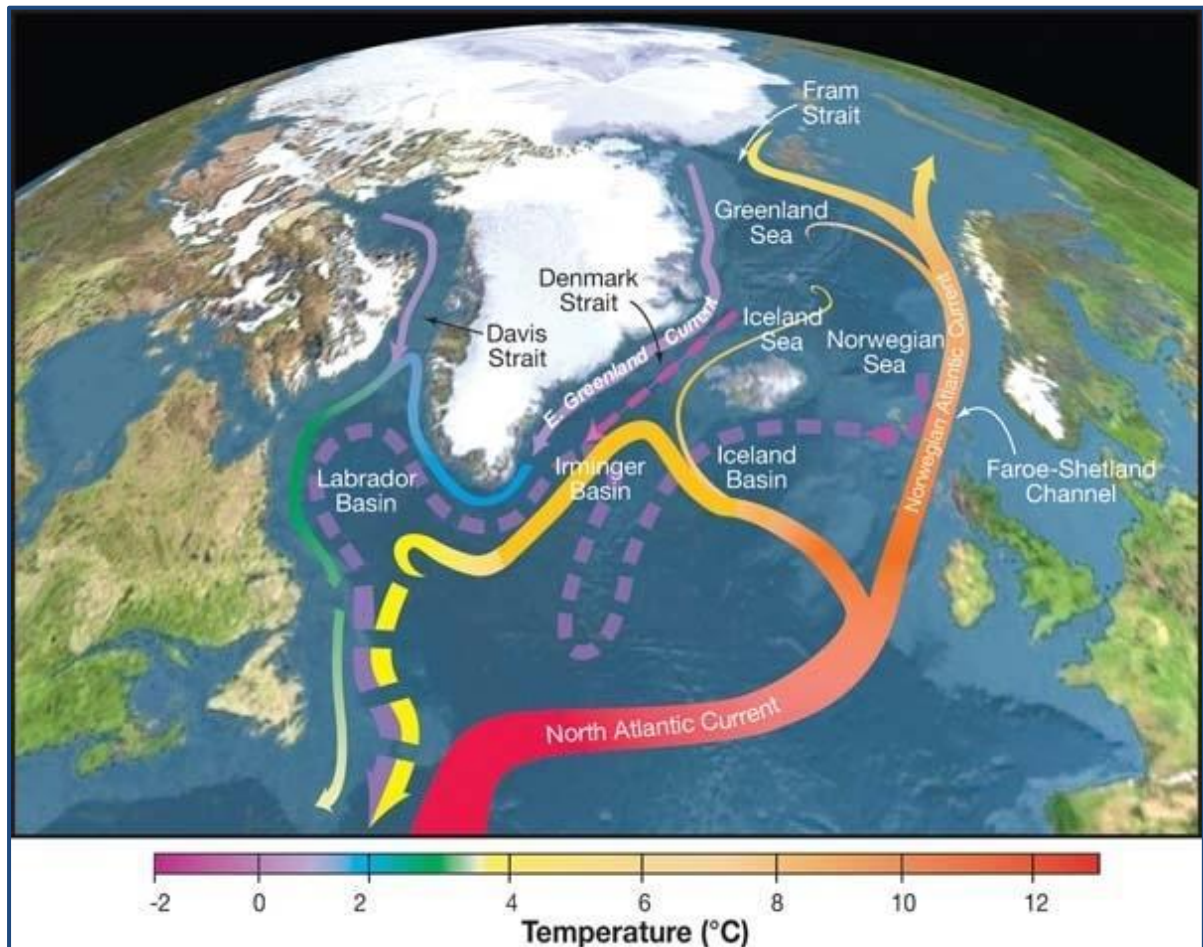
Nevertheless, many gaps remain in our understanding of the relation between desert dust and the wellbeing of urban residents. In west Africa, a critical knowledge gap lies in the precise nature of the association between meningitis outbreaks and the dry, dusty atmospheric conditions of the Harmattan. In more general terms, evaluating the detailed health effects of dust as an individual component relative to numerous other risk factors is another gap. Filling these gaps can only improve the ways in which we deal with desert dust in the city.

Reducing aerosol pollution without cutting carbon dioxide could make the planet hotter

Date:-17-Nov-2020, Source: eurekaalert.org

Humans must reduce carbon dioxide and aerosol pollution simultaneously to avoid weakening the ocean's ability to keep the planet cool, new research shows.

Aerosol pollution refers to particles in the air emitted by vehicles and factories that burn fossil fuels. This pollution contributes to asthma, bronchitis, and long-term irritation of the respiratory tract, which can lead to cancer.



A system of currents known as the Atlantic Meridional Overturning Circulation carries warm water into the North Atlantic. It could be disturbed if CO₂ and aerosols are not simultaneously cut.

"The conundrum," explained UC Riverside climate scientist and study co-author Robert Allen, "is that aerosols cause poor air quality and lead to premature deaths. However, these particles have a net cooling impact on the climate, so when you cut them that leads to a net warming effect."

Much research has examined aerosol impacts on air quality and land surface temperatures. Less explored is the way aerosols might impact the oceans, which is the focus of a UC Riverside study now published in the journal *Science Advances*.

The research team created detailed computer models to determine the impact on oceans under two different scenarios -- one in which there is only a reduction in aerosols, and another scenario in which greenhouse gases like carbon dioxide and methane are also reduced.

"The first scenario leads to the surprising result that fewer aerosols in the atmosphere could shift the region where most of the ocean is taking up heat, from the Southern Ocean toward the North Atlantic," Allen said.

In particular, the Atlantic meridional overturning circulation, or AMOC, would be disturbed as aerosols are removed from the atmosphere, the study found. The AMOC pulls warm water further north and pushes colder water south, ensuring the climate on land areas at higher latitudes, such as Europe, are relatively mild.

Roughly half the carbon dioxide humans put into the atmosphere -- mostly through fossil fuel combustion and deforestation -- stays there, and the remaining half is taken up by land and vegetation, as well as the ocean.

One of the ways the ocean takes up our carbon dioxide emissions is through AMOC circulation.

"A projected decline in manmade aerosols potentially induces a weakening of the AMOC, which plays an important role in ocean heat uptake and storage in the North Atlantic," said Wei Liu, an assistant professor of climate change and sustainability at UCR.

In addition, the researchers said a rise in sea level would occur if the North Atlantic Ocean were to get warmer.

This current study focused on ocean heat uptake and circulation via the AMOC. However, Allen explained the study did not attempt to rigorously identify the mechanisms by which aerosol reductions weaken the AMOC. Those mechanisms will be the focus of future studies.

Ultimately, the researchers conclude that even without a more in-depth explanation of the weakening mechanisms, it is necessary to reduce greenhouse gases and aerosols in tandem.

The Intergovernmental Panel on Climate Change recommends making every attempt to prevent the planet from reaching 1.5 degrees Celsius above pre-industrial levels in order to mitigate the worst effects of global warming.

Humans have already increased carbon dioxide levels by almost 50% since the 1850s, and it continues to increase worldwide. Stabilizing carbon dioxide at current levels would require zero net emissions before the year 2070, which is ambitious, but critical.

"Assuming complete removal, aerosols at most will cause warming of about 1 K," said Allen. "However, aerosol-induced warming, as well as the associated ocean circulation changes, can be moderated by rigorous cuts in greenhouse gases including methane and carbon dioxide."

The roads in Fulham where 56 new air pollution monitors will be installed

Date:-18-Nov-2020, Source: mylondon.news



An example of the air quality monitors that will be installed in south Fulham

They will be part of the council's efforts to monitor traffic and congestion.

Dozens of locations in south Fulham will soon be monitored for air pollution.

Hammersmith and Fulham Council announced it has started installing 56 little white monitors on lamp posts.

They are part of the council's wider plan to monitor and

control traffic flows in Sands End, which has come under criticism from residents.

The majority will be dotted along the following roads:

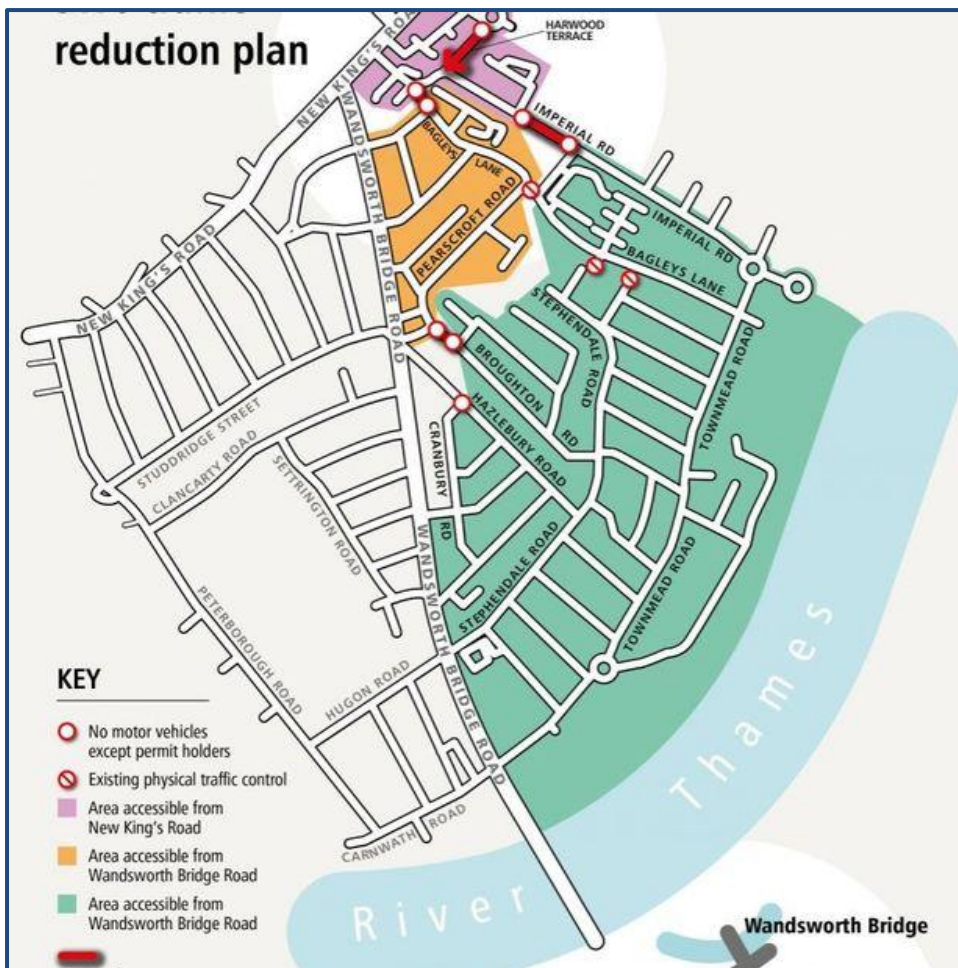
- Wandsworth Bridge Road
- Carnwath Road
- Peterborough Road
- Broomhouse Lane
- New King's Road
- Townmead Road
- Imperial Road
- Studdridge Street
- Pearscroft Road

The monitors will pick up the contents of Nitrogen Dioxide (NO₂), Ozone (O₃), and other solid particles in the air that can be toxic (PM_{2.5} and PM₁₀).

They will collect data at one-minute intervals, which will be published on the council's website.

Councillor Wesley Harcourt, the cabinet member for the environment, said: “We are using 2020 tech solutions to tackle the decades-old problems of traffic congestion and air pollution.”

Meanwhile, the Sands End Traffic Reduction Scheme – which requires motorists to have a parking permit or temporary permission to drive in residential streets without receiving a fine – has been running since July.



The council said the area inside the scheme is receiving 170,000 fewer vehicle journeys a week, based on data from road traffic monitors.

But residents from both within the area and surrounding neighbourhoods say the scheme is at least partly to blame for worsening congestion in Wandsworth Bridge Road.

The council argues that Wandsworth Bridge Road has been hit by the closure of

lanes on the bridge itself due to maintenance work, as well as the closure of Hammersmith Bridge.

Wandsworth Council last week announced that all lanes of traffic on Wandsworth Bridge had reopened, after a long delay.

Although one lane of traffic will have to close again from an unconfirmed day in early December, while maintenance work continues.

NASA: Global nitrogen dioxide emissions plummeted by 20% during Covid-19 lockdowns

Date:-19-Nov-2020, Source: energylivenews.com



In almost 50 out of 61 city centres, nitrogen dioxide reductions were between 20% and 60% since the pandemic began, according to a new report.

Coronavirus lockdowns led to a 20% reduction in global nitrogen dioxide concentrations.

That's according to new research by NASA, which suggests the drop in nitrogen dioxide concentrations was largest in cities and ranged from between 20% and 60% reductions in 50 of the 61 urban centres which were analysed.

Nitrogen dioxide is a polluting gas composed of nitrogen and oxygen – it forms when fossil fuels, such as coal, oil, gas, or diesel are burnt at high temperatures.

Researchers used computer models to generate a Covid-free year for comparison with data from 5,756 observation sites on the ground in 2020.

Wuhan, in China, which was at the epicentre of the pandemic, was the first to show 60% lower nitrogen dioxide emissions than simulated values.

The report also showed a 60% decrease in Milan and a 45% decrease in New York as their local restrictions went into effect.

Lead Author Christoph Keller of the study said: "In some ways, 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."

Residents express health concerns as smog engulfs Pattaya

Date:-20-Nov-2020, Source: thethaiger.com

Pattaya residents have expressed concern over air pollution, as the eastern coastal city finds itself engulfed in smog. The Pattaya News reports that the deterioration in air quality has



been ongoing for a number of days, with a cloud of haze obscuring the bay and neighbouring islands.

Residents are advised to wear masks when outside and to limit outdoor exercise, according to officials, who have so far not clarified what the cause of the pollution

might be. It comes as mass sugar cane burning is taking place in farming communities around the country, an activity that has caused air pollution problems in the past. While sugar cane burning is technically illegal, residents say the law is not strongly enforced, resulting in an annual rise in air pollution levels.



Netizens are urging the government to do more to prosecute farmers and large companies found indulging in the practice. They are also calling on sugar cane customers to reject burnt produce, in the hope it will force producers to use cleaner harvesting methods.

In the past, officials have pointed to tourist traffic, including airplanes, boats, and buses, as being a possible cause of the pollution. However, with air quality continuing to deteriorate, despite the current significant decline in air travel and tourist numbers, that hypothesis seems unlikely.

London weather: The story behind the capital's 'killer' fog that was so thick you could barely go outside

Date:-22-Nov-2020, Source: mylondon.news

At first, no-one knew exactly what caused this deadly weather.

Extreme weather stories often go down in history.

The Great Freeze of 1963 was the last time the River Thames fully froze over. Just a few years ago in 2018, the Beast from the East hit the capital, bringing bitterly cold weather and a lot of disruption to deal with as a result.



Londoners are used to fog but this was different

The year of the thick "killer" fog is no exception, especially because a lot of tragedy went along with it.

It was December 1952. King George VI had sadly died that year and the young Queen Elizabeth II had taken over, getting ready for her coronation that would come in the following year.

On December 5 was the first day of five days of a fog unlike anything that had been seen before.

Us Londoners are used to foggy days and, unfortunately, pollution in the air, but this was on another level.

For a full five days, a fog that had dangerous pollutants in it covered the capital.

It wasn't a small issue at all. More than 150,000 people were in hospital after breathing in the toxic air.

Initially, it was estimated that around 4,000 people died, but more recent research suggests that number was closer to 12,000 people and lots of animals.

The question over what caused this deadly fog remained unanswered for a long time, and even now scientists can't be certain of the exact components of the fog.

At the time, it was broadly known that the fog had something to do with the burning of coal. London had coal-fired power stations in a number of places, including Fulham, Battersea, Bankside, Greenwich and Kingston.

A number of scientists from the UK, US and China looked into the possible components of the fog. Leader of the study, Renyi Zhang, determined that sulfate and sulfuric acid particles, formed from sulfur dioxide that's released from burning coal, were both elements of the dangerous fog, reports CBS News.

It looks as if it happened because the process of sulfur dioxide turning into sulfuric acid was facilitated by nitrogen dioxide, also a product of coal-burning, and it occurred initially on the natural fog that had formed because of the weather conditions.

The fog itself eventually evaporated but left an acidic cloud covering the city.

The unusually cold weather at the time and the onset of an anticyclone, a large scale circulation of winds, created the right environment for the fog.

UK's Air Quality Expert Group seeks evidence on fine particulate matter

Date:-23-Nov-2020, Source: energy.livenews.com



Responses from scientific experts will help inform government's approach to reducing the pollutant.

A call for evidence has been launched by the government's independent Air Quality Expert Group (AQEG) on modelling fine particulate matter (PM2.5) concentrations in England.

Responses received from scientific experts will help provide insights that modelling of PM2.5 concentrations can provide, including the range of PM2.5 concentrations that could be expected under different future scenarios, the main drivers, differences in population exposure and the level of uncertainty in modelling results.

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Improvement in Europe's Air Quality Over Past Decade

Date:-24-Nov-2020, Source: energyindustryreview.com

Better air quality has led to a significant reduction of premature deaths over the past decade in Europe. However, the European Environment Agency's (EEA) latest official data show that almost all Europeans still suffer from air pollution, leading to about 400,000 premature deaths across the continent.

The EEA's 'Air quality in Europe — 2020 report' shows that six Member States exceeded the European Union's limit value for fine particulate matter (PM_{2.5}) in 2018: Bulgaria, Croatia, Czechia, Italy, Poland, and Romania. Only four countries in Europe — Estonia, Finland, Iceland, and Ireland — had fine particulate matter concentrations that were below the World Health Organization's (WHO) stricter guideline values. The EEA report notes that there remains a gap between EU's legal air quality limits and WHO guidelines, an issue that the European Commission seeks to address with a revision of the EU standards under the Zero Pollution Action Plan.

The new EEA analysis is based on the latest official air quality data from more than 4,000 monitoring stations across Europe in 2018.

Exposure to fine particulate matter caused about 417,000 premature deaths in 41 European countries in 2018, according to the EEA assessment. About 379,000 of those deaths occurred in EU-28 where 54,000 and 19,000 premature deaths were attributed to nitrogen dioxide (NO₂) and ground-level ozone (O₃), respectively. (The three figures are separate estimates, and the numbers should not be added together to avoid double counting.)

EU, national and local policies, and emission cuts in key sectors have improved air quality across Europe, the EEA report shows. Since 2000, emissions of key air pollutants, including nitrogen oxides (NO_x), from transport have declined significantly, despite growing mobility demand and associated increase in the sector's greenhouse gas emissions. Pollutant emissions from energy supply have also seen major reductions while progress in reducing emissions from buildings and agriculture has been slow.

Thanks to better air quality, around 60,000 fewer people died prematurely due to fine particulate matter pollution in 2018, compared with 2009. For nitrogen dioxide, the reduction is even greater as premature deaths have declined by about 54% over the last decade. The continuing implementation of environmental and climate policies across Europe is a key factor behind the improvements.

"It is good news that air quality is improving thanks to the environmental and climate policies that we have been implementing. But we can't ignore the downside – the number of premature deaths in Europe due to air pollution is still far too high. With the European Green Deal, we have set ourselves an ambition of reducing all kinds of pollution to zero. If

we are to succeed and fully protect people's health and the environment, we need to cut air pollution further and align our air quality standards more closely with the recommendations of the World Health Organization. We will look at this in our upcoming Action Plan," said Virginijus Sinkevičius, Commissioner for Environment, Oceans and Fisheries.

"The EEA's data prove that investing in better air quality is an investment for better health and productivity for all Europeans. Policies and actions that are consistent with Europe's zero pollution ambition, lead to longer and healthier lives and more resilient societies," added Hans Bruyninckx, EEA Executive Director.



The European Commission has recently published a roadmap for the EU Action Plan Towards a Zero Pollution Ambition, which is part of the European Green Deal.

Air quality and COVID-19

The EEA report also contains an overview of the links between the COVID-19 pandemic and air quality. A more detailed assessment of provisional EEA data for 2020 and supporting modelling by the Copernicus Atmospheric Monitoring Service (CAMS), confirms earlier assessments showing up to 60% reductions of certain air pollutants in many European countries where lockdown measures were implemented in the spring of 2020. The EEA does not yet have estimates on the potential positive health impacts of the cleaner air during 2020.

The report also notes that long-term exposure to air pollutants causes cardiovascular and respiratory diseases, which both have been identified as risk factors for death in COVID-19 patients. However, the causality between air pollution and severity of the COVID-19 infections is not clear and further epidemiological research is needed.

Background

The EEA's briefing, EEA's health risk assessments of air pollution, provides an overview of how the EEA calculates its estimates on the health impacts of poor air quality.

The health impacts of exposure to air pollution are diverse, ranging from inflammation of the lungs to premature deaths. The World Health Organization is evaluating the increasing scientific evidence that links air pollution to different health impacts to propose new guidelines.

In the EEA's health risk assessment, mortality is selected as the health outcome that is quantified, as it is the one for which the scientific evidence is most robust. Mortality due to the long-term exposure to air pollution is estimated using two different metrics: 'premature deaths' and 'years of life lost'. These estimates provide a measure of the general impact of air pollution across a given population and, for example, the numbers cannot be assigned to specific individuals living in a specific geographical location.

The health impacts are estimated separately for the three pollutants (PM2.5, NO2 and O3). These numbers cannot be added together to determine total health impacts, as this may lead to double counting of people who are exposed to high levels of more than one pollutant.

Used light-duty vehicles add to Africa's air pollution

Date:-25-Nov-2020, Source: news-medical.net

Used light-duty vehicles imported from wealthy countries are adding to Africa's air pollution woes, a global overview of the small vehicle export market has found.

Of the 'light-duty' used vehicles exported globally between 2015 and 2018, the majority went to Africa.

Light-duty vehicles in general weigh less than 3.5 tonnes and include saloon cars, sport utility vehicles and minibuses.

The report, published by the UN Environment Programme (UNEP) last month, says that of the 14 million used vehicles exported worldwide from Europe, the United States and Japan, low- and middle-income countries received 70 per cent, with Africa taking 40 per cent.

Most of these vehicles, the report adds, are worsening air quality in Africa and hampering efforts to mitigate the effects of climate change. Vehicular emissions are a significant source of fine, inhalable particles with diameters of 2.5 micrometers or less — known as PM2.5. Long-term exposure to such particles is associated with lung- and heart-related diseases, according to the World Health Organization.

Researchers analyzed vehicle sale data in 146 countries from sources such as the International Auto Trade Association and the European Commission's Eurostat Comext database.

"The major destinations for used vehicles from the EU are West and North Africa; Japan exports mainly to Asia and East and Southern Africa and the United States mainly to the Middle East and Central America," the report says.

Of the regions that were studied, Latin America imported the smallest proportion of used vehicles.

"Cleaning up the global vehicle fleet is a priority to meet global and local air quality and climate targets," said Inger Andersen, Executive Director of UNEP. "Over the years, developed countries have increasingly exported their used vehicles to developing countries; because this largely happens unregulated, this has become the export of polluting vehicles."

Most African countries, de Jong says, do not have EURO4 European vehicles emission standard equivalent that limits and controls the amount of harmful chemical emissions that spread in the air, such as carbon monoxide, hydrocarbons and nitrogen oxides.

Jane Akumu, programme officer, air quality and mobility unit at UNEP, says that policies on imported used vehicles are poor or of low standards in most African countries.

"Forty-six per cent of African countries do not have any vehicle emissions standards while 30 per cent do not have any minimum age limit for imported used light-duty vehicles, with Uganda being a good case in point of African countries where age of imported used vehicles is not taken into consideration," Akumu explains, adding that only Morocco and Rwanda have EURO4 equivalent standards in Africa.

Michael James Gatari, environmental scientist and an associate professor at the University of Nairobi, Kenya, says that the impact of vehicular emissions on air pollution is from both new and old vehicles in Sub-Saharan Africa.

"The problem is maintenance culture and competency. Emissions from poorly maintained five-year-old vehicles are worse than well maintained ten-year-old vehicles," he tells SciDev.Net.

Most people, he explains, cannot afford a new vehicle and they have to go to work in places where public transport is inefficient and insecure.

"Policymakers should first focus on providing environmentally friendly and efficient transport systems," he explains, adding that people are likely to buy new vehicles if their prices are comparable to the imported used cars.

Premature deaths due to air pollution in Europe remain too high despite improved air quality

Date:-26-Nov-2020, Source: balkangreenenergynews.com

The number of premature deaths due to air pollution in Europe remains too high, at some 400,000 a year, despite improved air quality over the past decade. The latest report on air quality by the European Environment Agency (EEA) also shows that almost everyone in Europe is still affected by air pollution and that nearly 75% of the urban population is exposed to excessive levels of fine particulate matter (PM2.5).

Long-term exposure to PM2.5 (with a diameter of 2.5 µm or less) was responsible for an estimated 417,000 premature deaths in 41 countries in Europe in 2018, of which around 379,000 were in the European Union (EU), a decline of 13% against 2009 for both the continent as a whole and the EU, according to the EEA report.

The number of premature deaths attributable to nitrogen dioxide (NO₂) more than halved compared with 2009, to about 55,000 (54,000 of which in the EU's 28 member states), while exposure to ground-level ozone (O₃) is estimated to have caused a total of 20,600 premature deaths (19,400 in the EU-28), an increase of 20% for Europe as a whole and 24% for the EU.

In 2018, nearly three quarters of the EU's urban population was exposed to PM2.5 concentrations above the World Health Organization's (WHO) guideline values, which are much stricter than the EU's air quality requirements. The EEA notes that the European Commission is working on addressing the gap between EU's legal air quality limits and the WHO guidelines.

According to the EEA report, only four countries in Europe (Estonia, Finland, Iceland, and Ireland) had PM2.5 concentrations that were below the WHO guideline values in 2018, while six EU member states (Bulgaria, Croatia, the Czech Republic, Italy, Poland, and Romania) breached even the bloc's less stringent limit value.

Balkan countries worst affected by PM2.5 in relative terms

The health impacts of air pollution are measured in terms of premature deaths, but also in years of life lost (YLL), an estimate of the average number of years that a person would have lived had they not died prematurely.

By these two standards, the biggest impacts of PM2.5, one of the most dangerous pollutants, are in the countries with the largest populations (Germany, Italy, Poland, France, and the United Kingdom). In relative terms, however, when considering YLL per 100,000 inhabitants, the worst affected countries are in the Balkan region (Serbia, Albania, Bulgaria, North Macedonia, and Kosovo*). On the other hand, the smallest relative impacts are

observed in the north and north-west of Europe, namely in Iceland, Norway, Sweden, Ireland, and Finland.

According to the EEA's country fact sheets, Romania saw an estimated 25,000 premature deaths attributed to PM2.5 during 2018, followed by Serbia, with 14,600, and Bulgaria, with 12,500. In Greece, an estimated 11,800 lives were cut short due to excessive PM2.5 concentrations in 2018, while Croatia lost 5,100 inhabitants, Albania 5,000, and Slovenia 1,700.

The average exposure indicator for PM2.5 (AEI) could not be calculated for Bosnia and Herzegovina, Serbia, Albania, and Kosovo as they did not report data for 2018, but according to the most recent figures (for 2016 or 2017), all of them had AEI values above 20 µg/m³, the limit the EU member states were required to achieve as of 2015.

COVID-19 lockdowns led to major drops in air pollutants

The EEA has also analyzed the links between the COVID-19 pandemic and air quality, noting that the lockdown measures in Europe this past spring led to significant reductions in emissions of air pollutants, particularly from road transportation, aviation, and international shipping. For example, NO₂ concentrations in April fell by more than 60% in some places.

However, the EEA does not yet have estimates on the potential positive health impacts of the cleaner air during 2020, according to a press release from the agency.

Portland proposes new fees for air pollution and greenhouse gas emissions

Date:-27-Nov-2020, Source: opb.org

The city of Portland is taking public comments on a proposal to charge millions of dollars in fees for greenhouse gas emissions and hazardous air pollution through its Clean Air, Healthy Climate program.

The proposal would raise about \$11 million dollars a year to help the city reduce air pollution — including the greenhouse gases that contribute to climate change.

It would charge two different fees, a healthy climate fee and a clean air protection fee, to about 80 of the city's biggest polluters, including manufacturers, hospitals and universities. The fees range from \$15,000 to \$2.6 million.

Andrea Durbin, director of the Portland Bureau of Planning and Sustainability, said the program creates a new incentive for those entities because the fees would be based on emission levels, and they would be adjusted if pollution levels drop.

"If they want to pay less, or not pay at all the way that they do that is to reduce that pollution," she said. "We hope that there's an opportunity to reduce that pollution overall and take steps to cut pollution impacts in our community."

The city would use the money to encourage energy efficiency, electric vehicles and renewables with the goal of addressing climate change and reducing air pollution — especially for Black and indigenous people and communities of color.

The proposal comes as the city is gearing up to offer the first round of grant funding through the Portland Clean Energy Fund, which has similar climate goals focused on communities of color and those with low income. It follows years of unsuccessful efforts by the Oregon Legislature and Gov. Kate Brown to create a cap and trade system to charge polluters for their greenhouse gas emissions.

Andrew Hoan, president and CEO of the Portland Business Alliance, said the business community supports the goals of the program but was not included in its development and now has a very short timeline for providing input.

“The idea that we have an extraordinary short timeline is, to put it simply, divisive policy,” he said in a statement. “This proposed city tax was drafted without stakeholder process, and none of the impacted businesses were invited to participate in the development.”

He said adding a new tax on hospitals that are required to have their own power plants in the midst of a pandemic “with little to no input” is “completely unacceptable.”

Durbin confirmed that the city didn’t consult any of the entities that would be charged fees before drafting the proposal, which grew out of the Portland City Council’s emergency declaration on climate change in June.

“This really is a discussion draft,” she said. “The stakeholder process has just started.”

Durbin said as far as she knows no other city has this kind of program, but following a “polluter pays” formula has been successful in reducing emissions in places like British Columbia.

The Portland City Council has called for faster action to meet its new climate goals, which it recently set at 50% below 1990 levels by 2030. The city’s emissions are currently 19% below 1990 levels.

“We’re off track in meeting our carbon reduction goals, and we need to really to accelerate action,” Durbin said. “We’re paying for this every day in the air that we breathe and the fact that we’re in a rapidly changing climate.”

The program is also aiming to reduce air pollutants and air toxics that come from cars, trucks and industrial operations, including ozone and fine particulate matter, diesel soot, benzene, polycyclic aromatic hydrocarbons, or PAHs, and heavy metals.

Research shows nearly 40% of the people of color in Portland live within 1.2 miles of the city’s biggest sources of air pollution, and that increases their vulnerability to chronic conditions that could cause complications if they fall ill with COVID-19.

“You know, Portland has some of the worst air quality nationally and certainly the worst air quality in the state,” Durbin said. “The city of Portland doesn’t really have a program to address air quality.”

Durbin said program funding could go toward existing programs or create new ones, and the city hasn’t ruled out developing performance standards that mandate energy efficiency levels in buildings.

Edinburgh locals warned to 'avoid' street in Leith due to poor air quality caused by fire

Date:-28-Nov-2020, Source: edinburghlive.co.uk/



A close up photo showed firefighters at the scene of what the photographer described as an 'explosion'

Edinburgh locals are being warned to 'avoid' Salamander Street in Edinburgh after a recent fire damaged the air quality.

A street in Edinburgh currently has the worst air pollution in the whole of Scotland according to data from Air Quality in Scotland.

Salamander Street in Leith is currently under an amber warning for air pollution

following a huge fire that broke out at Leith Docks on the afternoon of 25 November.

The area is still being affected after black smoke was pictured billowing from the scene and Edinburgh Air Quality Bot, which monitors air pollution every hour across the city, is warning locals to 'avoid' the area.

Edinburgh Air Quality Bot has been updating locals on the amber air warning on Salamander Street since 27 November when it was first detected.

A recent update reads: "Heads up! Edinburgh Salamander St air pollution levels are MODERATE (Index 6), which is not great news for your lungs. Avoid if you can. I checked this measurement at 17:10."

On Wednesday afternoon the Scottish Fire and Rescue Service raced to Leith Docks after a piece of industrial equipment caught fire causing thick, black smoke to become visible across the capital's skyline.

According to a reading from Air Quality in Scotland, Edinburgh's Salamander street is currently registering moderate levels of PM10, also known as dangerous atmospheric aerosol particles.

Poor air quality causes over 400,000 premature deaths in EU each year

Date:-30-Nov-2020, Source: theparliamentmagazine.eu



A new report has revealed that exposure to fine particulate matter caused about 417,000 premature deaths in 41 European countries in 2018.

The report, compiled by the European Environment Agency (EEA), is based on the latest air quality data from 4,000

monitoring stations in Europe in 2018.

Despite the sobering figures, it says that the annual death toll is on the decline, with around 60,000 fewer people dying prematurely due to fine particulate matter pollution in 2018 compared with 2009.

It says there was also a reduction of up to 60 percent of certain air pollutants in many European countries where lockdown measures were implemented in the spring at the start of the Coronavirus pandemic.

But it also notes that long-term exposure to air pollutants causes cardiovascular and respiratory diseases which both have been identified as risk factors for death in COVID-19 patients.

Nevertheless, the EEA points out that links between air pollution and the severity of the COVID-19 infections is “not clear” and further epidemiological research is needed.

The report notes that much still needs to be done to tackle the issue and only four European countries currently meet the World Health Organization's (WHO) guidelines on air quality.

Generally, there is still a “gap” between EU's legal air quality limits and WHO guidelines.

The report shows that six Member States exceeded the EU's limit value for “fine particulate matter” in 2018 - Bulgaria, Croatia, Czechia, Italy, Poland and Romania – and only Estonia, Finland, Iceland and Ireland were below WHO guidelines.

The European Commission says it is trying to address such issues with a revision of the EU standards under the “Zero Pollution Action Plan” which is part of the European Green Deal.

Virginijus Sinkevičius, European Commissioner for Environment, Oceans and Fisheries, said, “It is good news that air quality is improving thanks to the environmental and climate policies that we have been implementing.”

The official added, “But we can't ignore the downside – the number of premature deaths in Europe due to air pollution is still far too high. With the European Green Deal we have set ourselves an ambition of reducing all kinds of pollution to zero.”

“If we are to succeed and fully protect people's health and the environment, we need to cut air pollution further and align our air quality standards more closely with the recommendations of the World Health Organization. We will look at this in our upcoming Action Plan.”

Further comment came from Hans Bruyninckx, EEA Executive Director, who said, “The EEA's data prove that investing in better air quality is an investment for better health and productivity for all Europeans. Policies and actions that are consistent with Europe's zero pollution ambition, lead to longer and healthier lives and more resilient societies.”

The agency says that the impact of exposure to air pollution are diverse, ranging from inflammation of the lungs to premature deaths.

The EEA report said that in 2018, 34 percent of urban inhabitants of the 27 EU countries and the UK were breathing ground-level ozone particles at concentrations above EU health target levels and that 15 percent were breathing so-called PM10 particles, particulate matter with a diameter of 10 micrometres or less, at levels above the EU daily limit.

In the EU and the UK, 54,000 premature deaths were linked to nitrogen dioxide in 2018, less than half the figure from 2009.

Nitrogen dioxide is emitted into the atmosphere by motorised vehicles and industrial processes. It creates fine particles that are breathed in and have been found to increase the chance of lung and heart conditions.

Meanwhile, the Brussels Capital region is planning to launch a major air quality project next year that will see 3,000 households measuring pollution levels in their streets. The health of some 200 schoolchildren will also be monitored.

The region is working with a number of organisations and institutes on the project, including the citizens' action group Bral, to install 3,000 sensors on homes across the region. The sensors will measure the levels of nitrogen dioxide in the air.

December 2020

Special Report: U.S. Air Monitors Routinely Miss Pollution - Even Refinery Explosions

Date:-1-Dec-2020, Source: usnews.com



A plume of smoke emits from a fire that broke out at a Chevron refinery in Richmond, California August 06, 2012.

(Reuters) - When explosions ripped through a Philadelphia oil refinery last year, the shock waves knocked Felicia Menna's front door frame out of place. Then came the black smoke.

"My throat was closing shut," recalled Menna, who lives about a mile away. "My nostrils felt like they were on fire."

She went to an emergency room, where doctors put her on a vaporizer device to ease her breathing and treated her with intravenous Benadryl for allergic reactions, according to medical records she provided to Reuters. She was among several dozen people who sought treatment after the blast, according to a neighborhood group that tracked affected residents.

One of the explosions was so large that a National Weather Service satellite captured images of the fireball from space. Refinery owner Philadelphia Energy Solutions later told regulators that the blasts released nearly 700,000 pounds of hazardous chemicals, including butane, and about 3,200 pounds of hydrofluoric acid, which can cause fatal lung injury in high concentrations. The incident remains under investigation by the U.S. Chemical Safety Board.

Yet the federal air quality index (AQI) score for south Philadelphia showed that day as one of the year's cleanest, according to data from the U.S. Environmental Protection Agency (EPA). The score was based on readings from part of the federal network of air quality monitoring devices, which are operated by the city of Philadelphia with oversight from state regulators and the EPA. None recorded any significant pollution.

"To say there was no impact to air quality was crazy," said Peter DeCarlo, an environmental engineering professor at Johns Hopkins University who lived in Philadelphia at the time and studied the city's monitoring system.

The episode illustrates a much broader failure of the U.S. air-pollution monitoring system, according to a Reuters examination of data from the EPA and independent monitoring organizations, along with interviews with scientists and environmental researchers. The government network of 3,900 monitoring devices nationwide has routinely missed major toxic releases and day-to-day pollution dangers, the data show.

The network, for example, identified no risks from 10 of the biggest refinery explosions over the past decade, the Reuters review of EPA data shows, even as thousands of people were hospitalized and the refineries reported toxic emissions to regulators.

Reuters also reviewed data from 10 community-based air monitoring projects by residents worried that government air-quality assessments are inaccurate. Those efforts often revealed pollution spikes and hot spots the EPA network never captured.

About 120 million Americans live in counties that have no EPA pollution monitors at all for small particle pollution, according to agency data. That was the case when an oil refinery in Superior, Wisconsin exploded in 2018, causing a leak of 17,000 barrels of asphalt and blanketing Superior and neighboring Duluth, Minnesota in clouds of black smoke. Though Superior has Wisconsin's only refinery, the city of 27,000 people isn't big enough to require permanent government air-pollution monitors nearby, said a spokeswoman for the Wisconsin Department of Natural Resources, citing EPA guidelines.

Fine particles - measuring less than 2.5 microns - are far smaller than a grain of sand and are considered the most dangerous form of pollution because they penetrate the bloodstream and cause lung and heart disease. Major sources include power plant and industrial smoke stack emissions, as well as vehicle exhaust.

The system's failures pose a public health risk, independent scientists say. The monitors underpin the Air Quality Index that many Americans, including those with respiratory disease, rely on to determine whether the outdoor air is safe. Pollution detected - or missed - by the monitors also guides regulatory decisions on whether new or expanded industrial projects can be permitted under the National Ambient Air Quality Standard. If pollution in the area is below regulatory thresholds, the projects generally go forward.

The data also inform and justify environmental policy decisions - and have often been used by President Donald Trump to tout his environmental record. Trump has cut back on policies aimed at addressing climate change by limiting carbon emissions. In his losing re-election campaign, he referred to the AQI this year when he asserted that America has the world's cleanest air. A leading Yale University study, produced annually, ranks the nation 16th for air quality globally.

President-elect Joe Biden, a Democrat, has said he would step up prosecutions for illegal polluting; push for a worldwide ban on government subsidies for fossil fuels; tighten fuel

economy standards for vehicles; and put limits on methane pollution from oil and gas facilities.

The EPA declined to comment on the monitors' performance during specific pollution events, including the refinery explosions examined by Reuters, but said the network was generally accurate and reliable. "We are confident that the monitoring network provides data that allows decision-makers - states, public health officials, etc. - to make informed decisions on public health" and the permitting of plants in polluting industries, the EPA said in a statement.

The EPA oversees the network of pollution-monitoring devices, which are maintained and operated by state and local environmental agencies, who also share the financial burden. With probes that suck in air, the devices use filters, light pulses and beta rays to detect gas and particle pollution so tiny that concentrations are measured in parts per billion.

Academics, along with current and former regulators, say the network's problems are many and varied: Monitors are sparsely and poorly placed; the program is underfunded; and the network is not equipped to meet current pollution threats. The monitoring program emerged piecemeal after the 1970 Clean Air Act, mainly to track acid rain, smog and ozone pollution. Those hazards have largely subsided, replaced by more localized threats including toxic compounds and particulate matter from a wide range of industry and natural hazards, such as wildfires.

Individual monitors have also proven inaccurate, often recording pollution levels that can vary wildly from audit monitors placed beside them, according to government quality-assurance audits. Nearly half of the country's monitors meant to capture fine particulate matter did not meet federal accuracy standards, an EPA audit released in 2015 found.

When explosions rocked the Philadelphia refinery, the closest monitor for hazardous chemicals was programmed to operate only one of every six days - and therefore missed the incident entirely, according to EPA data reviewed by Reuters. Other Philadelphia monitors were either upwind or too far away to detect the explosion's pollution, according to the EPA data, which shows wind direction and speed. The refinery owner, Philadelphia Energy Solutions, filed for bankruptcy after the explosion and sold the property this year to a Chicago developer that plans to convert it to a mixed-use industrial park.

It wasn't the first time monitors programmed to operate sporadically missed pollution from a major explosion. When Chevron Corp's refinery in Richmond, California, caught fire in 2012, clouds of particulate matter forced 15,000 people to seek treatment, according to the U.S. Chemical Safety Board.

But the closest government monitor of hazardous chemicals recorded no problems because it was turned off. It had been programmed to work one of every 12 days, according to EPA data. The EPA and local regulators told Reuters that certain types of monitors are designed

to operate only occasionally to reduce costs and labor. In 2013, Chevron agreed to pay \$2 million in fines and restitution after pleading no contest to six misdemeanor criminal charges in connection to the fire.

Monitors are also sometimes programmed to limit the level of pollution recorded. A government monitor in Imperial County, California, operated by local and state regulators, recorded much lower readings of day-to-day air pollution in 2017 than were actually occurring because it had been programmed to max out at a lower level. The EPA acknowledged the issue to community organizations after the groups discovered higher readings with their own monitors.

"It's almost unbelievable this can happen in the United States," said Michael Jerrett, chair of the environmental health science department at the University of California, Los Angeles, and an adviser on the community monitoring project.

Researchers from the University of California San Francisco did a post-mortem on the Chevron refinery fire as part of a community health study. They concluded many of the people who suffered initial health problems continued to have worsening health in the years after, including chronic respiratory issues such as asthma.

Chevron said in a statement that it has worked since the 2012 fire to improve safety, reduce pollution and provide the community real-time data on air quality around its refinery. "Chevron recognizes the value of complete and accurate air quality data," the company said.

In south Philadelphia, Menna said her initial symptoms from the blast's fallout wore off in about a week, but she continued to cough for six months.

"I still don't know if I have long-term effects," she said.

UNDERFUNDED SYSTEM

A study conducted in 2013 during the administration of President Barack Obama, a Democrat, detailed a number of problems with the U.S. air monitoring network. The report proposed improvements including boosting monitoring near major polluting infrastructure, sampling for more pollutants, and doing more urban field studies to better understand block-to-block variability in air quality. But the weaknesses largely remain today because neither the Obama nor the Trump administration invested more in the monitoring network.

Over the past five years, the number of government monitors nationally has declined by 4% as state and local environmental agencies cut spending, according to EPA figures. Federal grants to state and local air-quality agencies have not increased in 15 years, according to testimony earlier this year by the National Association of Clean Air Agencies, a nonpartisan group based in Arlington, Virginia.

“The public’s desire for pollution data is exploding, but the government has less resources,” said Lyle Chinkin, chief scientist at environmental research firm Sonoma Technology, who has testified for the EPA in lawsuits accusing coal plant operators of Clean Air Act violations.

The EPA said it has improved the system despite what it acknowledged was flat funding for the past decade. The agency said it has replaced some labor-intensive, manual monitors with automatic monitors that provide round-the-clock, real-time data. The continuous monitors cost less to operate, but can also be less reliable than manual monitors in measuring particulate matter, according to EPA quality control audits.

Local groups worried about air quality have been trying to fill the gaps.

A community project in New York City, for example, has deployed up to 150 air monitors over the past decade. It found small particle pollution from traffic has been 50% higher in low-income neighborhoods than wealthier ones because they tend to be closer to major thoroughfares. By contrast, the EPA network run by state regulators in New York City has less than 30 monitors, preventing the EPA from providing city neighborhoods with a granular view of air quality, said Holger Eisl, director of the community project.

In Imperial County, California, the predominantly Latino community had long suspected government monitors were not giving a true reading of local pollution from agricultural burning and factories across the border in Mexico. An organization called *Comite Civico del Valle* installed 40 of its own monitors in 2015 to compare against the handful of government monitors. The devices detected sky-high levels of coarse particle pollution, at times exceeding the worst days in Beijing, among the world’s most polluted cities. Coarse particle pollution, produced by activities including wildfires and farming operations, can increase risk of heart and lung diseases.

The 24-hour maximum level of coarse particulate matter recorded by the community monitors surged as high as 2,430 micrograms per cubic meter in 2017, according to project organizers. That’s 40 times greater than the World Health Organization’s recommended level. The nearest government monitor, however, showed concentrations of only 985 micrograms per cubic meter, according to EPA data. Researchers discovered, after consulting with the EPA, that the government monitor had been programmed to record nothing higher than 985 micrograms.

“We exposed them many times by finding things the government monitors were not finding,” said Luis Olmeda, executive director of *Comite Civico del Valle*.

The EPA acknowledged the monitors’ default setting was capped. It said the manufacturer warned that using higher settings can impair readings of lower pollution levels. After learning of the high readings on the community monitors in Imperial County, state and county environmental officials adjusted the area’s monitors to capture pollution levels up to 10,000 micrograms. The EPA detailed the change of settings in September when it ruled that

the county's air had improved enough to comply with federal regulations on coarse particle pollution.

Overall, between October 2016 and February 2017, the community monitors detected 1,426 episodes of elevated levels of particulate matter, or 12 times what government monitors recorded. The EPA ruled in October that Imperial County meets clean air standards. The agency excluded nearly 100 days of excessive pollution between 2014 and 2018, saying sand and dust storms in the desert area were "exceptional events."

Community groups in Baltimore; Albany, New York; and East Oakland, California, have also independently found pollution missed by the EPA system. In Baltimore's Curtis Bay neighborhood, community monitors revealed 24% higher fine particle pollution than government monitors, according to 2015 results published by the nonprofit Environmental Integrity Project.

Even small increases in exposure to particle pollution within a city can significantly increase the progression of heart disease, even if the levels remain below federal standards, according to Joel Kaufman, a physician-epidemiologist at the University of Washington and editor-in-chief of *Environmental Health Perspectives*.

The EPA acknowledged that community monitoring programs had been useful in identifying hot spots. But the EPA added that the low-cost monitors sometimes used by community groups have cheaper components and can have higher error rates than government monitors, and may not operate as well in harsh climates.

Government monitors also have problems. EPA performance evaluations have identified a long-running trend of imprecision and a bias toward undercounting pollution levels, according to the agency's 2015 audit report. The audit covered about 1,000 government fine particulate matter monitoring sites, operated by nearly 100 environmental agencies. It found that 46% of the agencies had monitors that failed to meet the EPA's standard for precision and 44% of agencies had devices that failed the bias standard.

In a statement, the EPA said the network's accuracy has since improved, and that 21% of agencies had monitors that failed to meet its precision standard between 2017 and 2019 and 39% had monitors that failed its bias goal.

TOSSING RESULTS TO HELP INDUSTRY

When EPA monitors capture pollution that exceeds regulatory limits, the EPA sometimes throws out those results for the purposes of its air-quality assessments - clearing the way for industrial development.

Trump's economic agenda has included fast-tracking the re-designation of areas of the country that are out of compliance with pollution standards, sometimes redrawing maps to exclude certain air monitors. Nationally, the administration has re-designated 54 out-of-

compliance areas since 2017. Some of its decisions have been thrown out by the courts as arbitrary.

In Sheboygan, Wisconsin, for example, a court rejected the EPA exclusion this year of a monitor recording high ozone levels near the shoreline of Lake Michigan so that part of the surrounding county could be reclassified as complying with federal clean air standards. The EPA justified the move by arguing the monitor was unduly influenced by pollution coming from elsewhere via “lake breezes.”

The EPA said the re-designations reflect greater progress toward cleaner air.

Industry can also benefit from the placement of monitors - a process that polluting companies can influence, said Corbett Grainger, a University of Madison-Wisconsin environmental economics professor who led a study of monitor site selection.

The EPA provides guidance on where monitors are placed, but state regulators have wide discretion. The Wisconsin researchers found that state regulators in counties that are close to exceeding pollution standards often place monitors in cleaner areas when they have the option, a conclusion based on a study of years of EPA monitor data and pollution estimates from satellites.

“We found that, on average, newly sited monitors are placed in relatively clean areas,” said Grainger, the Wisconsin environmental economist. The positioning, he said, suggests that local regulators strategically avoid pollution hot spots.

The EPA declined to comment on the study.

In 2015 and 2016, Missouri regulators allowed St. Louis-based utility Ameren Corp to select sites to install four sulfur dioxide (SO₂) monitors around its Labadie coal plant. The plant is ranked by the EPA as the second largest SO₂ polluter in the country. The EPA and state regulators signed off on the monitoring sites as accurately capturing the plant’s pollution - over the objections of environmental groups that argued the locations would prevent monitors from picking up the coal plant’s peak SO₂ concentrations.

Ameren told state regulators it followed EPA guidelines in locating the monitors. The company declined to comment for this story.

The Missouri Department of Natural Resources said choosing the locations was a collaborative effort with the company and the EPA, and that regulators reviewed and verified Ameren’s analysis of the sites. “It’s not unusual for facilities to submit their own analysis,” the department said.

In August, the EPA told Missouri’s governor that it plans to move ahead with redesignating the area around Labadie as in compliance with pollution standards.

But pollution from the plant travels far beyond the surrounding area, said Chinkin, the atmospheric scientist. Based on a computer simulation, he said in court testimony in 2019 that Labadie's SO₂ output converts to fine particulate matter because of the heat and humidity during summer in St. Louis.

The result, Chinkin testified, is particulate pollution that extends across the entire eastern half of the United States. The worst impacts, he said in a phone interview, can be seen "hundreds of miles beyond Missouri."

Certification process to reduce methane emissions

Date:-2-Dec-2020, Source: environmentjournal.online



A new certification process will aim to reduce methane emissions from oil and gas production.

Methane is a highly potent greenhouse gas, with more than 80 times the warming power of carbon dioxide over a 20-year period.

The oil and gas industry emits an estimated 84 million tonnes of methane every single year, this equates to the same emissions of the world's total on-road transport fleet.

In a bid to reduce these emissions, MiQ an independent non-profit organisation, have designed a certification system.

The framework will assess methane emissions management across three criteria: methane emissions intensity at a facility level; monitoring technology deployment; and company practices.

The MiQ certification will then be audited by a third party and will work to complement existing voluntary schemes.

The market-based certification will generate different price levels that can create an economic incentive for companies to abate their methane emissions.

Georges Tijbosch, Senior Adviser, MiQ, said: 'The future must be powered by 100% clean energy. MiQ's mission is to reduce the climate impact of methane emissions from the oil and gas sector until we get there.

'75% of methane emissions from oil and gas production can technically be abated today. That is equivalent to the reductions in CO₂ emissions that'd be achieved if we could

immediately shut down 60% of the world's coal-fired power plants and replace them with zero-emissions generation.

'But methane emission abatement regulation is taking too long and voluntary schemes are not having the impact needed. That is why MiQ Certification is a vital step forward now in methane abatement in the oil and gas industry.

'By credibly certifying gas based on its methane emissions performance, we can create a differentiated gas market. This will allow suppliers to make purchasing decisions based on the environmental impact of gas, creating a financial incentive for producers to invest in the technology, procedures and policies that reduce their methane emissions.'

Climate Change Most Significant Threat to World Heritage Sites: IUCN Report

Date:-3-Dec-2020, Source: weather.com



The Great Barrier Reef

Climate change is posing a continuous and increasing threat to World Heritage Sites, a new report by the International Union for Conservation of Nature(IUCN) warns.

The Outlook 3 report builds on previous Outlook reports in 2014 and 2017, and says that climate change is now the

most significant threat to the World Heritage Sites and has overtaken the threat by invasive species which was the previous most-dominant threat.

UNESCO has listed 252 world heritage sites in total and 83 among these are being damaged by climate change; increase in the number of natural calamities like forest fires, floods and droughts, shrinking of glaciers, coral reef bleaching are some of the examples.

Since the last report in 2017, sixteen world heritage sites have deteriorated while only eight have seen improvement. The Great Barrier Reef—the world's largest coral reef— in Australia is severely threatened and falls under the “very high” threat category, due to acidification, extreme weather and ocean warming. This has led to a decline in corals and a decrease in the number of marine species.

Moreover, Mexico's Monarch Butterfly Biosphere Reserve, Spain's Garajonay National Park, Olympic National Park in the United States also face a “very high” threat. In total 63% of the heritage sites fall under the category “good” or “good with some concerns” while, 30% are

of "significant concern" and 7% are "critical." Human activities like tourism, hunting and fishing, and livestock grazing have also had an impact.

IUCN Director-General Bruno Oberle urged that the natural world heritage sites are among the most precious places in the world and hence we must protect them for our future generations.

The report also looks at the effect of the COVID-19 pandemic on these sites. The reduced number of tourists has eased the pressure on the ecosystems, while negative impacts include financial loss and also rise in illegal activities due to lesser staff during the lockdown.

Nairobi's air has been polluted for decades: new review suggests a path forward

Date:-4-Dec-2020, Source: theconversation.com



Black exhaust fumes from lorry envelope a motorcyclist and his passenger on a busy road in the Kenyan capital, Nairobi.

According to the State of the Global Air 2020 report, ambient air pollution was responsible for around 5,000 premature deaths in Kenya in 2019 alone. It is the fourth most important risk factor in driving death and disability combined in Kenya. Indeed, the 2017 national economic survey estimated that 19.9 million

Kenyans suffer from respiratory ailments that are exacerbated by poor air

quality.

Kenya's national environmental management agency imposed regulations in 2014 for national ambient air quality standards. These set out the maximum permissible concentrations of different widespread pollutants for residential and industrial areas. The regulations also laid out steps to be taken for "prevention, control and abatement" of pollution in recognition of the toll it takes on health.

So far, however, the enforcement of these regulations has been minimal due to a lack of high quality air quality monitoring data, to compare with the standards. Measurements of pollution from regulatory government-operated monitors, the world over are considered as the gold standard by the scientific community. This is because such instruments produce

high quality estimates of air quality concentrations to accurately identify if the standards are being met.

Such measurements are used extensively to evaluate the health consequences of pollution on health, trends in air pollution around the world, major sources, and the impact of policies on air quality. These efforts have been crucial in the development of effective air pollution mitigation plans.

In Kenya, there is no publicly available, official air quality monitoring data. But there have been 33 air pollution studies that report concentrations of widespread pollutants in Kenya since the early 1980s. The majority of these studies were carried out in Nairobi. Many are limited, in space, time and instrumentation.

And yet, taken as a whole, they provide consistent and important insights about pollution in Nairobi. My analysis of this cumulative evidence reveals that particulate matter in some parts of Nairobi, such as the Industrial Area district, where factories exist side by side with crowded poor settlements, have been unsafe as far back as the early 1980s.

The review also points to gaps in our understanding of air pollution in Kenya. This could inspire further targeted research to fill in the gaps.

High pollution levels

Emissions from industrial sources have been found to be important pollution sources. Multiple studies have demonstrated that air pollution levels in poor neighbourhoods exhibit fine particulate levels of several 100 $\mu\text{g}/\text{m}^3$, an order of magnitude higher than current standards. These neighbourhoods include Korogocho to Nairobi's north, Viwanda in the east, and Kibera to the south.

All studies demonstrate that vehicular emissions are an important pollution source in Nairobi. Black carbon produced from the incomplete combustion of fuel, typically produced from older vehicles, forms a large fraction of particulate matter in Nairobi, with levels among the highest in the world.

Other research has found that the fuel economy of vehicles in Nairobi is 2-3 times worse than in countries like Japan, India and China from which these vehicles tend to be imported. Studies also found much higher levels of lead and manganese (additives to petroleum fuels) in Nairobi than in European countries in the late 1990s and early 2000s. Less work has been carried out to evaluate levels after 2006, when leaded gasoline was phased out.

These findings present evidence for policymakers to urgently enforce the ban of importing vehicles above a certain age. They suggest the need to improve the infrastructure to enable non-motorised transport in Nairobi to serve the majority of the population that does not own a car. They speak to the need to incorporate air pollution concerns into the

environmental impact assessment of transport related projects, such as the building of new highways in the city.

The review of the literature also provides evidence that sources of pollution in Nairobi's Industrial Area need to be mitigated. The national environment management authority requires industrial facilities to contract designated laboratories with the necessary equipment to report smokestack emissions. Provisions should be made for continuous monitoring in line with the 2014 regulations. As a first step, these emissions data should be made public for key polluters to be identified so that action can be taken.

The review also points to gaps in our understanding of air pollution in Kenya that could inspire further targeted research to fill in the gaps. For example, few studies report the concentrations gaseous pollutants. These include volatile organic compounds, sulphur dioxide and surface ozone, which are likely to be high in the industrial area. In addition, most past research conducted so far has focused on Nairobi. Little work has been done to characterise air quality in other cities and towns, including the busy port of Mombasa.

More work is also needed to track the impacts of different policies and transport interventions on pollution in Nairobi. There is an urgent need to set up a real-time continuous air quality monitoring system to capture such information. This review, however, suggests that there are certain policy interventions that can and must be made based on our current understanding of air pollution patterns in Kenya.

This review also reveals larger gaps in the infrastructure of air pollution governance in Kenya. Specifically, the review finds that many studies have been conducted by researchers at the Kenya Meteorological Department using official air quality monitors. Some of these studies show that air pollution levels in Nairobi violate the current standards. However, the data from many of these studies are not publicly available. The department currently charges for this data. There is a need for a push to make this data more transparent for science and policy purposes.

Small steps forward

Kenyan researchers have teamed up with policymakers to form the Kenya Air Quality Network to develop evidence-based air pollution management plans. Through these efforts, Nairobi county has become the first to lay out an air quality action plan. Such policy efforts need to be supported.

It's also important to highlight the initiatives underway in the Kenyan citizen science space. For example, Code for Africa has teamed up with journalists, providing them with low-cost air quality monitors so that they could track and monitor specific factories that residents have long complained about.

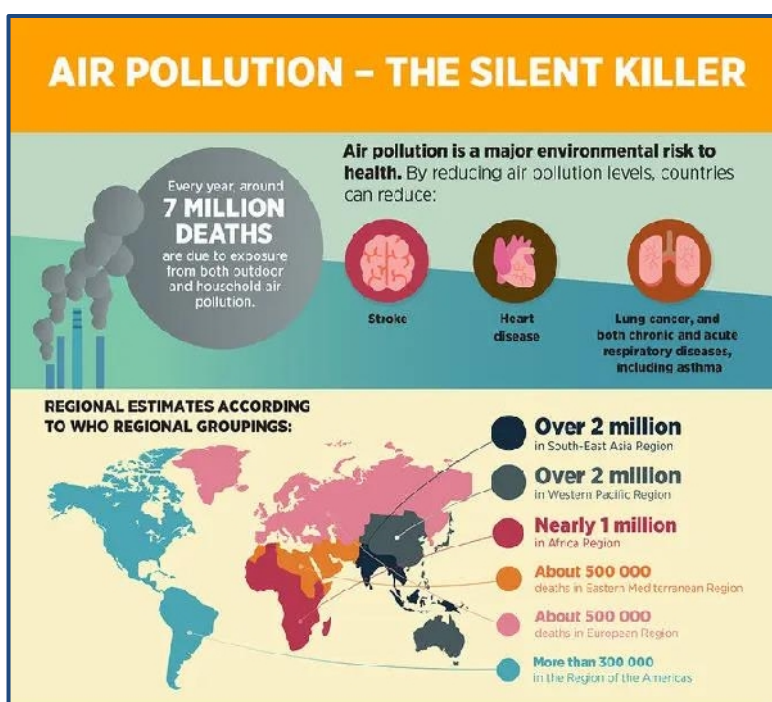
Such work has been crucial in raising awareness of air pollution among the public. These studies highlight the value of strategic partnerships between scientists and advocates to achieve common goals. These efforts can and should inspire future research design and questions on air pollution science in Kenya, and need to be taken seriously.

Clean Air for All – How polluted air harms human health

Date:-5-Dec-2020, Source: balkangreenenergynews.com

Pollution in the air we breathe can cause a wide range of adverse health impacts, from respiratory illnesses to heart disease to stroke. This “silent killer,” according to the World Health Organization (WHO), is responsible for about seven million premature deaths each year, mostly in poor and middle-income countries. Reducing air pollution helps prevent diseases and untimely deaths, but also, indirectly, ensures economic stability and protects the environment, says the Health and Environment Alliance (HEAL).

On September 7, 2020, the world marked the first ever International Day of Clean Air for blue skies, with the theme “Clean Air for All.” On that day, Balkan Green Energy News published an article titled Clean Air for All – a lesson on key air pollutants, the first in a series of texts aimed at demystifying the topic of air pollution and providing useful and relevant information and knowledge about this increasingly important issue. The second one addressed the main polluters, while in this text we deal with the health impacts of air pollution.



According to WHO data, air pollution is responsible for 25%, or 2.4 million, of all heart disease deaths worldwide, as well as for 24% (1.4 million) of all deaths from stroke, and 43% (1.8 million) of all deaths from lung disease and lung cancer.

Air pollutants enter the human body through the respiratory system and lungs, some of them reaching the bloodstream and then traveling and causing harm to other internal organs. Long-term exposure to air pollution can cause or aggravate ischemic heart disease (coronary heart disease), stroke, lung cancer, and respiratory diseases such as asthma and chronic obstructive pulmonary

disease (COPD). It also weakens the immune system, compromising its ability to

fight off infection.

Air pollution increases the risk of pneumonia, making it responsible for the deaths of nearly a million children under five years of age each year. Children and the elderly, as well as those with pre-existing health conditions, are more likely to suffer from negative health effects of polluted air than other groups.

Short-term exposure to outdoor air pollution, for example during spikes in pollution levels, can cause asthma attacks and acute bronchitis, increase susceptibility to respiratory infections, and cause heart attacks and arrhythmias in people with a heart condition. Studies have suggested that episodes of high pollution increase hospitalizations and mortality for cardiovascular and respiratory diseases.

Healthy people, too, may experience temporary symptoms from short-term exposure to air pollution, such as cough and shortness of breath as well as the irritation of the eyes, nose, and throat.

People can be exposed to air pollution outdoors (ambient pollution), but they also breathe polluted air in homes (indoor or household pollution) where solid fuels, animal dung, or kerosene are used for cooking and heating. This is the case with about 3 billion people around the world, according to the WHO.

Of the total of some seven million early deaths attributed to air pollution in 2016, as many as 3.8 million were caused by household pollution, mostly in low- and middle-income countries, according to the WHO. Women and young children are the hardest hit since they spend the most time around the domestic hearth.

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When it comes to human health, particulate matter (PM) is widely considered the most dangerous pollutant. Particles with a diameter of 2.5 micrograms or less (PM_{2.5}) are particularly hazardous due to their size, which allows them to get into the bloodstream and cause cardiovascular and cerebrovascular damage. Particulate matter also increases mortality, especially for cardiovascular diseases. According to the WHO, a rise in annual PM_{2.5} concentration of 10 µg/m³ increases overall mortality among adults by 6%.

Ground-level ozone (O₃), or “bad ozone,” can narrow the airways, making it harder for the respiratory system to provide oxygen, but it can also aggravate respiratory diseases such as bronchitis and asthma, cause lung damage, wheezing, chest pain, dry throat, headache, or nausea, reduce resilience to infections, and lead to increased fatigue.

Other key air pollutants harmful to human health include sulfur dioxide (SO₂), which can cause weakness, cough, bronchitis, impaired lung function, and the aggravation of existing respiratory and cardiovascular diseases, and nitrogen oxides (NO_x), which cause respiratory diseases, as well as cancers.

Europe’s annual death toll from air pollution estimated at about 400,000

In Europe, the number of premature deaths due to air pollution has been estimated at some 400,000 a year, according to the European Environment Agency (EEA). In 2018, 417,000 early deaths in 41 European countries were attributed to PM_{2.5}, O₃, and nitrogen dioxide (NO₂), of which 379,000 in the 28 member states of the European Union (EU), according to the EEA’s latest air quality report.

The figures, though grim, are actually an improvement on 2009, which was achieved thanks to policies and measures implemented over the past decade to reduce air pollution in Europe, according to the EEA. However, the report also finds that nearly three quarters of the EU’s urban population is exposed to air pollution levels above the WHO air quality guidelines (AQG).

Up to 5,000 early deaths in 19 Balkan cities attributed to air pollution

Countries in the Western Balkans are particularly hard hit by the adverse health effects of air pollution, due to their reliance on fossil fuels for energy production and household heating as well as their old vehicle and machinery fleets in the transportation, construction, and agriculture sectors, according to HEAL.

Air pollution is directly responsible for up to one in five premature deaths in 19 Western Balkan cities covered by a study conducted by the United Nations Environment Program (UN Environment). The study shows that the total number of premature deaths directly attributable to air pollution in these cities is nearly 5,000 a year.

To tackle the air pollution problem, HEAL recommends Western Balkan countries to strengthen intersectoral cooperation, noting that public institutions in charge of environmental protection, health care, finances, and energy do not work together on devising the regulatory framework, but rather stick to their own respective areas only. The organization also calls for improving regional cooperation, which would help implement fundamental reforms and mitigate the impact on health and the environment.

Another recommendation is to increase the transparency of public institutions by including all stakeholders in policymaking. Srđan Kukolj, health and energy adviser for the Balkan

region at HEAL, says it is necessary to increase the participation of the scientific community in the decision-making process, while heads of state are advised to build the future of the Western Balkans based on new scientific knowledge and to abandon obsolete and inefficient practices in the field of health care and environmental protection.

COVID-19 and air pollution: too early to speak of causality

Air pollution causes a number of diseases that put people in a high-risk category when it comes to severe outcomes of COVID-19, and studies so far have shown a correlation between high pollution levels and fatal outcomes. However, proper epidemiological studies that could determine whether air pollution contributes to COVID-19 mortality are still under way, and it is therefore too early to speak of a causal relationship.

On the other hand, this year's lockdown measures to stop the spread of coronavirus have resulted in improvements in air quality, thanks mainly to reduced demand for transportation, according to the EEA. However, the agency does not yet have estimates on the potential positive health impacts of the cleaner air during 2020.

Outdated bushfire smoke alerts 'put Australians in danger'

Date:-6-Dec-2020, Source: smh.com.au



Smoke casts an orange pall across Sydney last December

The vast spread of smoke during last summer's bushfires has highlighted Australia's outdated alert system for environmental hazards, as new data shows a spike in respiratory admissions to emergency departments as air pollution increases.

The analysis is contained in a new Grattan Institute report about the effect of climate change on the health of

Australians, which criticises the federal government for its slow response to the issue.

It also calls for a better warning system for smoke, heat and other hazards linked to climate change, which could involve targeted text messages and people being given practical information such as where to buy air filters.

Lead author Stephen Duckett said Australians were put in danger last bushfire season because they did not receive sophisticated health alerts, as systems were based on the past when air quality "events" were not as frequent or as bad.

"These are getting worse and worse," he said.

Dr Duckett said there were now scenarios in which people should be advised to stay indoors.

Australia has warmed by 1.4 degrees since 1910 and it is estimated that the latest extreme bushfire season was at least 30 per cent more likely than a century ago because of climate change.

Bushfires directly claimed 34 lives last season. About 1.8 million people were forced to evacuate their homes, and smoke affected 11 million as air pollution, measured by small particles in the air, spiked well above safe levels in Sydney, Melbourne, Gippsland, regional NSW and the ACT.

Melbourne GP Abhi Verma said many of his patients were significantly affected, despite his outer-suburb Narre Warren clinic being a "huge distance" from any of the fires.

Some had been on holiday in impacted areas and later struggled with their mental health, he said.

"They were stuck without petrol and they were really at the mercy of the elements. They've been trapped with their children in a place where they couldn't get home. There was a significant degree of anxiety."

Dr Verma, a Royal Australian College of General Practitioners spokesman, said other patients suffered from asthma due to the huge amounts of smoke that blanketed the country.

"It really affected people who were nowhere near it," he said. "Even doctors in the inner city had patients with a degree of respiratory compromise."

Australian standards consider the safe threshold of PM2.5 particles in the air to be a daily average of 25 micrograms per cubic metre. During last summer, hourly readings in Sydney reached up to 800 micrograms per cubic metre in some parts, Goulburn reported an hourly high of 2000 and Melbourne reached more than 300, but the Grattan Institute report said some jurisdictions failed to escalate their health advice.

It said NSW gave the same advice to the public on days with an average PM2.5 of 60 (where it stood in Sydney at the start of last summer) and when it reached 200 at the peak of the bushfire haze.

In comparison, the ACT has a tiered response. When the daily average reaches 40 PM2.5, the public is advised to reduce prolonged physical activity. When the daily average hits 178, people should avoid all physical activity outdoors and sensitive groups should temporarily stay with friends or family living outside the affected area.

The Grattan Institute's analysis of emergency department admissions last summer showed the number of people attending Victorian and ACT hospitals with respiratory problems increased by 70 per cent on days with PM2.5 levels above 200 and by almost 30 per cent on days with PM2.5 levels between 50 and 100.

Dr Duckett called for an integrated national warning system for all environmental hazards including heat, smoke, floods, cyclones and pollen.

"People would register with their GP to receive and then the state's public health units would trigger the alerts," he said.

"They could be targeted to individuals [based on] where you are and what your specific preconditions are."

In response to the Grattan Institute's criticism of Canberra's response to climate change, a spokesperson for Health Minister Greg Hunt said the federal government had committed \$5 million in funding for research into the effects of bushfire exposure.

"The Australian government is focused on developing a sustainable and responsive health system, with a range of programs that can be expanded or operationalised to respond to emerging pressures, including those that are climate-related," the spokesman said.

Climate change has been identified by the Australian Health Protection Principal Committee as a health protection issue.

Exclusive: U.S. Air Pollution Monitoring Network Falling Into Disrepair - GAO Report

Date:-7-Dec-2020, Source: usnews.com



Smoke rises from a burn off at an oil refinery in Corpus Christi, Texas, U.S. August 26, 2017

BOSTON/NEW YORK (Reuters) - The U.S. air pollution monitoring network has fallen into disrepair after years of budget cuts and neglect, leaving tens of millions of Americans vulnerable to undetected bad air quality from events like wildfires to industrial pollution, according to a report by the investigative arm of Congress.

The conclusions from a 2-1/2-

year audit by the U.S. Government Accountability Office (GAO) confirm key findings in a Reuters special report published last week that detailed broad failures in the air-pollution monitoring system, whose data guides U.S. regulatory policy and informs the public about health risks.

Federal funding for the air monitoring network, which is overseen by the Environmental Protection Agency (EPA) and operated and maintained by state and local environmental agencies, has declined by about 20% since 2004, after adjusting for inflation, leaving it in poor condition, according to the GAO report viewed by Reuters.

The GAO report said some agencies have reported termite damage and leaky roofs at shelters housing sensitive but aging pollution monitoring equipment, and one state agency resorted to shopping on eBay to find used monitor parts because the manufacturer had stopped making them.

"Officials from some state and local agencies said that, with the funding challenges, they struggled to maintain the minimum level of monitoring required by the EPA," the report said.

A portion of the funding for the system of nearly 4,000 monitors comes from the federal EPA budget as determined by Congress, and the rest comes from state and local governments.

While funding is a major problem, the GAO report found other hurdles to upgrading the system. Some states have resisted installing newer equipment out of fear that doing so could boost their pollution readings, causing them to exceed regulatory thresholds that would trigger limits to new industrial development.

The report added that the EPA has no comprehensive plan for managing the network's assets, such as a uniform schedule to replace worn-out equipment, and that some two-thirds of U.S. counties have no air monitoring devices at all to assess a range of threats that include wildfire smoke and industrial pollution.

Faulty equipment used to calibrate monitors for ozone, a component of smog, forced several states to invalidate pollution data for 2015 and 2016, the report said. And the EPA's Office of Research and Development has updated only one method for measuring toxic chemicals in the air in the past 20 years, it said.

The EPA declined to comment on the GAO report.

"Americans depend on an effective air quality monitoring system to guard against the serious public health threats triggered by air pollution," said Senator Sheldon Whitehouse, a Democrat. "These findings point to troubling gaps in the EPA's air monitoring work."

The GAO's audit began in 2018 at the urging of Whitehouse, as well as Senator Tom Carper, a Democrat and Senator Susan Collins, a Republican.

"For too long, the air monitoring system has been ignored, especially in terms of tracking air toxics, like mercury, in our communities," Carper said.

"The State of Maine, located at the end of our nation's air pollution tailpipe, is on the receiving end of pollution generated in other states," Collins said, pointing out that her state had "the highest rates of asthma in the country."

The Reuters report last week found the government's main network of 3,900 monitoring devices nationwide has routinely missed major toxic releases, including from major refinery explosions.

EPA declines to strengthen soot standard

Date:-8-Dec-2020, Source: whyy.org



Water vapor rises from a coal powered power plant stack.
Pollution from burning coal affects a larger area than vehicle
emissions

The Environmental Protection Agency said Monday it is keeping an important air pollution standard in place, in spite of recommendations from its own scientists that a stronger standard could save lives.

Fine particulate matter, or soot, is linked with heart and lung disorder and causes 52,000 deaths a year,

according to the EPA. It is created by burning fossil fuels, wildfires, and dust.

EPA Administrator Andrew Wheeler said the agency would not strengthen the current standard of 12 micrograms per cubic liter of fine particulate matter.

"This decision...comes after careful review of the most recent available scientific evidence," Wheeler said.

But last year, EPA staff estimated a stronger standard for soot of between 8 and 10 micrograms could save as many as 12,500 lives a year in the U.S.

The decision to keep the current standard comes after four years of the Trump administration's changes to the way the EPA incorporates science.

Among those changes is the appointment of scientists with industry ties to its outside advisory panel, and the dismissal of a group of scientists that was reviewing the risks of particle pollution.

Chris Frey, an environmental engineer at North Carolina State, was on a panel of scientists the EPA dismissed after it reviewed the risks of particulate matter. He says the EPA ignored science by not imposing a stricter standard.

“The evidence is so strong that the current standard is not adequate, that leaving it as it is is actually a significant threat to public health,” Frey said. “Every year that we don’t strengthen this standard, thousands of people are going to die prematurely, that those deaths could have been avoided.”

In Pennsylvania, Allegheny County, Lebanon County, and Delaware County all fail to meet current standards for fine particulates. It is one of four states that do not meet the current federal standards for particulate matter.

Emissions from Cooking Stay Longer in Air and Add to Climate Change

Date:-9-Dec-2020, Source: azocleantech.com

A new study reveals that particulate emissions from cooking tend to remain in the air for a longer time compared to what was thought earlier, thus contributing more to poor air quality and human health.



At the University of Birmingham, scientists were successful in illustrating how cooking emissions—constituting up to 10% of particulate pollution in the United Kingdom—can stay in the air over several days, instead of being disintegrated and dispersed.

The researchers collaborated with experts at the University of Bath, the Central Laser Facility and Diamond Light Source to illustrate how these fatty acid molecules react with molecules that occur naturally in the Earth’s atmosphere.

At the time of the reaction, a coating, or crust, develops around the particle’s outer part and safeguards the fatty acid inside from gases like ozone, which would otherwise disintegrate the particles.

For the first time, researchers have been able to simulate the process such that it can be studied under lab conditions using the strong X-ray beam at Diamond Light Source to track the degradation of thin layers of molecules representative of such cooking emissions in minute detail. The findings of the study were published in the Royal Society of Chemistry's journal Faraday Discussions.

The potential of these particles to stay in the air has several impacts on climate change and human health. Since the interaction of the molecules with water is so close, this influences the capability of water droplets to develop into clouds.

At the same time, this might change the amount of rainfall, plus the amount of sunlight that is either reflected by cloud cover or absorbed by the Earth—all of which could lead to temperature changes.

Moreover, when the cooking emission particles form their protective layer, they can also add other pollutant particles, such as those that are known to be detrimental to health, like carcinogens from diesel engine emissions. Then, these particles can be transported over much broader regions.

“The implications of this should be taken into account in city planning, but we should also look at ways we can better regulate the ways air is filtered – particularly in fast food industries where regulations do not currently cover air quality impacts from cooking extractor emissions for example,” added Pfrang.

The study was financially supported by the Science and Technology Facilities Council (STFC) and the Natural Environment Research Council (NERC).

Scottish species and habitats 'devastated' by pollution

Date:-10-Dec-2020, Source: heraldscotland.com



Scottish species and habitats 'devastated' by pollution & 'intolerable' nitrogen levels

Scotland's most globally important species and natural habitats are being "devastated" by air pollution, according to a new report.

The Plantlife paper, commissioned by the Scottish Government, found that 80 per cent of land within special areas of conservation – such as the Cairngorms – now have intolerable nitrogen levels.

Pollutants in the air from transport, power stations, farming and industry were shown to be directly damaging the country's unique biodiversity.

Alistair Whyte, head of Plantlife Scotland, said: "The effects of air pollution on health are well documented with industry traditionally the key culprit.

"But nitrogen deposition is also rapidly devastating our iconic habitats and the impacts of this invisible enemy are still not being recognised with sufficient urgency.

"Alarming, we are now finding that habitats perceived to be furthest away from the source of air pollution, such as the unique rainforests of the west coast, are on the borderline of reaching their nitrogen thresholds from far-reaching emissions."

Meanwhile, globally important lichens and mosses of temperate rainforests, many of which are found nowhere else in the UK, are particularly at risk from nitrogen deposition.

Nitrogen exposure on already fragile habitats is leading to a loss of species, lower resilience to climate change and vulnerability to pests and disease.

The report found that mountains, grasslands and woodlands have become unnaturally nutrient-rich and acidic.

They are now being "colonised" by common and fast-growing thuggish plants such as nettles and hemlock, which outcompete Scotland's native species.

More than a third of all Scotland's nitrogen-sensitive habitats were also found to have intolerable nitrogen levels.

Plantlife's report recommends a reduction of ammonia and other nitrogen emissions.

It states ammonia emissions from farming could be dramatically lowered, while improving efficiency and reducing costs.

One way this would be done is by improving the efficiency of nitrogen content in animal feed – with a 1 per cent drop claimed to lead to a 15 per cent drop in ammonia emissions.

Jenny Hawley, Plantlife policy manager, added: "Robust Government regulations are desperately needed but equally vital is the advice and support to landowners and farmers who are battling huge Brexit upheaval.

"A reduction of emissions would benefit public health, by reducing particulate matter in the air, as well as helping to cut emissions of nitrous oxide – a powerful greenhouse gas."

Action plan to tackle region's air pollution as it rises to pre-pandemic levels

Date:-11-Dec-2020, Source: liverpoolecho.co.uk

A new plan to help our region's air quality was launched after a study showed air pollution is now back to pre-pandemic levels.

City region Metro Mayor Steve Rotheram will present the draft Air Quality Action Plan to the combined authority at a meeting next week.

It proposes a series of measures including scrappage schemes for heavily polluting vehicles, retrofitting schemes for homes and better data collection on the region's air.



Its release came on the same day the combined authority announced a further £7.8m to help create low traffic neighbourhoods around schools and support cycling and walking infrastructure.

Pollution levels dropped to levels not seen in recent times during the spring lockdown earlier this year but have since crept back up despite attempts from local authorities to get

people to walk and cycle more.

Metro Mayor Rotheram said the plan was a crucial step in taking longer-term action against climate change.

He said: “The climate emergency is a challenge that we cannot afford to ignore and we aren’t in the Liverpool City Region. Tackling the climate crisis and improving air quality is one of my top priorities.

“We were the first region in the country to declare a Climate Emergency in recognition the that challenge we face. But we want to do more than just talk about doing the right thing – we’re following up with firm action.

“We plan to become net zero carbon, a whole decade before national targets and are already making progress on through projects that replace polluting buses with greener hydrogen models, retrofitting homes to make them more energy efficient and encouraging people to ditch their cars in favour of the 600km walking and cycling network we’re building.

“We have an ambition to be the UK’s renewable energy coast, with world-leading expertise in hydrogen and tidal, as part of our plans for Mersey Tidal Power – a project with the potential to provide enough clean, predictable energy to power a million homes.”

Councillor Liam Robinson, Liverpool City Region Combined Authority portfolio holder for air quality and transport, said the first lockdown gave a taste of what was possible if air pollution was brought under better control.

He said: “We know that we cannot tackle these urgent issues alone - which is why our Air Quality Task Force is made up of elected and other representatives from across the six local authority area of the city region.

“And it’s why this plan contains actions for the Combined Authority, for our constituent Local Authorities and partners, supported by the Combined Authority, for residents, communities and businesses and actions we need from central government and its agencies.

“The first lockdown in particular gave us a glimpse of what a world with cleaner air could look like but the latest figures show how short-lived that glimpse was. We’ve also seen growing evidence of how exposure to toxic air can increase risks from COVID-19, on top of all of the other know health effects.”

The draft Air Quality Action Plan will be considered by the combined authority next Friday.

Woes for Thailand: Bangkok air pollution at unsafe levels; more cases of Covid-19 reported

Date:-12-Dec-2020, Source: thestar.com.my



BANGKOK, Dec 12 (The Nation Thailand/ANN): Air pollution in Bangkok's 38 districts hit dangerous levels on Saturday morning with PM2.5 (particulate matter less than 2.5 micrometres in diameter) readings coming in at 39 to 72 micrograms per cubic metre ($\mu\text{g}/\text{m}^3$), the Bangkok

Metropolitan Administration's Air Quality and Noise Management Division reported.

Thailand’s standard for safe levels of PM2.5 is 50 $\mu\text{g}/\text{m}^3$, though the World Health Organisation sets it at 25 $\mu\text{g}/\text{m}^3$.

People, especially children and the elderly in areas where PM2.5 pollution is bad, have been advised to stay indoors and monitor their health.

As of 7am, PM2.5 was at dangerous levels in Nong Khaem, Thawee Watthana, Khlong San, Bang Khen, Bangkok Yai, Bang Khun Thian, Pathumwan, Taling Chan, Phasi Charoen, Bangkok Noi, Samphanthawong, Phra Nakhon, Chatuchak, Sai Mai, Prawet, Lak Si, Bueng Kum, Sathorn, Bang Khae, Bang Bon, Nong Chok, Thung Khru, Yannawa, Don Muang, Chom Thong, Bang Sue, Pom Prap Sattru Phai, Thonburi, Wang Thonglang, Bang Na, Phaya Thai, Khlong Sam Wa, Lat Krabang, Phra Khanong, Din Daeng, Khlong Toei, Dusit and Minburi.

Meanwhile, the Centre for Covid-19 Situation Administration on Saturday (Dec 12) reported 12 new cases in quarantine facilities. The new patients included nine Thai returnees and three foreigners.

The Thai returnees included eight women and a man. Seven of the women, aged 23, 31, 33, 35, 39, 41 and 51, flew back from Bahrain. Another woman, 19, came from the UK, while the only male patient, 41, was from Germany.

The foreigners consisted of a Swede, 37, an Indian, 35, and a Kuwaiti, 40, coming from their home countries.

All the patients were asymptomatic, except a Thai national, 31, from Bahrain, and the Kuwaiti man.

As of Saturday, the number of confirmed cases in Thailand had risen to 4,192 (1,204 in state quarantine), 217 are in hospital, 3,915 have recovered and been discharged, while 60 have died.

According to Worldometer, as of Saturday morning the number of confirmed cases worldwide since the outbreak had risen to 71.43 million, 49.63 million of whom have recovered and 1.6 million have succumbed to the infection.

Thailand ranks 151st globally, while the US has the most cases with 16.29 million, followed by India (9.82 million), Brazil (6.83 million), Russia (2.59 million) and France (2.35 million). - The Nation Thailand/Asian News Network

UN climate summit registers new carbon-cutting pledges

Date:-13-Dec-2020, Source: euractiv.com

More than 70 heads of state showed stronger climate action at a virtual summit, but heavy lifting remains in 2021 to meet the ambition of Paris. EURACTIV's media partner, Climate Home News, reports.



European Council President Charles Michel delivers a speech during the Climate Ambition Summit 2020 in Brussels, Belgium, 12 December 2020, as this year marks the fifth anniversary of the Paris Agreement adopted by 196 countries on 12 December 2015.

As 2020 comes to a close, world leaders have sent a signal of their willingness to step up their climate ambition, at a virtual event celebrating the fifth anniversary of the Paris Agreement.

75 world leaders along with the European Union and Pope Francis presented tougher carbon-cutting plans and commitments to adapt to climate impacts in a six-hour marathon event.

In total, 45 countries presented strengthened 2030 climate plans, with Japan and South Korea promising more ambitious targets next year. 24 leaders promised to cut emissions to net zero and 20 nations announced stronger adaptation and resilience plans.

While progress was made, a lot more is expected from countries to close the gap between the current level of ambition and what is needed to meet the Paris Agreement goals. Support for vulnerable nations to scale up their ambition at a time when Covid-19 has left them deep in debt was largely absent.

“We are at the beginning of the road. It’s a road of hope at the moment but we need to translate hope into reality,” UN secretary general António Guterres told reporters.

Argentina’s commitment to achieve carbon neutrality by 2050 means more than half of G20 countries would be covered by a net zero goal if president elect Joe Biden follows through on his own election promise next year.

Jamaica, Panama, the Maldives, Malawi, Nepal, and the Vatican joined a growing club of nations aiming to cut emissions to net zero in the first half of the century.

Guterres warned a number of the world’s largest emitters were yet to demonstrate they were ready to step up.

Australia, Saudi Arabia, Russia and Brazil were among big emitters absent from the summit – failing to meet the ambition benchmark to participate.

China fell short of presenting a 2030 climate plan that reflects its long-term carbon neutrality goal. Instead, president Xi Jinping’s much-anticipated speech promised an incremental strengthening of China’s 2030 climate plan, with no mention of curbing coal.

On that front, Pakistan stole the show announcing it would stop building new coal power plants and pivot to clean energy. It promised to generate 60% of its electricity from renewable sources by 2030.

The commitment could cancel 6GW, which would have doubled Pakistan's coal capacity, according to Chris Littlecott, associate director at think tank E3G.

In an honest reflection of the summit's achievement, COP26 president-designate Alok Sharma said that while "real progress" had been made, nations had not done enough to put the world on track to limit warming to 1.5C – the tougher goal of the Paris accord.

"As encouraging as all this ambition is, it is not enough. And the clock continues to tick," he said.

Setting out his plan for the work that lies ahead, Sharma said "a step change" in carbon-cutting efforts was needed to reach the 1.5C. That needed to included policies like phasing out coal, he said.

Sharma added "strengthening adaptation" and "getting finance flowing" were key to brokering an agreement at COP26 in Glasgow and promised to convened major economies to make progress on these issues through the UK's G7 presidency next year.

In the day's most hotly anticipated announcement, President Xi's speech failed to replicate the enthusiasm of his last UN intervention in September.

He reaffirmed his commitment to achieve carbon neutrality by 2060 and peak China's emissions "before 2030" – dates which Guterres said the UN would work to bring forward in bilateral dialogue.

By 2030, Xi promised to reduce carbon intensity to "over 65%" from 2005 levels and boost the growth of wind and solar energy, promising to reach 1,200GW of capacity, up from 415GW at the end of 2019.

Speaking to reporters half way through the event, Guterres expressed disappointment at the absence of a Chinese commitment on curbing coal power generation or ending coal financing overseas.

"We go on insisting, there must be everywhere a commitment not to build new coal power plants," he said.

Lauri Myllyvirta, lead analyst at the Centre for Research on Energy and Clean Air, told Climate Home the new targets were "largely an extension of current trends to 2030" and could allow for emissions to continue to rise at the same average rate they have over the past five years.

“China’s approach to realising the 2060 carbon neutrality target risks leaving the heavy lifting to the period after 2030,” he said.

Thom Woodroffe, of the Asia Society Policy Institute, said the new 2030 measures “fell a long way short” to align with Xi’s carbon neutrality by 2060 ambition.

Li Shuo, senior climate and energy policy officer at Greenpeace East Asia, said Xi’s announcement “demonstrates good will” and left space for greater ambition in 2021. “Making its emissions peak earlier than 2025 is still something it should strive for,” he said.

Other large emitters appeared largely empty-handed. Prime minister Narendra Modi repeated existing commitments to increase renewable capacity to 175GW by 2022 and 450GW by 2030, saying the country was on track to exceed its targets.

Among the co-organisers, French president Emmanuel Macron fell short, promising to end export finance for oil in 2025 and for gas in 2035 – a poor effort in contrast to its UK neighbour’s announcement that it will end overseas fossil fuel financing in early 2021.

“Many countries contributing to the Climate Ambition Summit ignored the ‘ambition’ part and apparently still lack the moral courage to stand up to the fossil fuel industry,” said Jennifer Morgan, executive director of Greenpeace International.

“Both in terms of national and international action, France is not honouring the legacy of the COP21,” said Lucile Dufour, International Policy Officer, Réseau Action Climat France.

She added that France’s announcement it will maintain its current levels of climate finance over the next years without increasing them, was “clearly not enough to respond to the growing needs of the most vulnerable countries”.

Overall, promises of new money were largely absent. Germany promised €500 million in climate finance and Italy €30 million to the Adaptation Fund – a far cry away from the what poor nations were hoping for.

At a time when climate impacts are reaching records, “the solidarity piece was not at the rendez-vous,” Yamide Dagnet, director of climate negotiations at the World Resources Institute, told Climate Home. “With too few exceptions, we still need to see developed countries honour their commitments on finance.

“During this summit, we have seen continuous leadership from vulnerable countries to decarbonise and make their economies more resilient. They need to be supported. Investments needs to flow to them now.”

Sharma urged donor countries to come forward with new commitments on climate finance and meet their commitments to mobilise \$100bn per year from 2020 to support vulnerable nations.

“I have to say, if we can mobilise trillions overnight, rightly, to support our economies [in the coronavirus recovery], why can we not reach this \$100 billion dollars goal?”

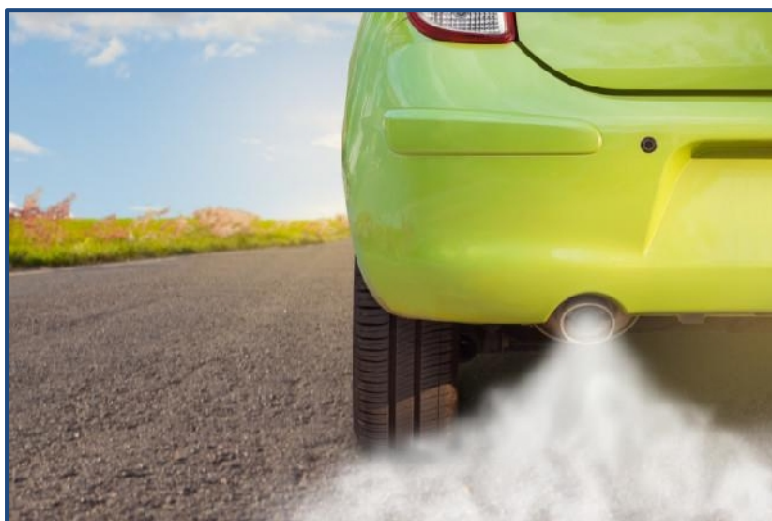
Fine Particle Pollution is Down, But Still Killing People

Date:-14-Dec-2020, Source: discovermagazine.com

A big-data approach finds the most robust evidence to date that particulate matter kills.

Exhaust pipes and power plants spew tiny particles 2.5 microns in diameter or smaller into the air we breathe. Thousands of them could fit on the period at the end of this sentence. And recent studies show that long-term exposure to this fine-particle pollution at levels far below what current EPA standards allow is associated with premature death.

Yet some researchers, including the current chair of the EPA’s Clean Air Scientific Advisory Committee, declined to revise the National Ambient Air Quality Standards (NAAQS) in April. They argued that because the researchers conducting the studies used traditional statistical approaches that rely on assumptions, they failed to show causality.



Harvard University scientists responded by publishing a June Science Advances study that comes as close to showing causality as air pollution researchers can without conducting a randomized controlled trial. Francesca Dominici, senior author and biostatistician at the Harvard T.H. Chan School of Public Health, and her colleagues

gathered what is likely the largest air pollution cohort to date, with well over 550 million records. They used more than 20 different government health and pollution databases — including census data, EPA air-monitoring data and claims from 68.5 million Medicare enrollees — to compare health records with pollution levels over time. They juxtaposed people who were extremely alike in demographics but different in their exposure to pollution across the U.S.

Their work showed that tightening annual EPA air quality standards for fine-particulate matter by about 17 percent — from 12 micrograms to 10 micrograms per cubic meter of air — would save 143,257 lives in one decade. The data overwhelmingly confirm that NAAQS standards for this pollutant are too loose, says Dominici: “I feel pretty strongly that, if the EPA would rely on science, they would have acted very differently.”

Another 2020 study found that a 25 percent decrease of dust particulate matter in West Africa would decrease infant mortality rates in the region by 18 percent. The investigators combined birth data from sub-Saharan African nations with data on dust pollution blowing off the Bodélé Depression in Chad, a giant ancient lakebed that's now dry and one of the largest sources of natural particulate pollution in the world. If climate change were to cause a 25 percent decrease in rainfall during the region's dusty season, as some models predict, the authors estimate a resulting 12 percent increase in infant mortality by mid-century due to increased dust.

As a preventative measure, solar-powered irrigation used to dampen Bodélé's dust could avert 37,000 infant deaths annually, according to the researchers. The idea comes from a similar endeavor at California's Owens Lake, a dried-up lakebed that the city of Los Angeles waters regularly to reduce its incessant dust. "We looked all around the world for examples of where people have lowered natural sources of pollution leading to better health outcomes," says Sam Heft-Neal, study author and a Stanford University researcher. "Owens Lake was really the best example that we could find."

These studies — looking at both human-caused and natural sources of particle pollution — are part of the growing body of evidence that air pollution is widespread and can affect people's health even at low levels.

The US saw cleaner air during COVID-19 lockdowns, but some pollutants persisted

Date:-15-Dec-2020, Source: massivesci.com



Nitrogen dioxide levels dropped due to a sharp decrease in passenger cars on the road.

By late March 2020, nearly every state in the US had adopted some form of social distancing measures in order to slow the spread of COVID-19. Almost overnight, with schools and business closed, many people were left with

nothing to do but stay home. As a result, cities witnessed a sharp decrease in car traffic. The air quality in these cities seemed to rapidly improve.

But how big of an impact did the coronavirus pandemic have on our air pollution? A new study published in the Bulletin of Atmospheric Science and Technology has quantified exactly that.

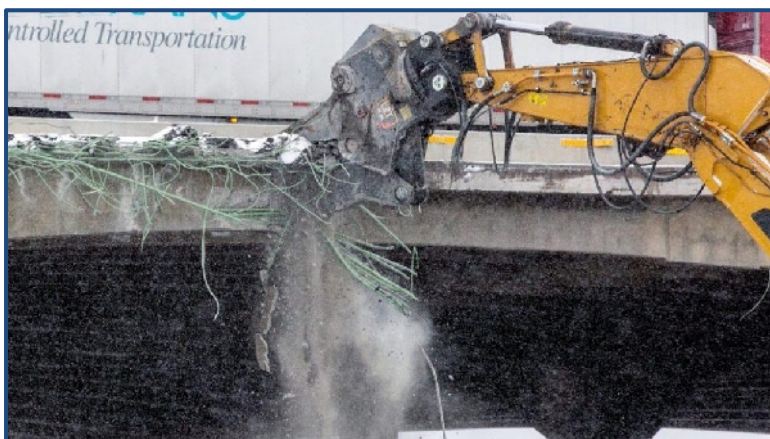
Using publicly-available data, they compared the measurements of nitrogen dioxide and PM2.5 (fine particulate matter) measurements from April 2020 to data from 2015-2019. Nitrogen dioxide, which is emitted from exhaust produced by motor vehicles, is a good proxy for car traffic. PM2.5 is particulate matter less than 2.5 micrometers in diameter, thinner than human hair. Its small size allows it to travel deep into your lungs and it causes many negative health effects. PM2.5 is also emitted by vehicles, but its levels are more connected to commercial diesel trucks than passenger cars.

The researchers found that nitrogen dioxide levels decreased during the COVID-19 lockdowns, corresponding to the decreased car travel. However, in contrast to nitrogen dioxide, concentrations of PM2.5 didn't seem to be correlated with the decrease in human travel, and were actually more likely to be higher than the daily averages from the previous five years.

The researchers attribute this partly to the fact that commercial trucks didn't experience the same decline in usage as passenger cars. Similarly, the other common emission sources of PM2.5, such as power plants and residential heating, also didn't experience a decline, and may also factor into these findings.

Air pollution could make COVID-19 worse. That's put Elyria-Swansea on edge

Date:-16-Dec-2020, Source: denverite.com



Dust and debris kicked up with the continuing construction of the Central 70 project in Denver adds to air pollution in the Swansea Elyria neighborhood during the coronavirus pandemic. Friday, Dec. 11, 2020

Residents of Globeville and Elyria-Swansea have long lived with lead in their soil and pollution in their air. Now they have a larger share of COVID-19 cases too.

It wasn't long after Yadira Sanchez moved to the Elyria-Swansea neighborhood 16 years ago that she developed asthma.

As a child, Sanchez was always active. She played sports and

never had breathing problems. But a year after moving to the north Denver neighborhood she started to notice breathing was more difficult. She was eventually diagnosed with

asthma along with her three-year-old son. When her other two children came along, they also developed the condition.

Sanchez doesn't know for sure what caused her asthma, but she thinks the conditions in her neighborhood have something to do with it. Elyria-Swansea and its neighbor Globeville have long been the epicenters of environmental concerns in Denver. There is lead in the soil and air from long-gone smelting operations, a major oil refinery nearby and a massive road expansion and realignment project on bordering I-70.

She is not alone in her concern. A 2014 study found that people in Elyria-Swansea and Globeville are more likely to have conditions like asthma and heart disease. New data shows they are also more likely to get COVID-19, though the reason for that remains uncertain.

Sanchez said COVID-19 has increased her anxiety about the health factors in her neighborhood.

"It seems like in every other house in the neighborhood there's somebody in there that has gotten COVID," she said. "The paranoia definitely strikes you at the door really hard."

There is mounting evidence that air pollution has impacts on COVID-19. A Harvard analysis looked at data from 3,000 counties across the country and found that even in areas with small increases in PM 2.5 — fine particulate matter small enough to be inhaled and absorbed into the lungs — people were more likely to die of COVID-19. That study is not yet peer reviewed. A newer study, released in October in the journal *Cardiovascular Research*, found that air pollution may be responsible for up to 15 percent of COVID-19 deaths globally because it may exacerbate the side effects of the disease.

"Everything I've seen points to higher air pollution being correlated with higher risk of COVID once you control for many other things," said James Crooks, a researcher with National Jewish Health in Denver. "The air pollution increases the susceptibility to all infectious diseases because of how it affects the interior of your lungs and how it affects your immune system."

The disproportionate levels of coronavirus in Elyria-Swansea and in other low-income areas of the state predominated by people of color has sparked alarm throughout the pandemic. Latinx residents make up nearly 30 percent of coronavirus cases in Colorado, but they only comprise about 21 percent of the population. The disparities have driven conversations about unequal access to healthcare and the dangers of exposure for essential workers, who are disproportionately people of color. But less discussed are the environmental factors that often layer on top of these other social issues.

"There is an accumulation of exposures to other air pollutants that have established underlying health conditions that make them more susceptible to things like COVID-19," said Lupita Montoya, an indoor air quality researcher with the University of Colorado who

has done a number of studies in vulnerable communities. “[These communities] have already been exposed either to pollution from vehicle emissions, from pollution, from power plants or industrial sites near their home.”

Air quality can be very point specific, and very few areas in Colorado provide COVID-19 data down to the neighborhood level. According to Crooks, it would take even more granular statewide data — broken down into Census tracts or zip codes — to get a clear picture of just how much air quality may be driving COVID-19 outcomes in Colorado as a whole.

For the few counties that do breakdown their data by neighborhood — Arapahoe, Adams, Douglas and Denver — there tend to be higher rates of COVID-19 in areas known for higher air pollution or asthma. This includes places like Commerce City and Elyria-Swansea.

But scientists like Montoya say it’s more than just a lack of data standing in the way of a robust understanding of how poor air quality affects infectious disease. Health studies in vulnerable communities are often underfunded, and the scientists that want to do these types of studies — many of them people of color — are often ignored.

“It takes time to develop relationships with the communities, and a lot of the funding that goes into science really is not necessarily to support work that directly impacts people,” she said. “Ultimately science should be about protecting and helping people and I think that there’s going to be a reckoning over what’s the purpose of science who gets to do science, whose science matters.”

Activists also say these issues have been ignored and that environmental inequities have been allowed to persist even during the pandemic.

Ean Thomas Tafoya, an environmental justice advocate with the Colorado Latino Forum, noted that while much of the state experienced environmental benefits from less traffic at the start of the pandemic, Elyria-Swansea had to contend with pollution that was deemed “essential” under lockdown rules.

“The pollution and the transportation industry didn’t stop in that community,” he said.

Tafoya and other activist groups and elected officials wrote a letter to Gov. Jared Polis in April asking to halt construction on the I-70 project in Denver. The groups argued that dust from the project could exacerbate air quality conditions in the neighborhood and bring in workers from outside, potentially creating dangerous pandemic conditions. Polis declined.

“We’ve shut down an entire city, an entire world to really protect people from contaminating each other,” said Candi CdeBaca, a City Council member representing Elyria-Swansea and other north Denver neighborhoods who also signed onto the letter. “But for these neighborhoods, we couldn’t even shut down a highway project.”

Air Pollution Takes a Toll on Your Kidneys

Date:-17-Dec-2020, Source: usnews.com



THURSDAY, DEC. 17, 2020 (HealthDay News) -- Tiny particles of air pollution were already known to raise people's risk of developing heart and lung disease, but a new study suggests they might also raise the risk of developing chronic kidney disease.

Researchers from Peking University in Beijing, China, found that the risks from this

fine particulate matter was significantly stronger in urban areas, and among males, younger adults and adults without other health conditions.

The investigators analyzed survey data from more than 47,000 adults in China and estimated the two-year air pollution levels at each person's residence from satellite-based information.

They found that 10.8% of participants had chronic kidney disease. Each increase of fine particulate matter of 10 micrograms per cubic meter of air was associated with 1.3 times higher odds of having the disease.

The research was published online Dec. 17 in the Journal of the American Society of Nephrology.

"Although ambient air quality has improved substantially during the past five years in China, the national annual particulate matter level in China exceeds the World Health Organization's guideline," study author Dr. Luxia Zhang said in a journal news release.

The findings provide evidence to policymakers and public health officials for the need for stricter air quality control measures to help protect individuals' kidney health, the researchers said.

Air Pollution Monitoring Using IoT Can Help Us Breathe Easier

Date:-18-Dec-2020, Source: iotforall.com



Recent advances in technology have vastly improved our lives' quality of life—from increased access to transportation to cheaper manufactured goods to reliable power and heat—but these luxuries have not come at a small cost. Air pollution has risen proportionally alongside these amenities.

According to the World Health Organization, nine out of ten people breathe air that exceeds guideline limits of pollutants. These pollutants are estimated to kill seven million people worldwide every year and can be difficult to monitor or control. But IoT can help.

Addressing Air Pollution

Here's the problem: addressing air pollution is complicated. The biggest pollution sources are processes we rely on daily like fuel combustion in our vehicles, heat and power generation, industrial facilities, and waste sites. Living without any of these sounds like an impossible task, and even if you drastically reduce contributors in your own area, under certain conditions, air pollution can travel over the state and even national borders, affecting populations well away from the source. That's why tackling air pollution requires a high degree of visibility and collaboration across sectors and from the city-level to the national.

But before you can take action to improve air pollution, you have to know exactly how bad it is (and where). Keeping accurate records of air quality over time is vital to know whether or not your efforts are actually paying off. Existing solutions, like the GOES-R and JPSS weather satellites, can monitor large-scale changes in air quality and pollution, but not at the granular level that cities need in order to know that, for example, their carpooling initiative along major highways has been a massive success.

Air Quality Data Collection

Previously, the only alternative was the manual collection of data. Cities would send teams or individuals armed with air monitoring equipment to take samples and measure air quality at various parts of the cities and repeat any time a new dataset was required. This process is extremely costly, time-consuming, and prone to human error. Even if it's all done perfectly, it can still be challenging to get a clear idea of an entire city's air quality.

This is where the Internet of Things (IoT) comes in. By utilizing connected air quality sensors, cities can gain instant insight into air quality in specific regions or at specific times, save money on the manual collection of data, and more easily track changes to air quality over time. Cities have several options for air pollution monitoring – either building sensors into existing infrastructure or using mobile sensors to quickly map and track air quality through routes across the city, all without the added cost of manually collecting and monitoring that data.

By building air quality sensors into existing infrastructure, like street lights or benches, cities can take advantage of power sources already at the site. These sensors can instantly communicate air quality readings across the city, without human intervention, or alert stakeholders if an unexpected change occurs, enabling cities to take action quickly. For example, Barcelona, Spain, equipped 1,100 street lamp posts with IoT-enabled air quality sensors and wifi routers as part of its Barcelona Lighting Masterplan, enabling them to gather air quality data and send it back to the city completely autonomously.

Boston, Massachusetts; Boulder, Colorado; Los Angeles, California; and Miami, Florida have all introduced Soofa benches, equipped with solar panels and air quality monitors. As the street lamps in Barcelona, they serve as hubs for smart city connectivity and enable pedestrians to interface with smart city features while constantly testing and delivering air quality data.

While these solutions provide the most transparency into a city's air quality, the cost can be prohibitive to cities with a tighter budget. Installing sensors throughout an entire city or county can be extremely expensive, whether through existing fixtures, like lamp posts and traffic lights or by placing new structures, like benches.

Mobile Sensors

For cities looking to achieve greater transparency without the cost, mobile sensors can be a better option. Mobile air quality sensors can be attached to municipal fleets, like garbage trucks or buses, to track air quality as they move along their routes. They could even be affixed to smaller vehicles, like bikes or scooters attached to a rideshare program. Because a single sensor could potentially monitor an entire city's air quality, solutions like these can be much more affordable, drastically reducing the amount of equipment needed. Google Street View cars have been a great example of this, gathering more than 500 million air measurements worldwide to better equip cities with the information necessary to execute effective clean air initiatives.

While this is much more cost-effective, it's not very efficient. Mobile sensors may not measure air quality in every part of a city and may not revisit areas at effective intervals for monitoring changes.

Whatever the ideal solution for your city, air quality can't be ignored any longer. With billions of lives affected, cities need to take action now to understand contributors to air quality and to find out what they can do to improve and there's no better tool to gain that transparency than IoT.

Curbing climate change will be way forward to counter future pandemic across the globe

Date:-19-Dec-2020, Source: avenuemail.in



Climate change is a slow pandemic itself that in years to come will cost human lives so we can learn a lesson from this particular pandemic and devise a future which is sustainable in equal parts for humans , environment and wildlife.

Failure to act over climate change complements the risk of future pandemics. Rising land temperatures (forming

urban heat islands) increases the probabilities of infectious disease spread such as dengue. The risk of pandemics and epidemics is, thus, not only restricted to existing diseases but also more dangerous pathogens of the past which lay in melting permafrost.

Even though global informal alliances called for the green stimulus to be a part of economic recovery programs in the post-COVID-19 era, not much would be done in India and other developing countries when millions face unemployment and food scarcity. Have we taken enough measures to contain COVID-19 by reducing air pollution and emissions of greenhouse gases? as Air pollution kills approximately 7 million people every year and is responsible for one third of all deaths from stroke, lung cancer and heart disease.

Over 90% of the global population lives in places where the WHO outdoor air quality guideline levels are not met, and about two-thirds of this exposure is caused by burning of fossil fuels, which also drives climate change.

Efforts to control COVID-19 transmission have reduced economic activity and led to temporary improvements in air quality in some areas. In contrast, as carbon dioxide and other greenhouse gases that drive climate change persist for a long time in the atmosphere, temporary emissions reductions only have a limited effect on atmospheric concentrations.

Carbon dioxide levels at observing stations around the world in the first months of 2020 have been higher than in 2019. Any short-term environmental benefits as a result of COVID-19 come at an unacceptable human and economic cost, and are no substitute for planned and sustained action on air quality and climate.

Remedies for climate change must be introduced in our efforts to combat the current pandemic and government stimulus should be channelled to zero-carbon infrastructure projects. This will not only help us avert the next big disaster for which risk conditions are being actively met by changing climatic risk conditions, but also help create more jobs in the green industry to provide long-term resilience in our built environment.

Air District Extends Winter Spare the Air Through Tuesday

Date:-20-Dec-2020, Source: nbcbayarea.com

The Bay Area Air Quality Management District has extended a winter Spare the Air alert through Tuesday meaning a ban on burning wood, manufactured fire logs or any other solid fuel, both indoors and outdoors.

The alert is the third of the winter season, prompted by predicted colder overnight temperatures and light winds that could lead to deteriorating air quality due to smoke from increased wood burning.

The air district said that a forecast high-pressure system over Northern California "will act like a lid, trapping smoke at ground level," while offshore winds could also allow Central Valley air pollution to drift into the Bay Area.

"On Monday, smoke from residential wood burning is expected to cause unhealthy air throughout the Bay Area," said Jack Broadbent, executive officer of the Air District. "During this holiday season, when respiratory health is a priority for us all, it is critical that everyone does their part to improve air quality and protect public health by not burning wood."

It's illegal for residents and businesses in the region to use their fireplaces, wood stoves, pellet stoves, outdoor fire pits or any other wood-burning devices during a Spare the Air Alert for fine particle pollution.

Exemptions are available for homes without permanently installed heating, where wood stoves or fireplaces are the only source of heat.

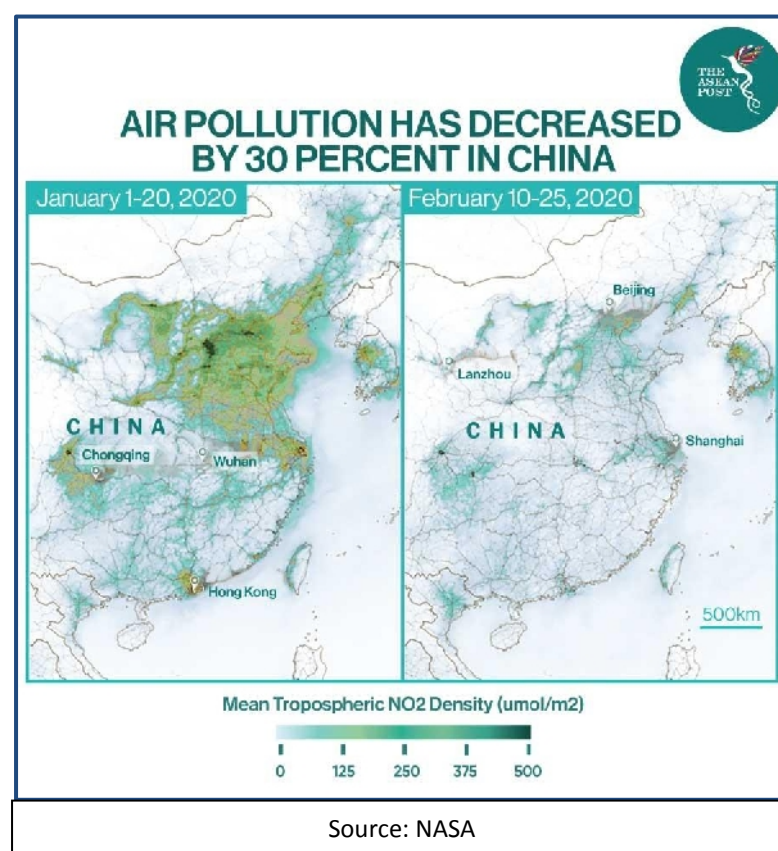
Anyone whose sole source of heat is a wood-burning device must use an EPA-certified or pellet-fueled device registered with the air district to qualify for an exemption. An open-hearth fireplace no longer qualifies for an exemption.

A Breath Of Fresh Air: Pollution In China Drops

Date:-21-Dec-2020, Source: [theaseanpost.com](https://www.theaseanpost.com)

Since the COVID-19 outbreak, all eyes are on China and its response to containing the spread of the virus. On 31 December, 2019, the Chinese government reported that it was treating dozens of patients infected with a new virus. Just two weeks later, the first death was reported.

As of today, more than one million cases have been confirmed. More than 110 countries and territories have been affected, with major outbreaks in central China, Italy, South Korea and Iran.



China has quarantined millions of people and implemented lockdown measures and restrictions in over 50 cities and four provinces. The goal of course is to stop the deadly coronavirus epidemic from spreading further.

As China seeks to control the spread of COVID-19, there are much less cars on the road and fewer factories in operation, which in some places has resulted in clearer skies.

Recently, the National Aeronautics and Space Administration (NASA)

reported that air pollution – mainly nitrogen dioxide emitted from burning fossil fuels – had decreased by 30 percent in China over the last month (February – March).

"It is an unprecedentedly dramatic drop in emissions," said Lauri Myllyvirta, lead analyst at the Centre for Research on Energy and Clean Air. "I've definitely spoken to people in

NASA Global observation

Shanghai who said that it's been some of the most pristine blue skies that they remember over the winter."

Air pollution is estimated to contribute to more than one million premature deaths in China each year. Fine particle pollution, also known as PM 2.5, can enter the bloodstream through the lungs and has been linked to asthma attacks, heart attacks and respiratory problems.

Another significant contributor to the emissions decrease is the dramatic decline in China's domestic and international air traffic, which account for about 15 percent of global air travel emissions.

Separating Growth From Carbon

A study published in the Journal of the American Academy of Paediatrics found that outdoor air pollution in China is associated with over 300,000 deaths, 20 million cases of respiratory illness, and a health cost of over 500 billion yuan (US\$71 billion) – over three percent of gross domestic product (GDP) annually.

Pollution is a global health problem. Some 4.5 billion people worldwide are exposed to concentrations of airborne particulate matter (PM), at twice the level the World Health Organisation (WHO) considers safe.

Air pollution is present inside homes and outside and is responsible for the premature death of seven million people each year, including 600,000 children, according to the Special Rapporteur's report submitted to the United Nation's (UN) General Assembly.

In June 2019, Professor Guojun He and colleagues from the Hong Kong University of Science and Technology (HKUST) conducted a study on the health impacts of pollution and found that residents from areas which are given subsidised coal in China show a particulate pollution rate that is 46 percent higher than other areas. The average life expectancy of its residents is 3.1 years lower than in other areas.

His study concluded that if the entire country of China complied with its Class 1 standard for PM10 (particulate matter 10 micrometres or less in diameter), it could save 3.7 billion lives worldwide.

The COVID-19 outbreak has certainly highlighted China's central role in the global system. ASEAN member states are feeling high levels of uncertainty over promised investments from China which at any point could be pulled back to prioritise domestic needs. Corporations worldwide are also experiencing major shortages in materials and stocks with most factories located in China.

China may not be thinking about carbon emissions at the moment, but global citizens are observing for themselves, the rate in which China has the power to save the planet from overheating.

On the other hand, giant corporations originating from the West, continue to source production in China and at the same time blame it for polluting the earth.

This slowdown could make companies re-evaluate their dependencies on China or it could encourage companies to invest in developing production tech that utilises clean energy. Either way, it looks as though Southeast Asia could be a viable alternative to spread out production and decrease dependencies on any one country.

The question of whether ASEAN would have the capacity and determination to protect its citizens from long-term environmental damage by developing frameworks for investments that would integrate clean energy and sustainability remains highly unlikely.

China must use this opportunity to revamp itself and re-establish confidence among its global partners. An improvement in practices could be the assurance that partners need to continue working with the second largest economy in the world.

Major air pollution study will help put city ‘ahead of the curve’

Date:-22-Dec-2020, Source: [news.leicester.gov.uk](https://www.leicester.gov.uk/news)

A ground-breaking project to provide people in Leicester with real-time information about local air pollution from fine particulates is in its final stages of development.

Leicester City Council is working with locally based air quality expert EarthSense to carry out a detailed citywide study of the sources and concentrations of PM2.5 particulates and other pollutants.

PM2.5 refers to the tiny particles – less than 2.5micrometers in size – of dust, smoke, pollen and soot that can be found in the air we breathe. The pollution is generally linked to wood burning stoves, open fires, bonfires, waste burning and commercial emissions including restaurants and factories.

Exposure to PM2.5 at high levels, or over an extended period, has been linked to serious effects on health and an increased risk of developing cardiovascular and respiratory diseases.

Government funding of almost £250,000 has allowed the city council to deploy a network of eleven portable Zephyr® air quality monitors which will provide live information to EarthSense’s MyAir® pollution mapping software. This will help provide real-time information about spikes and concentrations of air pollution across Leicester.

Early trials of the project saw levels of PM2.5 pollution spike dramatically for short periods time – one to two hours – during the two days of Bonfire Night celebrations on 5th & 6th November 2020. Readings from the new monitors showed late-night levels of PM2.5 increase sharply to between 400 and 600µg/m3 (micrograms per cubic metre), before quickly returning to normal levels.

Current national guidelines set a maximum annual average for PM2.5 at 25 µg/m³. There are no limits sets established for daily or hourly levels. The World Health Organisation recommends that annual average levels of PM2.5 should not exceed of 10µg/m³.

Leicester's most recently recorded annual average for PM2.5 was below 11µg/m³.

Initial data from the new network of air quality monitors also indicated elevated levels of fine particulate pollution – of up to around 25µg/m³ – during the late evenings in early-December. This is likely to be due to an increase in people using wood burning stoves and open fires in their homes on cold winter nights.

Deputy city mayor Cllr Adam Clarke, who leads on transportation and environment, said: "This ambitious project will play a vital role in helping us build a clear picture of the sources of PM2.5 pollution, which parts of the city are most affected and the impact that domestic wood burning is having on local air quality.

"We are already making huge progress in improving air quality, with nitrogen dioxide at the lowest levels we've ever seen in the city. There may be no current requirement to monitor PM2.5, but this important study will put us ahead of the curve and help us take decisive local action to tackle the potentially its harmful effects.

"It's fantastic that we have been able to benefit from the skills, expertise and knowledge of our local partners EarthSense. It's a great example of the city's shared commitment to achieving Healthier Air for Leicester."

EarthSense is based at Leicester's Pioneer Park. It specialises in the monitoring and modelling of air pollution to provide policy makers and city planners with near real-time insight to support decision-making.

Dr Roland Leigh, Technical Director at EarthSense, said: "Solid fuel burners can contribute significantly to particulate pollution in our cities with the potential to worsen serious health problems. Making use of our MappAir® model and Zephyr® sensors will provide Leicester City Council with a holistic understanding of air pollution and how domestic stoves, in particular, could contribute to potentially harmful concentrations.

"We now want to develop this project to provide the public with live data that will allow them to make informed decisions about the use of their stoves or open fires on days where pollution is likely to be high. By providing improved guidance on the potential dangers of burning wood and its impact on air quality, we hope people will do their bit in helping minimise smoke emissions."

An interactive map and accompanying smartphone app are now in the final stages of development. These are intended to make it easy for people for access up-to-date date on local PM2.5 and expert guidance on wood burning.

The project team is now looking for a small of volunteers to help test the app. Anyone interested in taking part should email air.quality@leicester.gov.uk

In June 2018, the city council declared the whole of Leicester as a Smoke Control Area, under a new Smoke Control Order, to help limit pollution from smoky fuels like coal and wood.

Under the Clean Air Act 1993, emitting smoke from the chimney of a building in a Smoke Control Area can result a fine of up to £1,000.

This means that people should only use certified wood-burning stoves and burn authorised smokeless fuels.

New Jersey, other states pass on climate-change plan for transportation

Date:-23-Dec-2020, Source: whyy.org



In this file photo, cars and trucks line up at the entrance to the George Washington Bridge

A regional plan to reduce carbon pollution from vehicles is off to an inauspicious start with only a trio of states and the District of Columbia agreeing this week to take part while eight states, including New Jersey, are holding off on joining the collaboration.

The Transportation & Climate Initiative would establish a cap on greenhouse emissions from

cars, trucks and buses and require fuel distributors to pay for the right to bring gasoline into the region, a step likely to increase pump prices by at least 5 cents a gallon. The money raised would fund cleaner transportation alternatives, such as public transit and transition to zero-emission vehicles in participating states.

Modeled after the Regional Greenhouse Gas Initiative, a program that has successfully curbed emissions from power plants, this latest regional collaboration is viewed by many as the most effective way to modernize and decarbonize the transportation sector, which contributes roughly 40% of all global-warming pollution in New Jersey and elsewhere in the mid-Atlantic region.

Initially, the initiative could reduce carbon pollution from vehicles by 23% by 2032 and yield up to \$3 billion in annual public-health benefits if all states implement the program, advocates say.

“It will be a game-changer,” said Janet Coit, director of Rhode Island’s Department of Environmental Management.

TCI supporters tried to minimize the lack of enthusiasm, noting other states could come back to the table as Connecticut, Massachusetts and Rhode Island begin implementing the program.

“We expect our numbers to grow significantly,” said Kathleen Theoharides, secretary of the Massachusetts Executive Office of Energy and Environmental Affairs. Besides New Jersey, the other states that have talked for months about joining the initiative include Delaware, Maryland, New York, North Carolina, Pennsylvania, Vermont and Virginia.

N.J. ‘exploring the option’

In a statement from New Jersey Gov. Phil Murphy’s office, the state seems to remain committed to exploring the option of joining the regional initiative.

“With the majority of the state’s emissions coming from our transportation sector, we must focus on limiting the emissions through climate pollutant reduction regulations and investment in clean transportation,” said Alexandra Altman, deputy press secretary.

“While New Jersey will not be an initial signatory state in the TCI program, we will continue to evaluate its potential role in New Jersey’s climate change mitigation strategy,” she added.

In the statement, Murphy’s office signaled that it recognized opposition from environmental justice advocates who had lobbied the administration to reject the transportation initiative. They argued the cap-and-trade does little or nothing to mitigate pollution in communities with disproportionate impacts from poor air quality.

“TCI is broken,” said Maria Lopez-Nuñez, deputy director at the Ironbound Community Corporation, noting that fewer than a third of the states participating in the initiative signed up to implement the program. “Environmental justice communities are the canaries in the coal mine. It’s about time they started listening,” she said.

The TCI also took note of the opposition from those communities by including a commitment in the memorandum signed by the states and Washington D.C, to dedicate at least 35% of each jurisdiction’s proceeds — nearly \$100 million annually — to those communities.

Monday’s announcement of the kickoff of the program comes at a time when the impacts of climate are being felt across the country, with communities overburdened with pollution impacts among the most vulnerable. Prolonged exposure to air pollution may make it more difficult to recover from diseases like COVID-19, according to a recent study by the Harvard School of Public Health.

'80X50'

Reducing emissions from transportation is vital to reaching regional climate goals and doing so will also bring about direct health benefits, experts say. In New Jersey, the state Department of Environmental Protection released its "80X50" report in October urging significant strides to reduce emission trends from the transportation sector.

"Without a steadfast commitment to successive legislative, regulatory and policy actions that facilitate emission reductions over the next 30 years, New Jersey's business-as-usual emissions are projected to be higher in 2050 than they are today — only 12% below 2006 levels, erasing progress over the last 15 years and missing the 80X50 goal," the report said.

According to the state's Global Warming Act, New Jersey needs to cut greenhouse gas emissions by 80% below 2006 levels by 2050, a key element of its climate reduction goals.

Proponents hailed Monday's announcement of the kickoff of the regional program, no matter the number of states taking part.

"Today's announcement is years in the making, and it has the potential to accelerate the region's transition to clean, reliable and affordable transportation," said Ken Kimmell, president of the Union of Concerned Scientist and a former commissioner of the Massachusetts Department of Environmental Protection.

High Pollution Advisory extended through Saturday for Maricopa County

Date:-24-Dec-2020, Source: azfamily.com

PHOENIX (3TV/CBS 5) -- The High Pollution Advisory for Maricopa County has been extended through Saturday, going into effect on Thursday.

In addition to that, all three days will be No Burn Days for the Valley. The air quality is expected to be really bad on Christmas Day.

Restrictions per Maricopa County Air Quality Department:

- Wood burning in home fireplaces, chimineas, outdoor fire pits and other outside fires are prohibited.
- Employees/contractors with government agencies are prohibited from using leaf blowers as well as residents.
- Off-highway vehicles are also prohibited from being used.

What you can do:

- Reduce your time in long drive-thru lines.

- Fill up your gas tank during cooler evening hours.
- Avoid wood burning.
- Drive as little as possible.
- Avoid using leaf blowers.
- Make sure your containers for household cleaners, paints, and so forth are properly sealed.

Editorial: Air pollution another life threat to Kabul residents

Date:-25-Dec-2020, Source: menafn.com

(MENAFN - Afghanistan Times) The air over the capital city of Kabul looks like the bricklaying factories that use plastics and tires as fuel at the eastern and northern outskirts of the city and that blacken the surrounding area with smoke. The air of the capital city is just black and one cannot see even a short distance. The air gets darker after the evening after the heaters are on in most of houses.

More than 90 percent of families use coal as fuel to heat houses in the winter because the coal is cheaper than any other fuels. But the people are not aware or do not care about the harms of this fuel which enters directly to houses from markets after being extracted from mines without any refinery measures that lessen its smoke, pollution and health injuries. The thick and dark smoke rising from tens of thousands of houses' rooftops to the air change the color of sky to black and when you are out at night you feel painful eye irritation and barely breathe. Hospitals these days are full of people suffering from asthma and other lung-related diseases.

In fact, winter is the season of hope for people, especially for the farmers and other rural residents who severely need snowfall and rainfall for irrigation. But this is also considered in the recent years as a deadly season since the air is extremely polluted. A report published by the local media said that the concentration of suspended particles reach of 500 micrograms in every cubic meter which is very beyond than the warning level.

The government as usual remains as a spectator and the environment department is yet to do anything. People need to be aware of an increase in death toll during the winter, they need to learn why they get sick more than other seasons and they need to learn if it is useful in general to use unrefined coal. They need to know not to jeopardize their families' lives just for reasonable price of coal and other cheap fuels. Media are requested to launch awareness programs to save the lives of people, especially children who are more in danger and can easily get infected with lung diseases.

How CO2 can help the construction industry emit less CO2

Date:-28-Dec-2020, Source: theprint.in

The production of cement alone accounts for 8% of global CO2 emissions. The sector's productivity must be addressed while reducing damage to the environment.

At more than \$11 trillion per year, spending related to construction is responsible for about 13% of global GDP – but in comparison to other industries, productivity and growth are lagging behind. At the same time, the impact on the environment can be illustrated, for example, by noting that the production of cement alone accounts for 8% of global CO2 emissions. The sector's productivity and CO2 footprint are key problems that need to be addressed quickly to meet the increasing demand for construction while reducing the damage to the environment.

A key to solving both problems may very well lie within the CO2 itself.

Limitations in productivity could be addressed with the rapid and large-scale introduction of automation into the industry. Traditionally, automation has propelled productivity upwards in many industries but that is usually coupled with job losses. This will be different in a construction industry that today faces a global shortage in available labour. The introduction of automation tools enables 3D-printing of concrete materials, better prefabrication of building modules, and can help assembling entire structures. Overall, this enables new building designs, with lower cost, and reduces the physical burden on construction workers, all while adding new jobs to implement and operate the tools.

While 3D printing of concrete has been pursued for some time it will benefit from advances in concrete materials to enable better printability, such as increased speed of construction while preserving structural integrity. In addition, advanced concretes must have properties such as higher mechanical stability, smart thermal behaviour, air filtration and self-repair capability. But first and foremost, in the present context, these materials need to offer better manufacturability and a better carbon footprint.

New materials will become critical enablers for advances in construction. An opportunity exists to focus research and developments on concrete and concrete-like composite materials that incorporate captured CO2 as an ingredient. This CO2 could be taken directly from the air, but it can also be harvested from powerplants or cement factories. In either case, the CO2 will be permanently removed in a mineralized form and therefore such efforts will help to address climate change effects.

CO2 can become an enabling raw material for the construction industry and beyond in multiple ways. First, it is possible to use CO2 in the curing of cement in a way for which water is traditionally used. Emerging commercial demonstrations are noted for premade modules as well as concrete that is poured at construction sites. Second, industrial waste

materials, such as steel slag, fly ash from power plants or mine tailings can be reacted with CO₂ to form carbonate materials that are suitable ingredients for concrete. Third, plant fibres and plant-derived polymers can be developed into components for concrete.

Concrete is a versatile material for which many properties will continue to evolve to meet particular use cases. Engineered cementitious composites (ECC) are a class of concrete materials that combine the strength of concrete with the ductility of metals. This is in part achieved through the introduction of polymer fibres into the concrete mixture. Like other concretes, ECC can include CO₂ as described above and could offer additional opportunities for carbon sequestration via the use of plant fibres instead of polymer fibers.

Substantial barriers exist in the way bringing CO₂-based composites for competitive construction methods to full-scale deployment. Work that is needed includes design and testing of new materials, as well as reworking and expanding the supply chain. It includes the creation of appropriate demand for these materials in a traditionally risk-averse environment, and thus requires suitable policy support.

Lessons learned from the Fourth Industrial Revolution can help the construction industry, too. The environmental, economic and – in turn – societal benefits are worth the effort. In total, CO₂-based construction materials offer an opportunity for the removal of gigatons of CO₂. This category of captured carbon products is the only one that offers permanent removal opportunities in contrast to other CO₂ utilization cases. These will still be crucially important for an overall carbon neutral planet since they allow the production of carbon containing materials such as fuels, chemical, and polymers without adding more carbon into the system.

New N.J. rules would crack down on pollution from power plants, trucks, industrial boilers

Date:-29-Dec-2020, Source: whyy.org

New rules to curb global warming pollution from power plants, smaller commercial and industrial boilers, and to shift New Jersey's medium- and heavy-duty truck market from fossil fuels to zero-emission vehicles are being drafted by the state.

The proposals, expected to be published this spring by the Department of Environmental Protection, stem from a nearly year-old executive order by Gov. Phil Murphy aimed at helping achieve the goals of a new Energy Master Plan and the more than decade-old Global Warming Response Act (GWRA).

The Energy Master Plan provides a blueprint to transition New Jersey to a clean-energy economy and the GWRA directs the state to reduce carbon pollution by 80% below 2006 levels by 2050 as a way of fighting climate change. The emerging rules are part of a new

effort by the DEP to achieve both goals in what has been dubbed Protecting Against Climate Threats (NJ PACT).

While short on specifics, DEP staffers gave a broad outline last week on how the state intends to crack down on both so-called stationary sources of global warming pollution — like power plants and commercial and industrial boilers — and mobile sources, such as medium- and heavy-duty trucks that primarily rely on fossil fuels to move goods around.

For instance, the department plans to establish new limits for carbon dioxide, the most prevalent greenhouse gas pollutant, for existing power plants, otherwise called electric generating units (EGUs) in agency jargon. The yet-to-be-set limits would ratchet down over time, according to Kenneth Ratman, assistant director of air quality planning and monitoring at the DEP.

Boilers, a heated issue

The agency also expects to propose a rule that would phase out older, smaller boilers (less than 5 million British Thermal Units) that use fossil fuels. The impact of such a rule would be significant, potentially affecting apartment buildings, schools, hospitals and other facilities, according to business lobbyists.

“It is going to affect an awful lot of people at a huge cost,” said Raymond Cantor, a vice president of the New Jersey Business & Industry Association. “I don’t think the boiler issue has been well-vetted.”

Dennis Hart, executive director of the Chemistry Industry Council, agreed, saying it “costs a fortune for industry to replace those boilers.” Among other things, the rule would require owners of fleets of boilers to submit a boiler fleet report and replace smaller, older fossil fuel combustion boilers with non-fossil fuel boilers.

With the state transitioning from the use of fossil fuels to cleaner but more costly alternatives, critics argued the department needs to begin prioritizing what new costs the public and businesses must absorb from these programs.

Following California’s lead

But Jeff Tittel, director of the New Jersey Sierra Club, defended the rules, saying their targets “are major sources of air pollution. If we don’t go after these sources, we will never get the reductions we need.”

In the transportation sector, the DEP plans to adopt, with some modifications, the California Advanced Clean Truck Act, a law approved there last summer. The law requires increased zero-emission requirements for medium- and heavy-duty trucks — everything from delivery vans to long-haul tractor-trailers. In New Jersey, the requirements would start with the 2025 model year and continue to be scaled up until 2035.

“It is a 2021 version of the Clean Car Act,” said Doug O’Malley, director of Environment New Jersey, referring to a similar mandate governing light-duty zero-emission vehicle sales that the state adopted after another California law.

O’Malley defended the scope of the proposed rules, saying they are desperately needed to reduce emissions from power plants, boilers and mobile sources. “Climate action is a question of whether we pay now or we pay a lot more later,” he said.

Another new rule proposal would clamp down on emissions of nitrogen oxide from some medium- and all heavy-duty vehicles. The pollutant is one of the primary ingredients in smog, or ground-level ozone, during summer days throughout New Jersey, but particularly in urban areas among people with respiratory ailments.

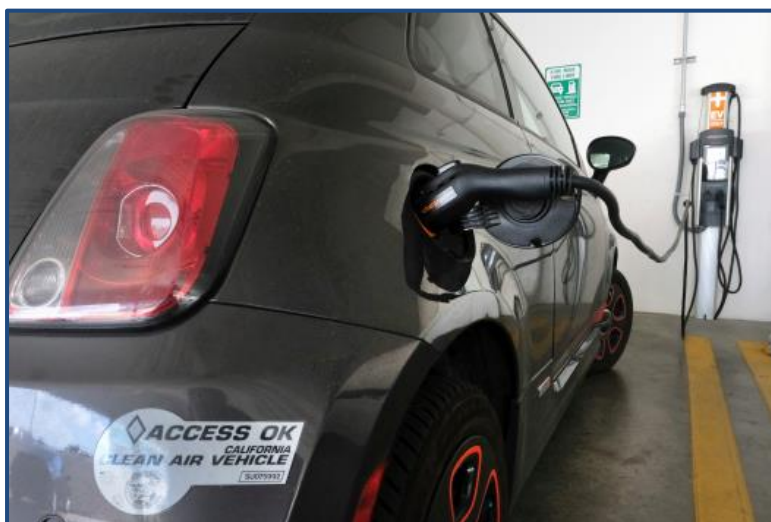
Moving forward with the rules will help communities long-suffering from unhealthy levels of air pollution, advocates said. “Decarbonizing and electrification of the transportation sector provides outsized benefits to environmental justice communities,” according to the DEP.

In other proposals, the department plans to establish a new program to periodically inspect certain medium-duty diesel vehicles — large pickups, walk-in vans (such as those used by plumbing and heating contractors) and delivery trucks, the only classes of vehicles not currently covered by periodic inspections.

Finally, the agency is drafting a proposal to require diesel-powered equipment at ports to be converted to cleaner technologies. Eventually, the DEP may adopt another California program to transition this equipment to full electric.

Climate change measures top California environmentalists’ 2021 state priorities

Date:-30-Dec-2020, Source: mercurynews.com



A top state legislative issue for environmentalists in 2021 is hastening the transition to electric cars, trucks and buses.

Cleaner electricity and cleaner vehicles top a list that also includes plastic reduction and recycling.

California is helping lead the charge in reducing greenhouse gas emissions, but more needs to be done as climate change remains the state’s top environmental issue in 2021 issue, according to top environmental lobbyists in

Sacramento.

Other issues on their agenda include plastic pollution, recycling, wildlife protections, and greater repair and reuse of appliances and electronic products before they are discarded.

But the wish lists from the Sierra Club, Environment California and the public-interest advocacy group CALPIRG are overwhelmingly loaded with climate-change initiatives. The state's record-doubling wildfire season — 4.4 million acres burned this year — is an immediate indicator of consequences of the global warming, and things are likely to get worse before they get better, they say.

"We are already facing the impact of a warming planet, and if we want to give our kids and grandkids a shot at a better life, we have to bear the brunt to make the changes that science says we need to make," said Dan Jacobson, state director for Environment California.

Beside cutting down on greenhouse gases, reducing carbon emissions also has a positive effect on air quality. While California ranked fourth nationwide in environment-friendly "climate-change contributions," it also had the nation's worst air-quality, according to a widely cited 2019 analysis by WalletHub. Overall, California was the seventh most environment-friendly state in the U.S.

Here are the top climate-change issues the Sierra Club, Environment California and CALPIRG would like to see get more attention from state lawmakers in the coming year:

100% clean electricity. The current state goal is to reach 100% clean, renewable energy by 2045, but activists are calling on the Legislature to be even more aggressive by moving up the date to 2030. To achieve that, they want the state to increase solar and geothermal energy production, and push harder for development of hydrogen electricity and of floating windmills in the waters off northern and central California.

Emily Rusch, executive director of CALPIRG, also wants to see solar-panel permitting streamlined for homes and businesses, and an end to new buildings that use natural gas for heating. One such bill, AB 33, introduced this month by Assemblyman Phil Ting, D-San Francisco, would ban natural-gas connections in new public buildings constructed in 2022 or later.

Electric vehicles. "The governor's recent executive order prohibiting the sale of new gas-powered cars after 2035 will require work in 2021 to lay the groundwork to get there," Rusch said. Continued incentives for the sale of electric vehicles is needed, as are more charging stations, Rusch said.

Additionally, Jacobson would like to see the goal for 100% clean public transit moved up to 2030 from 2040.

Fracking. The underground practice of extracting fossil fuel is being performed as far south as Los Angeles County, and offshore from Santa Barbara to Seal Beach. It can release large amounts of methane, a potent greenhouse gas, and can also contribute to air, soil and water pollution.

Sierra Club California Director Kathryn Phillips, who wants the practice banned, said “fracking continues to be permitted at a rapid pace.” While Gov. Gavin Newsom signed an executive order this year calling for an end to new fracking by 2024, his administration has continued to approve new permits.

Climate resilience bond. This \$5.5 billion bond proposal failed to reach Newsom’s desk last session but has been reintroduced this month as SB 45. It would address a host of issues expected to worsen as a result of climate change, including \$2.2 billion for wildfire prevention, \$1.5 billion for drinking water supplies and, \$1 billion for protecting the state’s coastal lands, oceans, bays and wetlands.

If approved, the measure would go before voters in 2022.

New Year's Fireworks Could Degrade Southern California Air

Date:-31-Dec-2020, Source: usnews.com

Southern California air quality authorities have issued an advisory for likely pollution from New Year’s Eve fireworks.

LOS ANGELES (AP) — AN advisory for likely pollution from New Year’s Eve fireworks went into effect Thursday in a large portion of Southern California.

The South Coast Air Quality Management District said the advisory for high levels of particulate matter and metal air pollutants would be in effect through Friday morning.

The air quality index could reach the category of unhealthy for sensitive groups, or even higher, the district said.

Widespread personal use of fireworks has become a problem in the region, even though it is largely banned. Fireworks emissions and a stagnant weather pattern combined to create terrible air quality last Fourth of July.

People in direct proximity to personal fireworks may be exposed to fine particulate matter concentrations far in excess of the regional measurements, according to the district, which encompasses major portions of Los Angeles, San Bernardino and Riverside counties as well as all of Orange County.

Fireworks also raise the potential for wildfires. The National Weather Service predicted Santa Ana winds from late Thursday into Friday.



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