

Making Air Pollution an Issue of Governance

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ABSTRACT The first week of November 2019 saw the worst smog and pollution levels in Delhi in three years; flights were turned away and schools were kept closed. These recorded levels of pollution, however, fit a pattern and are not totally unexpected. While the Delhi government showed some signs of being forewarned—announcing the rationing of vehicles on the road according to the odd and even scheme, and promising to distribute over five million masks—there was very little done across the entire region by the governments concerned. Even the Delhi government began to distribute the promised masks only on the 1st of November, a week after the surge of pollution levels. This brief makes the case for making air pollution a political issue in India.

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INTRODUCTION

The traditional *Bijli-Sadak-Paani* (electricity-roads-water) campaign issues have expanded in recent elections to include national security, sanitation, and the armed forces. The issue of air quality has yet to be regarded with the same sense of urgency. This, despite it being fairly known that India is the country with the highest levels of air pollution in the world: over 99 percent of the population is exposed to polluted air whose concentration levels of PM 2.5^a exceed the guidelines of 10 micrograms/cubic meter set by the World Health Organization (WHO).¹

This brief draws on varied sources to understand why air pollution has not entered public discourse in India, especially in the capital, as a voting matter despite the excellent science informing the issue. It explores whether there is scope for such paradigm to change.

Ahead of the 2019 elections, the non-governmental Association of Democratic Reforms (ADR) conducted a survey, *All India Survey on Governance and Voting Behaviour, 2018*, to find out what the public considers as their ‘Top 10 Governance Issues’. Over 273,000 people in 534 constituencies in 32 states and union territories were covered by the survey.² *Paani* and *sadak* issues (water and roads) were in the Top 5 at third and fourth spot, and *bijli* (electricity for domestic use) was at 12th. Air

pollution was a low 17th, with just 11.95 percent of respondents mentioning the issue when asked which ones they regard as most important for government to address. It is noteworthy that the survey was held in the months before the Pulwama terror attack,^b which analysts refer to as a turning point in the 2019 election campaign; ‘Stronger Defence/Military’ and ‘Terrorism’ were 28th and 29th in the respondents’ priority issues, respectively.

Indeed, both the Bharatiya Janata Party (BJP) and the Indian National Congress included promises of improving air quality in their respective manifestos.^c The BJP promised to reduce the level of pollution in 102 cities that have not attained clean-air standards by at least 35 percent over five years.

AIR POLLUTION ≠ VOTES?

Why air quality remains outside of the ambit of electoral issues is a puzzle for some politicians themselves. Congress Member of Parliament, Shashi Tharoor, for example, raised the dilemma during a public discussion in Delhi in September 2019.^d “In India all of us who study it or participate in it, would be hard-pressed to think of one electoral race at any level—and I mean any level, panchayat, municipality, legislative assembly, let alone Parliament—in which air quality has figured as a politically salient issue and one that was determinant in

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- a PM 2.5 the lethal, ultra-fine particulate matter which beats the human body’s defences and settles deep in the lungs from where it can move to other organs and cause cancers, respiratory problems, strokes and other illnesses.
- b 14.02.2019: Forty personnel of India’s Central Reserve Police Force travelling in a bus in Pulwama district, Jammu and Kashmir, were killed by a suicide bomber driving a bomb-laden vehicle.
- c The BJP putting it on page 26 of 45 pages, and the Congress page 51 of 54.
- d Third Roundtable Consultation on the theme Energy transition, subsidies, and air quality management organized by The Energy and Resources Institute (TERI) and Air Quality Asia (AQA).

terms of people’s votes.” Former BJD MP, Kalikesh Singh Deo also wrote, “The challenge with air pollution is that although everyone is hurt by it, it is regarded as nobody’s fault, making it rarely an important factor motivating voters. Unsurprisingly, cleaning the air has never been a political promise in India.”³

The ADR survey appears to support this observation. That survey found that water and air pollution figured nowhere in the top 25 priorities of rural voters. Meanwhile, the issue was the 6th priority for urban voters, with a little over 34 percent of all respondents mentioning it. Across both urban and rural respondents, the issue of pollution ranked 17th.

Awareness data across states shows that whatever degree of concern for the issue of air pollution exists, has largely been concentrated in the urban areas. In cities like Delhi and Chandigarh, water and air pollution is amongst the top three priorities; not in states like Haryana and Uttar Pradesh. Outside the Indo-Gangetic Plain (IGP), Telangana was the rare state where water and air pollution made it to the top three, but only in urban areas. (See Table 1)

The ADR’s 2018 Survey may not fully explain the election results given how much the political landscape has changed after the survey. However, the data is still indicative as far as constituency-level priorities are concerned.

Only 42 of the 534 constituencies (less than eight percent) surveyed list water and air pollution amongst their top three priority concerns. The IGP states include Punjab, Delhi and UP, and even one constituency in West Bengal but none in Haryana and Bihar. Gurgaon in Haryana, listed as the most polluted place in the world, has not ranked ‘Water and Air Pollution’ as a top three priority.⁴ An unexpected result is Andhra Pradesh, where 15 of the 25 constituencies listed water and air pollution as a top three priority; it was a low 14 out of 80 constituencies in Uttar Pradesh.^e

Significantly, ‘Better Hospitals & Primary Healthcare’ regularly made the list of top three priorities. Policymakers can take this as a manifestation that there is potential for wider public awareness to make air pollution a public health campaign.

Table 1: Pollution largely an urban voter concern?

Among the public's top 3 priorities	A top 3 priority but only in urban parts of the state
Delhi	Punjab
Chandigarh	Haryana
	Uttar Pradesh
	West Bengal
	Telangana

e See figure 1.

INADEQUATE MEDIA ATTENTION

India's only authorised television ratings agency, Broadcast Audience Research Council (BARC), says that elections are a period of hyperactivity on news channels, and that it is an indicator that people want to catch up with events that have an impact on their lives.⁵

Given the scale of the problem it would be reasonable to expect a proportionate coverage of the crisis. Yet this is not the case, as regular consumers of news can tell. This is hardly surprising, however, from news editors' point of view, given the kind of stories fighting for limited headline space on digital sites, prime time TV and newspapers: Kashmir, mob 'lynchings', economic issues, amongst them. This, however, is exactly the gap that needs to be bridged—between a huge amount of science, data and knowledge, on one hand, and the vast number of voters who are directly affected by air pollution but who do not consider it as an election priority. Indeed, a recent report by Vital Strategies which analysed media reports on air pollution across India and Asia showed that 90 percent of Indians interviewed across highly polluted cities have heard of air pollution but lack awareness about its causes and effects.⁶

News stories on air pollution peak only when pollution peaks to severe or extreme levels, which is some 10-15x the safe levels.⁷ Yet, all throughout the year, the level of particulate matter is invariably several times the WHO's safe levels. In Delhi, 2018's annual average of PM 2.5 is 113.5 micrograms/cu m, whereas in the peak pollution season of winter, the level shoots up to 250-300+ over several days.⁸

While there are newsrooms that appear to be more inclined to giving space to this crisis, the fact is that there are many pressing demands. In much of the news-devouring world, politics is the staple, as shown by data analysis of Facebook's top stories from early 2019.⁹

HEALTH ISSUES CAUSED BY BAD AIR

In 2017, a team of medical doctors in Bengaluru began a study on the health impacts of air pollution. The study is led by a cardiologist, Dr Rahul Patil of the Jayadeva Institute of Cardiovascular Sciences and Research,¹⁰ who had begun to notice younger people in their 20s, 30s and 40s, succumbing to heart attacks. He was also seeing heart-related problems in teenagers. Two years since setting up a Premature Heart Disease Division in his institute, they have received some 2,400 cases, a little over half of them in patients under 35 years of age. In all there have been over 110 deaths among these cases. Speaking at the India Clean Air Summit 2019 in Bengaluru in August this year, Dr Patil pointed out the similarities in the blood profile of cab drivers and tech engineers because of one common factor: "Statistics show that drivers comprise nearly 24% of the heart attack cases, followed by professionals who spend almost an hour commuting in peak traffic every day."¹¹

In his speech, Dr Patil explained how air pollution is linked to medical problems commonly seen in smokers. Smokers, Dr Patil noted, have high haemoglobin levels because chronic smoking causes a decrease in oxygen, causing the body to start producing more haemoglobin. This condition is called polycythemia. This characteristic is

increasingly being seen in non-smokers amongst demographics like taxi drivers, or professionals employed in the software industry who travel more than one hour every day during peak traffic hours.

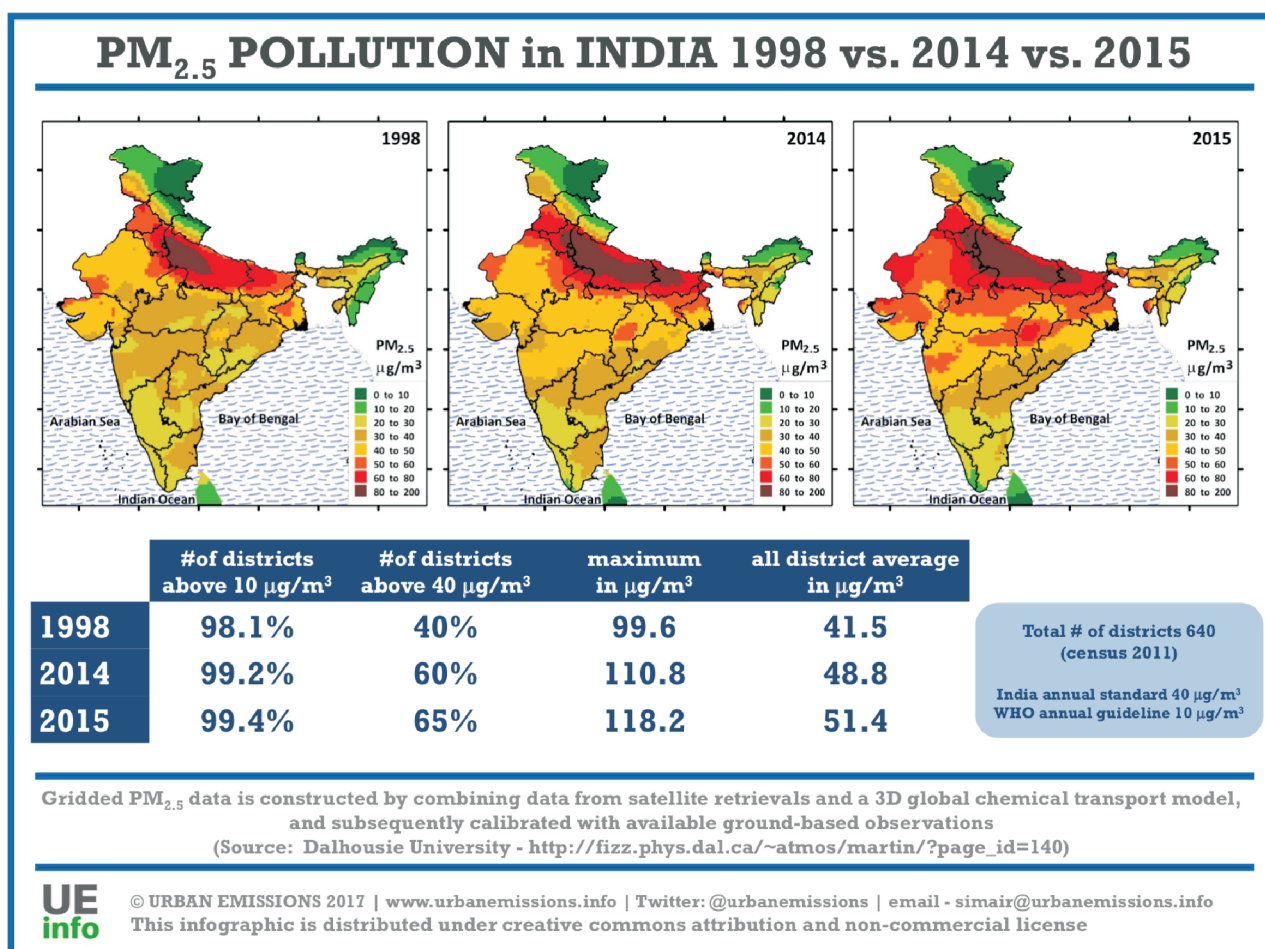
Given how the youth can be directly affected by air pollution in a devastating manner, can the issue be treated as more politically relevant? Arguably, there is a political audience for the issue of air pollution, especially considering that in the 2019 general elections, the five states which had the highest proportions of young voters were Bihar, West Bengal, Rajasthan, UP and Maharashtra—the first four of which are in the air pollution ‘red belt’ of the Indo-Gangetic Plain.¹²

THE PRIMACY OF POLITICAL EXPEDIENCE

Communications specialists recommend public awareness campaigns that focus on the impact of air pollution on children. After all, WHO identifies the young populations as “most vulnerable” and facing an “immense threat” from air pollution.¹² Experts regularly warn that children’s exposure to high levels of pollution should be very limited.

In a major first, Delhi issued a dedicated action plan to mitigate air pollution. Called the Graded Response Action Plan (GRAP), it draws attention to an environmental emergency. The most stringent course of action outlined in

Figure 1: India’s ‘red-belt’ of air pollution.



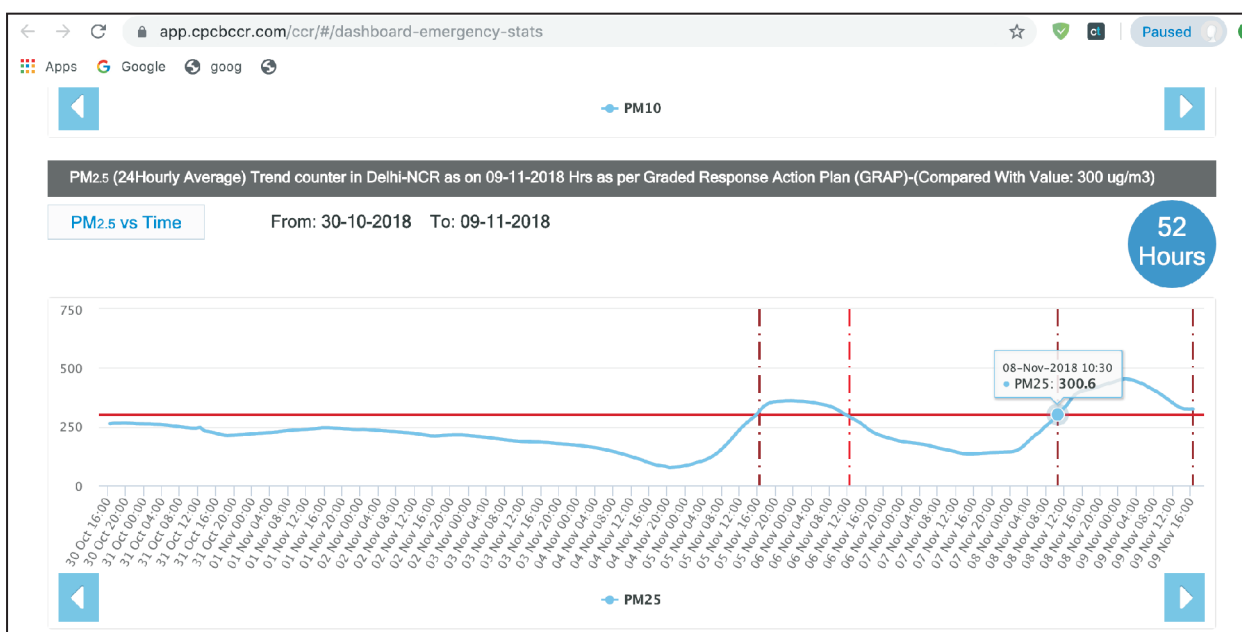
Source: Urban Emissions

GRAP is the shutting down of schools during periods of “worst category of pollution level - Severe+ or Emergency”.¹³ However, although schools have been shut in Delhi because of air pollution, it has not been because of GRAP before November 2019. A key reason, one may argue, is that it is not politically expedient to shut schools frequently because of air pollution.

Late evening on the 9th of November 2018, a Delhi official tweeted almost in relief, “So after 40 hours PM 2.5 finally falls below 300 and severe plus is averted for now.” Crossing 48 hours at levels over 300 micrograms/cu m, on average across Delhi, would have forced a task force to consider shutting schools. This, however, is problematic. Many parents will not be willing to send their children to school day-after-day when PM 2.5 concentration levels are many times above WHO’s safe level of 25 micrograms/cu m for a 24-hour average. The same official acknowledged in a tweet that this was a “defect in GRAP, not in its implementation.”

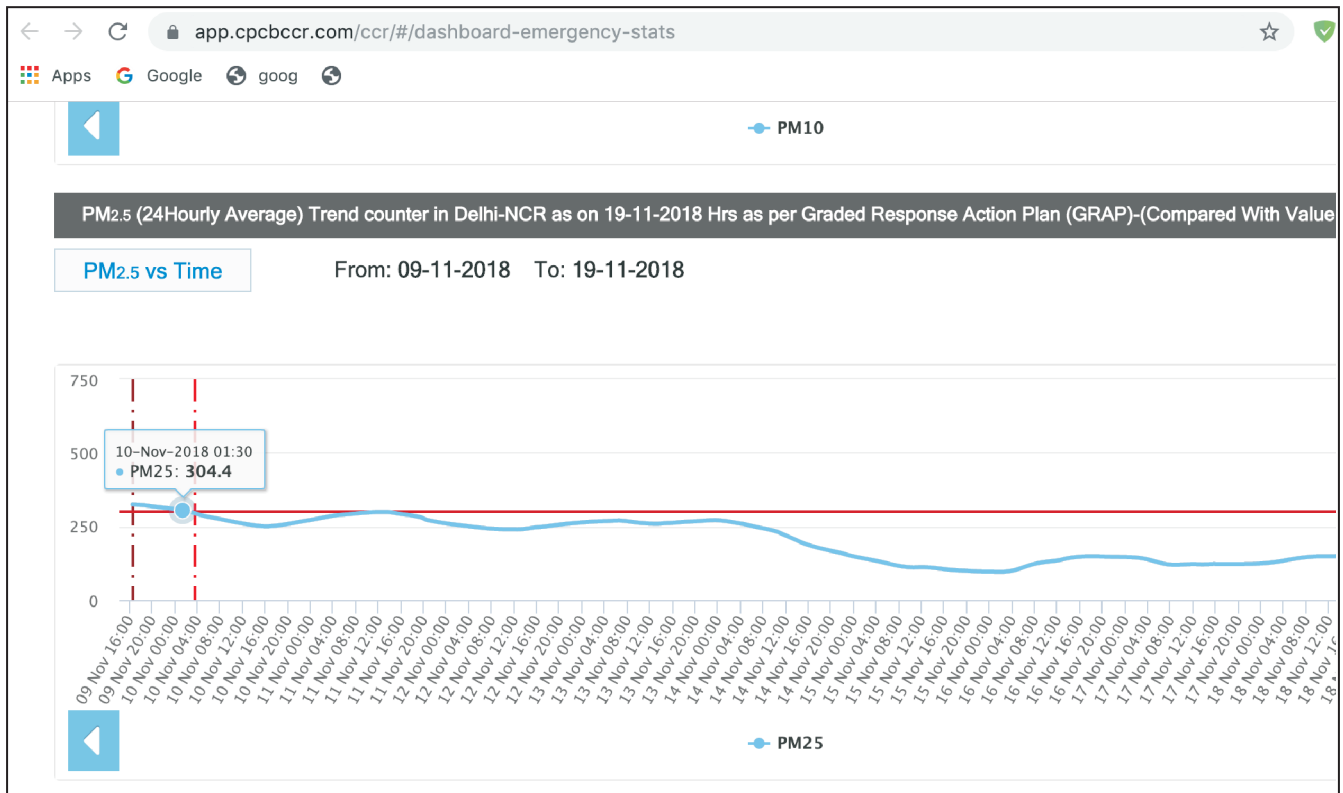
As discussed earlier, pollution does not work along bureaucratic models and schools did reopen in early November after only a few days of being closed, even though PM 2.5 pollution levels were at ‘Emergency’ levels on that day in many parts of the Capital: 480 in Ashok Vihar in the north, 314 in Mandir Marg in central, 495 in Nehru Nagar in south Delhi. In subsequent weeks too, the official CPCB air quality reports showed ‘Very Poor’ air. Wednesdays 21st and 28th November, and 5th December had an AQI of 373, 316, and 331 with the main pollutant being PM 2.5. GRAP uses both AQI and concentration, “The graded measures according to AQI are listed from public health emergency level to downward.”¹⁴ CPCB says “the worst sub-index (of individual pollutants) is the AQI for that location.”¹⁶ The levels, however, were not enough to trigger GRAP’s red-tape into shutting schools. Children kept going to school every morning, breathing in air laden with toxic particulate matter.

Figure 2.1: Is GRAP failing Delhi kids? Why schools remain open despite ‘severe’ pollution.



Source: CPCB

Figure 2.2: Is GRAP failing Delhi kids? Why schools remain open despite ‘severe’ pollution.



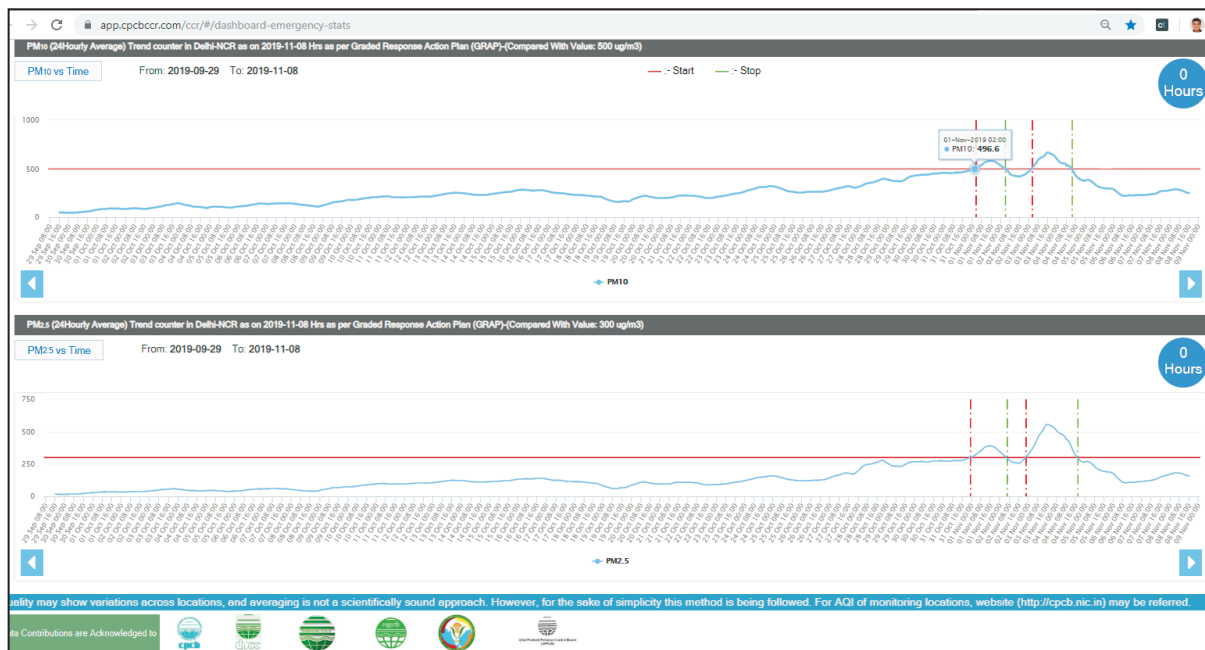
Source: CPCB

Assuming that rules were made to focus primarily on protecting the children, what should happen? Schools would be shut down at short notices, without this rigmarole of GRAP’s 48-hour red-tape. In California, for instance, during the massive fires in November 2018, schools were closed at levels of PM 2.5 at which Delhi schools would remain open.¹⁵

Closing schools in Delhi at short notice every time pollution levels cross a lower threshold could well create political pressure. It may invariably interrupt the schedules of tens of thousands of parents, grandparents, caretakers—all of whom are presumably voters. Once may be acceptable, twice will be pushing it, any more than that and perhaps, combined with greater awareness in urban areas at least, air pollution would rise as a political priority.

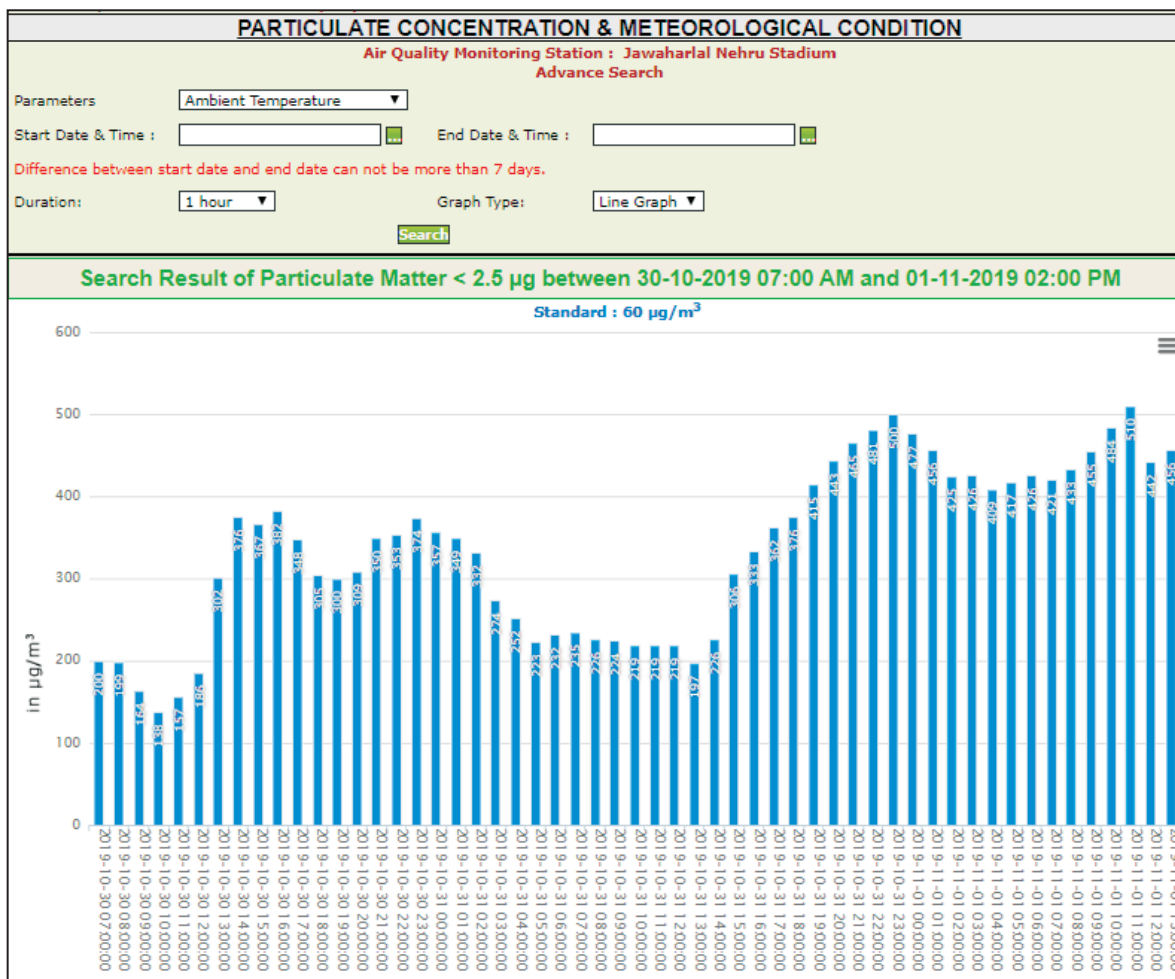
The ‘gas chamber’ air emergency episode of November 2019 saw a new precedent being set. October to mid-November saw 10 ‘severe’ air pollution days as compared to eight in all of October-November, 2019.¹⁶ On the 1st of November, Delhi Chief Minister Arvind Kejriwal announced he was shutting schools till the 5th. The Deputy Chief Minister later said this was because the Environment Pollution (Prevention and Control) Authority, or EPCA, had declared a “public health emergency... due to non-tolerable levels of air pollution making Delhi a gas chamber.” Notably, GRAP’s requirement was ignored for PM 2.5 level to remain above 300 micrograms/ cubic metre or PM 10 above 500 for more than 48 hours. On the 13th evening, EPCA once again ordered schools to be shut, this time for two days.

Figure 3: Delhi schools closed because of high pollution but without GRAP conditions being met.



Source: CPCB

Figure 4: PM 2.5 concentration levels rose sharply in several parts of Delhi between 30th Oct-4th November, 2019, in India’s Capital.



Source: <http://www.dpccairdata.com/>

These levels are an average of all of Delhi's monitoring stations. The CPCB site has a cautionary note that an average is reported "for the sake of simplicity" and that "air quality may show variations across locations and averaging is not a scientifically sound approach." And that is what happened. Several areas reported PM 2.5 levels frequently – but not continuously—higher than 300 micrograms/cubic meter in the two days before the Chief Minister's announcement. (See Figure 4) For instance, the Delhi Pollution Control Board site report for the upmarket Jawaharlal Nehru Stadium area show PM 2.5 levels regularly spiking above the 300 mark. EPCA and the state government bypassed GRAP. Now that they have set a precedent GRAP's loopholes have been exposed and it should be amended, in consultation with doctors and scientists, so that schools can now be either closed or open at later hours when pollution levels are lower (than currently demanded by GRAP) but still pose a danger to children's health.

POPULISM VS. HARD DECISIONS

Ahead of the 2019 elections, the Modi government pushed hard on one of the prime minister's initiatives, the *Ujjwala Yojana* aimed at distributing cooking gas connections for free. By extension—even as the overall issue of air quality was not a central theme— air pollution in the kitchens of up to 80 million families, was crucial. Indeed, two of the government's projects, the *Ujjwala Yojana* for

cooking gas, as well as Rural Electrification^f are key to reducing air pollution and related deaths.¹⁷ These two schemes alone could mitigate household pollution caused by burning biomass and using kerosene. Such household emissions are the largest contributor to ambient PM 2.5 exposure in India. *Ujjwala* and Rural Electrification can lead to huge benefits: It could eliminate over a quarter of a million premature deaths annually; as many as 103 districts, i.e. home to a massive population of 187 million people, would meet India's clean air standard, which is an annual level of PM 2.5 under 40 micrograms/cu m.^g Yet significant challenges remain¹⁸. There is a need to ensure sustained use of LPG and ensure reliable and consistent electricity supply.

Much of this would however not help Delhi, until neighbouring towns of Gurgaon, Ghaziabad, Noida and Faridabad, and the wider region of Punjab, Haryana and western UP and other such polluted clusters cut their own emissions of air pollutants. In this regard, the challenges are not household emissions, but crop burning, vehicular pollution, industries, diesel generators and even coal power plants.

There is enough evidence to suggest that a widespread policy can have a tremendous impact on air quality. The two schemes are not the first; other notable policy changes include the enforcement of CNG-fired public transport in the Capital,^h 'leapfrogging' to

f The Pradhan Mantri Sahaj Bijli Har Ghar Yojana – Saubhagya scheme aims to provide electricity connections to all remaining un-electrified households in rural and urban areas to achieve universal household electrification in India.

g This is an easier target than WHO's 10 micrograms/cu m

h In 1998, to improve air quality, the Supreme Court ordered all buses in Delhi to be switched to Compressed Natural Gas (CNG) fuel replacing diesel.

tighter vehicular emissions, BS or Bharat Stage 6, from April 2020.ⁱ

Perhaps the difference is that the cooking gas and rural electrification schemes are politically easier to sell. The difference is obvious: one set is a hard sell, demanding a costly change of lifestyle by people and the other is an aspirational improvement in lifestyle. True, there are hurdles, such as the inability of poor families to pay for refills of cooking gas cylinders but nothing that seems insurmountable. The challenge is of course to take decisive action on emissions from, say, coal-fired power plants and diesel engines.¹⁹

The map graphic below indicates the change in the sulphur dioxide from 2005-10 to 2015-till date. At the time of writing, the map by Dr Sagnik Dey of the Centre for Atmospheric Sciences at IIT Delhi was unpublished although he had presented it at the India Clean Air Summit in August, 2019. “Thermal power generation accounts for 80% of India’s industrial emissions of particulate matter and sulphur and nitrous oxides, which often create toxic smog and cause lung diseases.”²⁰

India’s (and China’s) coal-fired power plants are at the core of international wrangling with the developed countries. India does have strong, moral argument that it needs electricity to help pull millions of its people out of poverty. In a finance ministry paper prepared ahead of the UN’s Climate Action Summit, the government stand was spelt out, that despite accounting for 18 percent of the world’s population, India uses only around six

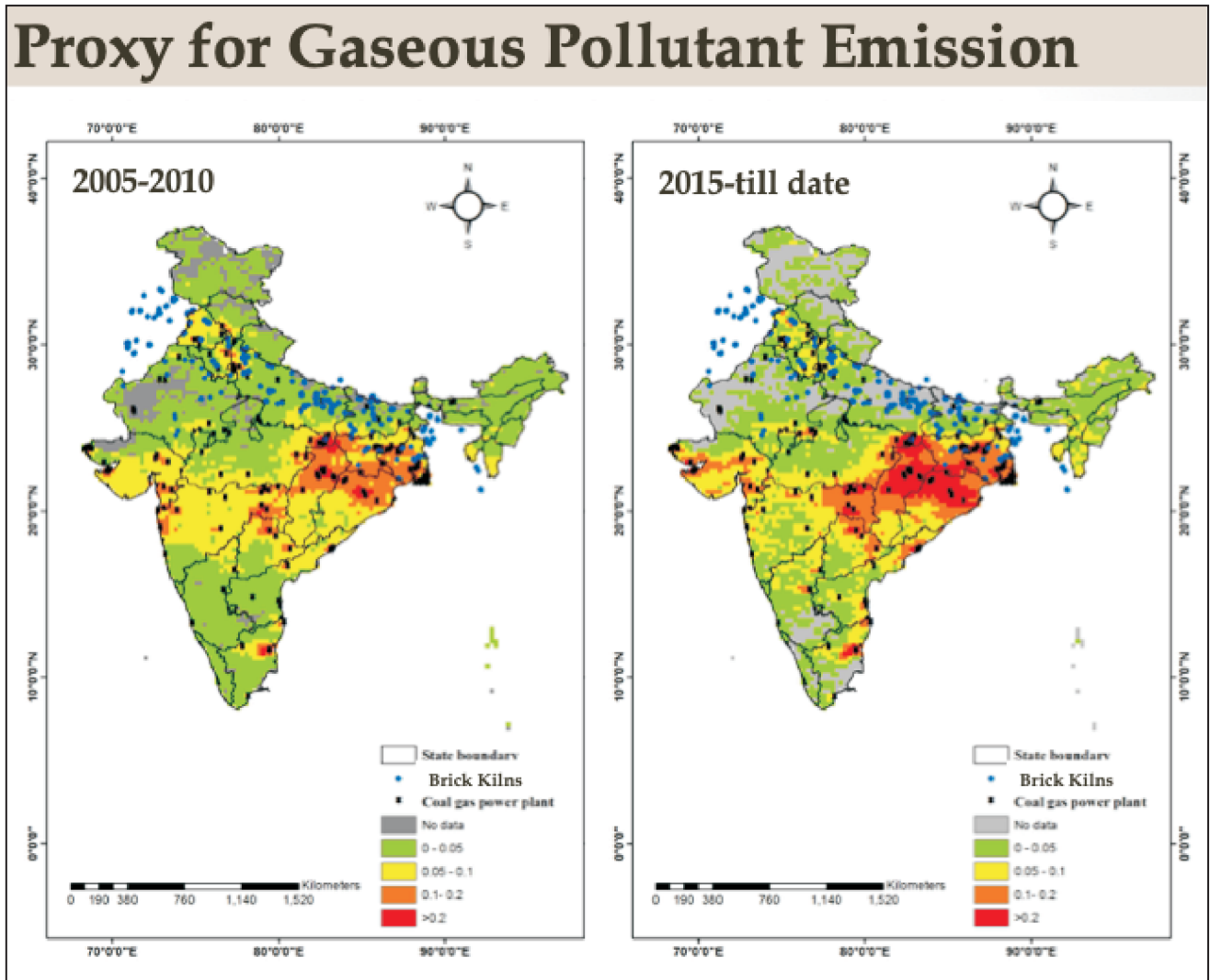
percent of the global consumption of primary energy. Officials say energy poverty has been more pervasive in India than income poverty: 53 percent of India’s population did not have access to clean cooking in 2017.²¹

Today air pollution and climate change is impacting those very millions through extreme weather events. Between August 2018 and 2019, India has been hit by a series of extreme weather events: the Kerala floods, the Chennai drought where there was almost zero rain for about 130 days including the monsoon, Cyclone Fani unusual in its timing (April, never seen in over 40 years), slow build-up and intensity, 50°C heat waves across the north, Mumbai’s high levels of rain, and then the floods in Maharashtra, Karnataka and Kerala. While these will be no doubt researched in-depth in the future, the immediate to suffer are the poor. The question is, are there other ways of seeing this map?

It is clear that the eastern region has a lot more emissions (because the plants are older) than the west even though it has about the same number of thermal power plants and yet produces far less electricity. Where the region does have an edge is more clout in Parliament: 119 seats compared to 108 in the western states. It is impossible to predict politics, and there are more pressing matters as the ADR survey measured—jobs, health, crop prices, amongst them. But there is a yawning, political gap between excellent air quality science, data, health impact studies on one hand, and a vast public largely unaware but hugely at risk, on the other.

i In 2016, the government announced tighter vehicular emission norms, Bharat Stage 6, would be enforced from April 1, 2020, skipping generation 5 emission norms.

Figure 5: Change in SO₂ emissions.



Source: Centre for Atmospheric Sciences, IIT Delhi.

Figure 6: Power politics - Plants & Parliamentary Constituencies.

Thermal power	Eastern Region including Chhattisgarh	Western Region excluding Chhattisgarh
No. of plants	34	32
GW	40.8	71.9
Lok Sabha constituencies	119	108

[States/Region determined by list in investindia.gov.in]

Source: <https://www.investindia.gov.in>

CONCLUSION

A breakthrough in air pollution politics has been made by Delhi Chief Minister Arvind Kejriwal in September by announcing his seven-step anti-smog action plan. What this does at the very least is put pollution front and centre of ahead of his re-election campaign in early 2020. Both Kejriwal's Aam Aadmi Party (AAP) and Prime Minister Narendra Modi's BJP have claimed that pollution has fallen in and around Delhi by up to 25 percent. While this has been countered by various scientists, the fight for political credit (and the concomitant mudslinging) between the two parties is a clear acknowledgement that air pollution is one of the top concerns in the Capital. Six places in Delhi's immediate neighbourhood are in the list of the top 10 places with the worst air pollution globally; Delhi is at number 11.

Kejriwal's seven-point action plan includes implementing the Odd-Even scheme from November 4th – 15th, 2019. Other steps include the distribution of up to seven million air masks during the peak pollution season which usually starts in mid- to late-October; a community Diwali laser show to nudge people away from using pollutive firecrackers to celebrate the festival; deployment of environment marshals;

'hotspot' control; dust control; and a drive to plant more trees. Apart from the odd-even and the Diwali laser show, the other measures will continue through winter.

There are many questions over Kejriwal's anti-pollution stand. Will it reduce pollution? Except for the odd-even scheme, no step actually targets emissions at source and are rather more reactive. Will the chief minister be able to sustain this focus on air pollution right through the campaign? The political attacks have already started, with the opposition calling his plan an "eyewash". Moreover, the public is weighing the chief minister's sincerity considering his claims that there has been a 25-percent reduction in Delhi's air pollution despite experts correcting him. All that may be so but it is perhaps the first time a top leader in office has put the spotlight on the air quality emergency. That alone makes it an encouraging development.

Much of the messaging on air pollution has been driven by clean air evangelism, especially by parents and doctors, based on science and data that is hard to refute. Perhaps Delhi politicians are sensing that the crisis has achieved critical mass. But what is being called the "airpocalypse"—and its impact—extends far beyond the Capital. [ORF](#)

ABOUT THE AUTHOR

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16. @CEEWIndia tweet, Nov 13, 2019

Months	No of severe days in Delhi*	
	2018	2019 (01 Jan – 12 Nov)
Jan	5	11
Feb	0	1
Jun	1	0
Oct	1	4
Nov	7	6
Dec	13	??

Source: CEEW compilation; Central Pollution Control Board (CPCB) data
 *Severe days are calculated as per 24hr average of PM_{2.5} concentration (µg/m³)



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