

साफ़ हवा पर मासिक

ON AIR

AUGUST 2026



GATHERING
DUST P10

चिनाब की वадियों
में प्रदूषण घोलते
स्टोन क्रशर P14

WILD IMPACT

Air pollution is disrupting ecosystems,
yet its true toll on wildlife remains poorly understood

CONTENTS

AUGUST 2026

ON AIR

VOLUME I, ISSUE 6, TOTAL PAGES: 18

A BILINGUAL
WEBZINE ON
CLEAN AIR BY



FOUNDER EDITOR
NIDHI JAMWAL

FOUNDER, ON AIR & WEB PUBLISHER
BHARATI CHATURVEDI

CHIEF COPY EDITOR
PANKAJA SRINIVASAN

DESIGN
EMKAY

Email: onair@chintan-india.org
Visit www.chintan-india.org

COVER IMAGE: OPEN AI

COVER STORY



4 | CHOKING THE WILD KINGDOM

- 8 | **AIR PULSE • ताज़ा ख़बर**
- दिल्ली सरकार का सर्दियों के प्रदूषण पर वार
 - Punjab Villages Oppose Cement Plant

- 13 | **DOCTOR'S DESK • सेहत संवाद**
- 'Almost 75-80% of my patients are from rural backgrounds'

- 16 | **SCI-TECH • विज्ञान वार्ता**
- Delhi's EVs Need Battery Circularity
 - ज़हरीली ओज़ोन और गर्म लू पर नई रिपोर्ट

- 18 | **CROSSWORD** by Dr Sarath Guttikunda
- A quick puzzle on air

© 2026 CHINTAN ENVIRONMENTAL RESEARCH AND ACTION GROUP. ALL RIGHTS RESERVED THROUGHOUT THE WORLD. REPRODUCTION IN ANY MANNER IS PROHIBITED WITHOUT WRITTEN PERMISSION FROM THE EDITOR

HAWA TIGHT



IT'S NOT JUST HUMANS WHO ARE GASPING FOR AIR!

GEMINI/NANO BANANA



खामोश होती चहचहाहट

भारती चतुर्वेदी

संस्थापक एवं वेब प्रकाशक, ऑन एयर
संस्थापक एवं निदेशक, चिंतन

एक समय था जब कोयला खदानों में उतरने वाले मज़दूर अपने साथ पिंजरे में एक कैदरी पक्षी ले जाया करते थे। यह छोटा-सा पक्षी जहरीली गैसों की मौजूदगी इंसानों से पहले भाँप लेता था। जैसे ही वह गाना बंद कर देता या बेहोश होने लगता, मज़दूर समझ जाते कि वहाँ एक पल और ठहरना जानलेवा हो सकता है। धीरे-धीरे कैदरी आसन्न खतरे की विश्वसनीय चेतावनी का प्रतीक बन गया।

आज भी पक्षी हमें चेतावनी दे रहे हैं। फर्क बस इतना है कि अब हमने उनकी आवाज़ सुनना लगभग बंद कर दिया है।

वायु प्रदूषण की चर्चा होते ही हमारा ध्यान सबसे पहले इंसानी स्वास्थ्य पर जाता है। हम अस्थमा, फेफड़ों और हृदय संबंधी बीमारियों, बच्चों और बुजुर्गों पर इसके दुष्प्रभावों की बात करते हैं। यह चिंता पूरी तरह जायज़ है। लेकिन जिस हवा को हम प्रदूषित कर रहे हैं, उसी में पक्षी, जंगली जानवर और असंख्य अन्य जीव भी साँस लेते हैं। यदि वे इस जहरीली हवा में संघर्ष कर रहे हैं, तो यह केवल उनका संकट नहीं, बल्कि उन पारिस्थितिक तंत्रों के असंतुलित होने का संकेत है, जिन पर जीवन निर्भर करता है।

ऑन एयर के इस अंक की आवरण कथा वायु प्रदूषण के एक ऐसे पहलू पर केंद्रित है, जिस पर अपेक्षाकृत कम ध्यान दिया गया है—वन्यजीवों पर इसका प्रभाव। भारत में इस विषय पर दीर्घकालिक शोध अभी सीमित हैं, लेकिन उपलब्ध प्रमाण चिंता बढ़ाने वाले हैं। पक्षियों की श्वसन प्रणाली दक्ष होती है, इसलिए वे हवा में मौजूद प्रदूषकों को स्तनधारियों की तुलना में अधिक मात्रा में अपने शरीर में ग्रहण कर लेते हैं। यही प्रदूषक खाद्य श्रृंखला में प्रवेश कर पूरे पारिस्थितिक तंत्र को प्रभावित करते हैं।

हाल के भारतीय अध्ययन भी इसी दिशा में संकेत करते हैं। मुरादाबाद में वर्ष 2023-24 के अध्ययन में पाया गया कि जैसे-जैसे वायु प्रदूषण बढ़ा, स्थानीय पक्षियों की संख्या और विविधता घटती गई। प्रयागराज के तीन शहरी उद्यानों में छह महीने तक चले अध्ययन में देखा गया कि जहाँ PM2.5 का स्तर 150 माइक्रोग्राम प्रति घन मीटर से अधिक और शोर लगभग 65 डेसीबल था, वहाँ पक्षियों और छोटे स्तनधारियों की प्रजातीय विविधता में उल्लेखनीय गिरावट दर्ज की गई। इसी तरह, चौधरी चरण सिंह हरियाणा कृषि विश्वविद्यालय के शोधकर्ताओं ने 2019 से 2022 के बीच 50 स्थानों पर 115 पक्षी प्रजातियों का अध्ययन किया और पाया कि वायु गुणवत्ता बिगड़ने के साथ उनकी संख्या और विविधता में कमी आई। वाइल्डलाइफ एसओएस के वसीम अकरम के अनुसार, दिल्ली में गंभीर वायु प्रदूषण के दौरान पशु चिकित्सकों के पास पक्षियों में श्वसन संबंधी बीमारियों, आँखों में जलन और साँस लेने में कठिनाई के मामले बढ़ जाते हैं।

ये अध्ययन एक साझा चेतावनी हैं।

जैव विविधता कोई विलासिता नहीं, बल्कि जीवन को सहारा देने वाली बुनियादी व्यवस्था है। पक्षी बीजों का प्रसार करते हैं, कीटों की आबादी नियंत्रित रखते हैं और पारिस्थितिक तंत्र का संतुलन बनाए रखने में भूमिका निभाते हैं। जब वायु प्रदूषण उन्हें कमजोर करता है, तो वह हमारी खाद्य, जल सुरक्षा, जलवायु परिवर्तन के प्रति अनुकूलन क्षमता और प्रकृति की मजबूती को भी कमजोर करता है, जिस पर हमारा भविष्य टिका है। जैव विविधता का क्षरण हमारी सामूहिक सहनशीलता और चुनौतियों से निपटने की क्षमता का भी क्षरण है।

वायु प्रदूषण केवल इंसानों की समस्या नहीं है; यह हर उस जीव का संकट है जो इस पृथ्वी की हवा में साँस लेता है। यदि हम चाहते हैं कि हमारी सुबहें वाहनों के शोर से नहीं, बल्कि पक्षियों की चहचहाहट से शुरू हों, तो हमें यह सुनिश्चित करना होगा कि हमारी साँसों की यह साझा हवा पृथ्वी के हर जीव के लिए स्वच्छ, सुरक्षित और जीवनदायी बनी रहे। **OA**

X: @Bharati09



WILD AND WORRISOME

NIDHI JAMWAL
FOUNDER EDITOR

THE SPARROWS LIVING with us on the balcony of our tenth floor home in Mumbai, a city of concrete and noise, are a precious miracle to us. We know they are disappearing from so many Indian cities. So, waking up to their chirps every morning is a joy.

But, I worry how much longer we will do that. More than 20 years ago, when I moved to Mumbai, its air was clean (at least much cleaner than Delhi where I lived) and the sky was often blue. Not any more.

There have been days at a stretch when Mumbai's AQI (despite the sea breeze) has been worse than Delhi NCR. Dust engulfs the metropolis. As the aircraft approaches the city to land, the heads of skyscrapers jutting out of thick clouds of grey feel apocalyptic.

Back home, we have the option of shutting windows and doors, putting on face masks and using air purifiers, but what about the sparrows in our balcony? They also deal with artificial light at night (ALAN) and the unceasing noise of the vehicles in a city that never sleeps. Maybe it is not too long now that the sparrows will flee my balcony, never to return.

But the threat of toxic air is not limited to sparrows in urban spaces alone. Air pollution is altering habitats and disrupting ecosystems. We know far too little about its impact on wildlife. Linkages have been established between respiratory and cardiovascular diseases and exposure to ambient air pollutants in humans. But not much is known or heard of what impact that pollution is having on the flora and fauna. Wildlife biologists worry that there is negligible long-term research or field-based data on that in India.

There is very limited understanding of how air pollution affects the health, behaviour, reproduction, and survival of wildlife, and therefore establishing a direct link between air pollution and wildlife mortality or morbidity remains challenging. But, what is undeniable is that air pollution represents a significant threat to biodiversity.

In this issue of *ON AIR*, we dig deeper into this subject and based on the available (limited) research, we have presented how pollutants in the air are affecting wildlife, and why it is time to start worrying about it. We need long-term monitoring and evidence-based research to help build a clearer picture of these relationships and inform future conservation strategies. **OA**

X: @JamwalNidhi

CHOKING THE WILD KINGDOM

Air pollution is altering habitats and disrupting ecosystems, yet we know far too little about its impact on wildlife

NIDHI JAMWAL

IN THE EARLY 20th-century, coal mine workers carried a caged canary when they descended into the bowels of earth. They knew when the bird stopped singing and showed signs of collapse, it was time for them to exit the mine as the levels of lethal gases such as carbon monoxide were getting dangerously high. Canary in the coal mine became a universal metaphor for warning against imminent danger.

Millions of wild birds and animals still perform the same role, but nobody is paying attention. The quiet toll that air pollution is taking on wildlife remains understudied and unaddressed.

Whereas research has established linkages between respiratory and cardiovascular diseases in humans and exposure to ambient air pollutants, including ground-level ozone (O₃), particulate matter (PM_{2.5}), nitrogen dioxide (NO₂), sulphur dioxide (SO₂), carbon monoxide (CO), and heavy metals (e.g. lead, mercury), there is very little long-term research or field-based data on how poor air quality impacts wildlife species in India.

Available (limited) research reveals that contaminated air threatens wild animals and birds in two fundamental ways: by degrading their immediate habitats, and by poisoning their food supply.

Air pollutants compromise the respiratory systems of wild species. Because birds possess a highly efficient respiratory system designed to sustain flight, they absorb a disproportionately higher volume of toxins that directly harm their lungs.

Bioaccumulation is another threat. Airborne toxins, persistent organic pollutants (POPs), and heavy metals like mercury invade ecosystems and enter the food chain at the lowest levels. As predators consume prey, these poisons accumulate in increasingly lethal concentrations and could lead to disruption of





SANJEEV KUMAR MAURYA/PEXELS

Improving air quality and reducing light pollution would most benefit the East Asia-Australia Flyway. We need to understand how pollution affects migratory birds during migration and stopovers

FRANK LA SORTE, LEAD AUTHOR AT THE CORNELL LAB

endocrine systems, organ failure and plummeting reproductive success. But there isn't enough scientific evidence on the same.

"There have been negligible studies on the impacts of air pollution on wildlife in India. Consequently, establishing a direct link between air pollution and wildlife mortality or morbidity remains challenging. But, air pollution represents a hidden yet significant threat to biodiversity," said Samir Sinha, Director & Chief Ecologist at Wildlife Trust of India, a wildlife conservation action institution.

According to him, most research on pollution is primarily driven by concerns related to human health. "Studies on wildlife and other animals are often used as indicators of the risks that humans may face from environmental contaminants. For example, detecting high concentrations of synthetic pesticides in fish or other components of the aquatic food chain can alert us to potential risks to human health and lead to restrictions on the consumption or use of such organisms. Air pollution, however, presents a different challenge," Sinha told *ON AIR*.

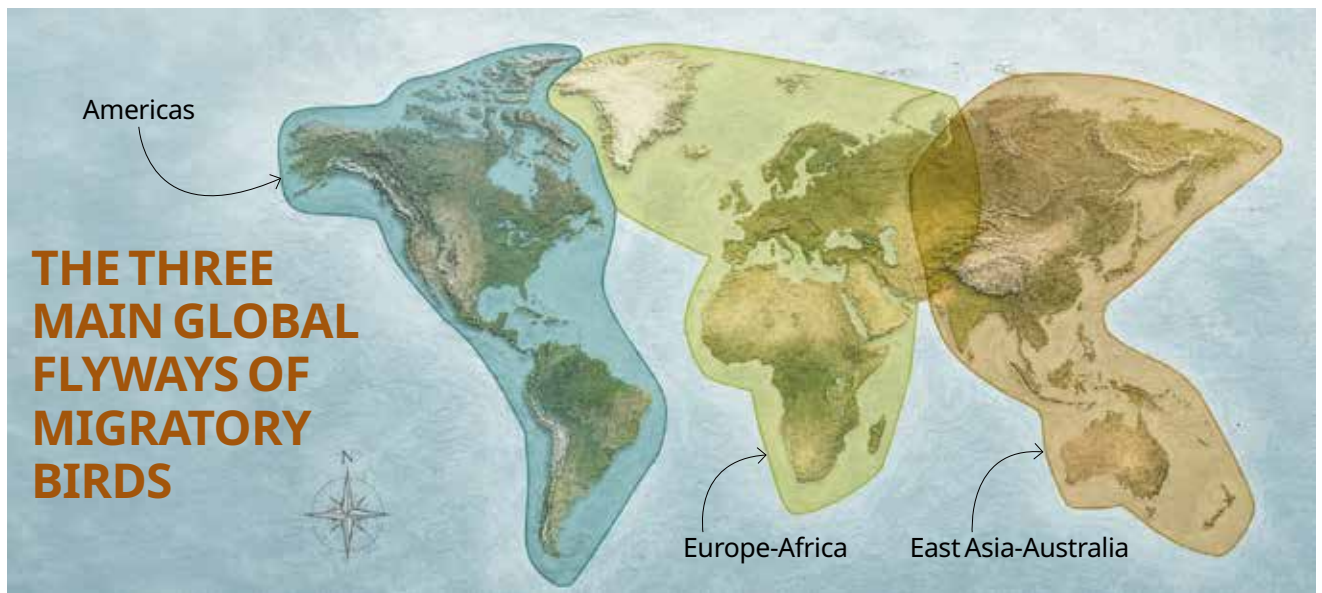
Geeta Seshamani, Co-Founder of Wildlife SOS, a conservation non-profit organisation, agreed with Sinha. "One of the biggest challenges is that wildlife populations are influenced by multiple overlapping factors, including habitat loss, climate change, urbanisation,

noise pollution, food availability and human disturbance. Isolating the specific effects of air pollution can therefore be difficult and requires long-term monitoring and evidence-based research," said Seshamani.

Flight To Extinction

A pivotal study, titled *Air pollution impacts on avian species via inhalation exposure and associated outcomes*, by researchers from the University of Wisconsin–Madison, USA, explains how birds are uniquely and severely vulnerable to poor air quality due to their specialised respiratory tract. Unlike mammals, birds possess a highly efficient, unidirectional airflow system with non-expanding lungs and multiple air sacs, which allows them to absorb oxygen—and consequently, airborne contaminants—at a significantly higher rate.

Researchers found "consistent evidence for adverse health impacts on birds attributable to exposure to gas-phase and particulate air pollutants, including CO, O₃, SO₂, smoke, and heavy metals, as well as mixtures of urban and industrial emissions". Bad air quality was directly connected to "respiratory distress and illness, increased detoxification effort, elevated stress levels, immunosuppression, behavioural changes, and impaired reproductive success" in the avian population.



SOURCE: CORNELL UNIVERSITY STUDY

More recently, scientists at Cornell Lab of Ornithology, Cornell University, USA, studied how two environmental hazards—artificial light at night, and ambient fine particulate matter (PM_{2.5})—were harming the 225 species of nocturnally migrating birds in three migration flyways located in the Americas, Africa-Europe, and East Asia-Australia (see map).

Their research, which was published in *Global Ecology and Biogeography* in May 2022, showed that light and air pollution were positively correlated across seasons and flyways. The East Asia-Australia flyway had the strongest positive correlations and the highest light and air pollution levels, which makes it the most difficult route for birds to navigate safely. Air pollution can affect breathing and hamper the ability of birds to fly to their breeding or wintering grounds, warned the scientists.

“Improving air quality and reducing light pollution levels would generate the greatest benefits within the East Asia-Australia Flyway. We need to explore how different forms and sources of environmental pollution act in combination to affect migratory birds, especially during migratory flight and stopover,” said lead author Frank La Sorte at the Cornell Lab.

Local Evidence

In the past few years, researchers in India have investigated the impact of poor air quality on birds. These may not be exhaustive studies but point towards a brewing problem. Published in March 2025, a research paper titled *Study On AQI In Relation To Biodiversity Of Birds Of Moradabad City Of Western Uttar Pradesh, India* analysed the correlation between the local Air Quality Index (AQI) and regional avian biodiversity in Moradabad, a major industrial

hub in western Uttar Pradesh (UP).

By gathering monthly AQI data from the Central Pollution Control Board alongside field observations, the study mapped how shifts in atmospheric pollution over a year (2023-24) affected bird populations. The findings suggest that as major atmospheric pollutants surged, the diversity and richness of local bird species declined.

Another research study, titled *Impact of Noise and Air Pollution on Wildlife in Urban Parks of Prayagraj*, published in February 2025, conducted a six-month field assessment across three primary urban parks in Prayagraj, UP, to document the impact of noise and air pollution on local bird species.

Researchers found that in parks experiencing high noise thresholds (averaging 65 dB) and severe air pollution (where PM_{2.5} regularly exceeded 150 µg/m³), there was a sharp decline in species diversity, particularly among birds and small mammals.

Field-based evidence has also emerged from Haryana where researchers from Chaudhary Charan Singh

Haryana Agricultural University conducted weekly line-transect surveys across 50 sites in the Fatehabad and Hisar districts from June 2019 to May 2022 to evaluate how shifting air quality affects bird species.

The investigators documented 115 bird species across 18 orders, and established a distinct negative correlation between the AQI and avian diversity indices; as atmospheric pollution spiked, the richness and abundance of bird species sharply declined.

“Our rescue data shows that extreme heat in urban areas places significant stress on urban wildlife, particularly birds. When extreme heat is combined with polluted air, the concern is that animals may face multiple stressors simultaneously,” said Wasim Akram, Director-Sustainability & Special Projects of Wildlife SOS.

Researchers found that parks with high noise (65 dB) and severe air pollution (PM_{2.5} regularly above 150 µg/m³) had a sharp decline in species diversity, especially birds and small mammals



MONKEYS FIGHT MORE IN POLLUTED AIR

A JOINT STUDY by researchers at China Jil-
iang University and Nanjing University, pub-
lished in *Scientific Reports* in January 2021,
examined a captive population of rhesus ma-
caques (*Macaca mulatta*) at the Hongshan
Forest Zoo in Nanjing, China. Monitoring
the troop daily from March 2017 to Febru-
ary 2018, the investigators cross-referenced
detailed behavioural observations of social
conflicts with local AQI data. The key findings
were striking: rhesus monkeys exhibit sig-
nificantly more frequent aggressive encoun-
ters—including biting, chasing, and wres-
tling—on heavily polluted days. The research
provides the first empirical evidence that
ambient air pollution acts as a potent envi-
ronmental stressor, directly fuelling physical
hostility and social friction within monkeys.

“Veterinarians in Delhi have reported increasing cases of respiratory illness, eye irritation and respiratory distress in birds during periods of severe air pollution. This underscores the need for more interdisciplinary research to better understand how these environmental stressors interact,” he added.

Wild Animals Suffer Too

Emerging research is linking rising air pollution to wild animals too (*see box: Monkeys fight more in polluted air*). Researchers at the Department of Zool-
ogy, Jai Narain Vyas University, Jodhpur, studied the impact of AQI on wildlife in and around Jodhpur city

in the Thar desert of western Rajasthan. The study spanned 28 months, from February 2021 to May 2023.

It noted a sharp reduction in the presence of ani-
mals such as the Hanuman langur (*Semnopithecus
entellus*), Indian flying fox (*Pteropus giganteus*), spot-
ted eagle (*Clanga clanga*), the house sparrow (*Passer
domesticus*), nilgai (*Boselaphus tragocamelus*), and
Indian peafowl (*Pavo cristatus*), once common in
Jodhpur’s urban areas.

Field investigation by Mahatma Gandhi Institute of
Applied Sciences at JECRC University, Jaipur, has eval-
uated how proximity to heavy municipal traffic and
industrial emissions shapes the internal toxicological
profiles of confined wildlife in Kota zoo in Rajasthan.

Using a non-invasive methodology, the research-
er analysed animal faces as a biological indicator to
track heavy metal exposure. Its findings, published as
*Exposure of Captive Wild Mammals in Kota Zoo India
to Urban Air Pollution*, revealed alarming concentra-
tions of toxic metals, such as lead, cadmium, copper,
chromium, and zinc, accumulated in the animals.

However, Sinha offers a word of caution. “While
the zoo study reported the presence of heavy metals
in the food supplied to captive zoo animals and in soil
samples collected from their enclosures, it did not pro-
vide information on the concentrations of these heavy
metals in the ambient air. Such data would have been
useful for establishing statistical correlations between
exposure pathways and contaminant levels,” he said.

Wildlife biologists point out that the physiological
effects of air pollution on any biological system de-
pend on several factors, including the nature and du-
ration of exposure (acute or chronic), the concentra-
tion of pollutants, and their synergistic interactions.

“In wildlife, particularly under in-situ conditions,
most of this information is unknown. We often do
not know how long an animal has been exposed to
air pollutants or the levels to which it has been ex-
posed... Even globally, most studies on the effects of
air pollution on animals have been conducted under
ex-situ or controlled experimental conditions. Find-
ings from such studies may not accurately reflect the
responses of free-ranging wildlife in natural ecosys-
tems,” Sinha pointed out.

At present, wildlife conservation efforts are
largely focused on direct and visible threats such as
hunting, habitat degradation, and human-wildlife
conflict, etc. Wildlife health surveillance and popula-
tion-level effects of wildlife health is on low-priority.
There is very limited understanding of how air pollu-
tion affects the health, behaviour, reproduction, and
survival of wildlife under natural conditions.

“Greater collaboration between conservation or-
ganisations, academic institutions and government
agencies would help build a clearer picture of these
relationships and inform future conservation strate-
gies,” said Seshamani. “Such research is particularly
important in rapidly urbanising countries like India,
where wildlife increasingly shares space with dense
human populations and is exposed to the same envi-
ronmental pressures.” **OA**

दिल्ली सरकार का सर्दियों के प्रदूषण पर वार



लैकत घोष/पेक्सेल्स

हर साल सर्दी के मौसम में राष्ट्रीय राजधानी दिल्ली सुर्खियों में रहती है और उसका कारण होता है शहर की हवा में घुला ज़हर और उससे होने वाली अनगिनत बीमारियाँ। इस समस्या से निपटने के लिए मुख्यमंत्री रेखा गुप्ता की सरकार ने एक बेहद अहम और दूरगामी फैसला लिया है।

सरकार ने सर्दियों के मौसम के लिए एक 'स्थायी मास्टर प्लान' को मंजूरी दे दी है, जिसका मकसद केवल प्रदूषण को रोकना नहीं, बल्कि प्रशासन के काम करने के तरीके को ही बदल देना है। 1 जुलाई 2026 को जारी की गई इस नयी रूपरेखा की सबसे बड़ी खासियत यह है कि अब सरकार प्रदूषण बढ़ने या एयर क्वालिटी इंडेक्स (AQI) के खराब होने का इंतज़ार नहीं करेगी। नए नियमों के मुताबिक, अब हर साल 1 नवंबर से 28 फरवरी तक ये तमाम पाबंदियाँ अपने आप लागू हो जाएंगी। इसका मतलब है कि अब हर साल नए आदेशों की ज़रूरत नहीं होगी और प्रदूषण रोकने के लिए प्रशासन पहले से ही सक्रिय रहेगा।

इस रणनीति को बनाने के पीछे दिल्ली की पिछली सर्दियों का कड़वा अनुभव रहा है। पिछले तीन सालों के आंकड़ों पर नज़र डालें तो नवंबर से मध्य फरवरी के बीच दिल्ली का औसत AQI 312 से 342 के बीच दर्ज किया गया है, जिसे 'बहुत खराब' से 'गंभीर' की श्रेणी में रखा जाता है। कई बार तो यह खतरनाक स्तर 500 के करीब भी पहुँच गया है। सरकार का मानना है कि इन स्थायी और पूर्व-निर्धारित नियमों से आम जनता और संस्थानों के बीच नियमों का पालन करने की गंभीरता बढ़ेगी।

इस नई रूपरेखा में मुख्य रूप से तीन बड़ी समस्याओं पर प्रहार किया गया है, जिनमें वाहनों से होने वाला उत्सर्जन, निर्माण कार्यों से उड़ने वाली धूल और कचरा जलाना शामिल है। सड़कों पर गाड़ियों के धुएँ को कम करने के लिए सरकार ने 'नो पीयूसी, नो फ्यूल' का नियम अब पूरे साल के लिए अनिवार्य कर दिया है। अब दिल्ली के किसी भी पेट्रोल पंप, सीएनजी या एलपीजी स्टेशन पर उन वाहनों को ईंधन नहीं दिया जाएगा जिनके पास वैध प्रदूषण प्रमाण-पत्र (PUC) नहीं होगा।

इसके अलावा, ट्रैफ़िक के दबाव को कम करने के लिए 1 नवंबर

से 31 जनवरी के बीच सरकारी और निजी दोनों क्षेत्रों में 50 प्रतिशत 'वर्क फ्रॉम होम' (घर से काम करना) की नीति लागू रहेगी। सड़कों पर वाहनों की भीड़ को बांटने के लिए दफ्तरों के समय में भी बदलाव किया गया है। नगर निगम के दफ्तर सुबह 8:30 से शाम 5:00 बजे तक खुलेंगे, जबकि दिल्ली सरकार के दफ्तरों का समय सुबह 10:00 से शाम 6:30 बजे तक तय किया गया है। निजी कंपनियों को भी निर्देश दिए गए हैं कि वे रिमोट शिफ्ट और राइड-शेयरिंग (अपनी कार या टैक्सी की सवारी को किसी अन्य व्यक्ति के साथ साझा करना है) को बढ़ावा दें।

प्रदूषण नियंत्रण के इस कड़े घेरे में निर्माण कार्यों और पार्किंग को भी शामिल किया गया है। 1 नवंबर से 28 फरवरी के बीच निजी वाहनों के

**ट्रैफ़िक के दबाव को कम
करने के लिए 1 नवंबर से
31 जनवरी के बीच सरकारी
और निजी दोनों क्षेत्रों में 50
प्रतिशत 'वर्क फ्रॉम होम' की
नीति लागू रहेगी।**

इस्तेमाल को हतोत्साहित करने के लिए सार्वजनिक पार्किंग की फीस को दोगुना कर दिया जाएगा, हालांकि मेट्रो पार्किंग को इससे राहत दी गई है। इसके साथ ही, कड़ाके की ठंड वाले तीन महीनों के दौरान दिल्ली के बाहर से आने वाली उन कमर्शियल गाड़ियों की एंट्री बंद रहेगी जो BS-VI मानकों को पूरा नहीं करतीं।

शहर के अंदर धूल उड़ाने वाली किसी भी तरह की तोड़फोड़ या खुले में निर्माण कार्यों पर पूरी तरह पाबंदी होगी। स्थानीय स्तर पर धूल रोकने के लिए

3,000 वर्ग मीटर से बड़ी कमर्शियल संपत्तियों को 15 अगस्त तक एंटी-स्मॉग गन या मिस्ट सिस्टम लगाना अनिवार्य कर दिया गया है।

इस योजना का एक मानवीय पहलू सुरक्षा कर्मचारियों और सफाईकर्मियों से भी जुड़ा है। अक्सर कड़ाके की ठंड में खुले में काम करने वाले लोग खुद को गर्म रखने के लिए कूड़ा या सूखी पत्तियाँ जलाते हैं, जिससे भारी प्रदूषण होता है। अब इस पर लगाम लगाने की कानूनी ज़िम्मेदारी सीधे रेजिडेंट वेलफेयर एसोसिएशन (RWA) और प्राइवेट कॉन्ट्रैक्टरों पर डाल दी गई है। उन्हें आदेश दिया गया है कि वे ठंड के दौरान अपने कर्मचारियों के लिए इलेक्ट्रिक हीटर का इंतज़ाम करें ताकि धुएँ की समस्या को जड़ से खत्म किया जा सके। सरकार को उम्मीद है कि इस रणनीति के लागू होने से दिल्ली के लोगों को साफ हवा में सांस लेने का मौका मिलेगा। **OA**

Punjab Villages Unite to Block New Cement Plant

OPPPOSITION IS GROWING against a proposed 3-million-tonne-per-annum (TPA) cement plant along the Bathinda-Mansa road in Punjab, with several local village panchayats passing formal resolutions to block the setting up of the industrial unit by JK Cement Limited on 26.79 hectares area in Maiserkhana village in Bathinda district.

The resistance from residents of villages including Yatri, Manak Khana, Ramgarh Bhunder, and Maiserkhana follows a public hearing organised on June 17 by the Punjab Pollution Control Board (PPCB), where community members and environmental activists raised objections regarding the project’s regulatory compliance and potential ecological impact, including air pollution.

A primary point of contention raised by environmental activists is the pollution classification assigned to the project. According to official records, the project consultant registered the facility under the “orange” (medium-pollution) category. However, villagers and activists argued that this classification contradicts recent legal precedents, citing a February 2026 judicial ruling that placed large-scale cement manufacturing operations within the high-pollution “red” category. They are demanding the hearing be declared null and void. But, PPCB officials claimed the project was initially conceived under the orange category before the Supreme Court’s reclassification.

Activists and farm leaders also expressed dissatisfaction over public access to project details. They stated that while a brief executive summary was made available on the state regulatory website, the



complete Environmental Impact Assessment (EIA) report—which outlines specific measures for air quality management, particulate dust control, and waste handling—was not fully accessible to the public ahead of the hearing.

Cement plant officials claimed that the proposed project would be a zero-pollution unit where 25 per cent area would be maintained as a green belt. They said that 70 per cent of the raw material would be transported via railway, while the factory would widen and strengthen the roads for transporting the rest to the plant.

The current pushback mirrors a similar movement that occurred in the neighbouring Mansa district last year, where sustained community demonstrations led to the halting of another 6-million-tonne cement plant. **OA**

Democratising India’s Air Quality Data

THIRTEEN OF THE world’s twenty most polluted cities are in India, costing roughly 3 per cent of the annual GDP, yet crucial air quality data remains inaccessible to citizens due to fragmented monitoring systems. To bridge this gap, Nithin Kamath, co-founder of Zerodha and Rainmatter Foundation, Coefficient Giving, and UMI recently launched [oaq.notf](#), an open-source platform that democratises



street-level data to enable localised community action and pollution reduction. The new platform unifies fragmented climate data into an accessible, real-time map interface. It allows users to track precise exposure scores across homes, commutes, and specific workplaces. Researchers, tech startups, and local schools can extract live API feeds to build localised public health solutions. **OA**

A cloud of dust rising from stone crushers and blasting of hills in the valley where the Lakhwar-Vyasi HEP is under construction

GATHERING DUST

Villages in vicinity of the under-construction Lakhwar-Vyasi Hydroelectric Project complain of high air pollution and ill health

MEGHA PRAKASH

DEHRADUN, UTTARAKHAND

STANDING IN KUNA, there is a haze of dust as far as the eye can see. The village is located on the left bank of River Yamuna in Uttarakhand. Just a kilometre upstream of it, the Lakhwar-Vyasi Hydroelectric Project (HEP) is under construction in the Upper Yamuna Basin, on the boundary of Dehradun and Tehri Garhwal districts. With a combined capacity of 420 mega watts (MW), it is the biggest hydroelectric dam being built on Yamuna.

A cloud of dust rises from the project site and engulfs Kuna. Kaushalya Devi, a native of Kuna (also known as Kona), complains of chest congestion, frequent sneezing, uneasiness, and difficulty in breathing. “The local doctor repeats the prescription for the persistent dry cough and allergies,” the 60-year-old told *ON AIR*. Because of her constant sufferings, she now lives in Vikas Nagar, forty kilometres (kms) away from her village.

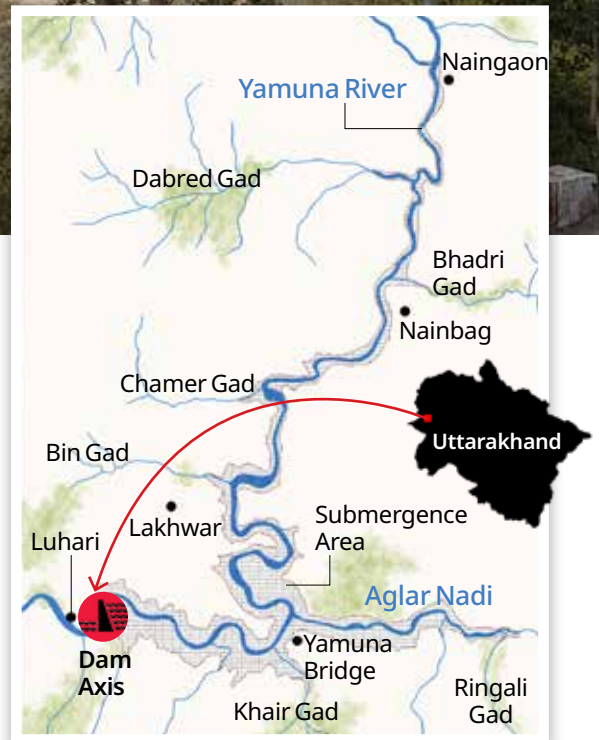
But, not everyone can escape. Dust and air pollution from the Lakhwar dam construction site have

caused friction between project developers, environmental watchdogs, and local villages like Lohari, Kuna, Diboghi, and Ranogi (see box: *Lakhwar-Vyasi Hydroelectric Project*).

Villagers complain that they daily breathe in a cocktail of pollutants that hang over the valley. Blasting of the mountain rocks, on-site stone crushing, and the constant movement of trucks and dumper lorries stir up massive clouds of dust. This has allegedly led to an increase in respiratory distress, including asthma and chronic bronchitis, in habitations in the vicinity. The noise is deafening too.

Meena Panwar of village Ranogi said that she spent most of her day clearing dust deposited in and around her dwelling from the nearby stone crusher. “We mop and sweep the house three to four times a day,” she told *ON AIR*. “The dust has not only affected our health but also the source of our livelihood—livestock, agricultural, and horticulture crops. Even the fodder has to be washed before feeding it to the cattle,” she added.

“Our chest burns and eyes sting. We can’t sleep at night because of the noise from the stone crusher. Our bodies ache and we feel tired the whole day. We often



LAKHWAR-VYASI HYDROELECTRIC PROJECT

THE PROJECT HAS two parts—Lakhwar multipurpose project (300 MW), and Vyasi HEP (120 MW) five kms downstream of Lakhwar, along with Katapathar Barrage that is three kms downstream of Vyasi. The project is being developed by state-owned Uttarakhand Jal Vidyut Nigam Limited (UJVN Ltd) and contractor Larsen & Toubro (L&T). Apart from power generation, this project is expected to provide irrigation (34,000 hectare additional land) and drinking water benefits to six states—Uttarakhand, Uttar Pradesh, Haryana, Delhi, Himachal Pradesh and Rajasthan—based on a signed agreement.

This project was first conceived in 1976 and was embroiled in legal troubles. After updated environmental clearances, civil construction works were finally allowed to resume in February 2023. About 50 villages are expected to be affected/displaced by the project. Over 768 hectares of forest land has been diverted for the dam project, which is located within 10-km aerial distance of Mussoorie Wildlife Sanctuary, as mentioned in the *Environmental Impact Assessment Study* (December 2020) of Lakhwar Multipurpose Project.



PHOTOS: MEGHA PRAKASH



(Top) The EIA report has an Air Pollution Management Plan but villagers complain it is only on paper; (left) Local women complain their eyes burn and they suffer bouts of cough and cannot sleep at night.

take pills to control headaches and carry on with household chores,” said a group of women from Ranogi.

Ramesh Chauhan owns Lakeside Resort in Lohari, another village not too far from the project site. “Because of dam construction works, the mountains tremble and crumble to shards. The dust cloud is so intense that the visibility reduces to 20 metres,” Chauhan told *ON AIR*.

He complained that his staff had to keep watering and cleaning the roofs of his resort as thick layers of dust settled on them, churned up by the movement of dumpers and trucks on the unpaved road between the resort and the Lakhwar dam construction site. Visitors who come to the Himalayan resorts for a breath of fresh clean air, are keeping away, he said.

Villagers claim they are not against the Lakhwar-Vyasi HEP. But, they cannot be left in the lurch to suffer the ill-effects of dust and air pollution due to the dam construction activities.

“The final expected completion timeline of the project is 2031-34. This is concerning because we continue to live in distressed conditions. Rehabilitation and compensation is snail-paced, and we are being forced to eat dust,” lashed out Yashpal Thakur, a 56-year-old from Katapathar village. He said that dust and high-octane noise from the construction machinery had forever disturbed the peace of his sleepy village.

Air Pollution Management Plan

The Lakhwar-Vyasi HEP has a detailed Air Pollution Management Plan, which is a part of the *Environmental Impact Assessment (EIA) Study of Lakhwar Multipurpose Project*, prepared in December 2020 by Gurugram-based RS Envirolink Technologies Pvt Ltd, Gurugram, for UJVN Ltd.

The plan notes that construction activities including operation of crushers, concrete batch plants, construction work and movement of vehicles along unpaved roads will generate dust and gaseous emission and impact air quality.

“These emissions will also get deposited on leaf surfaces, thus affecting their physiological processes like transpiration, photosynthesis, etc. Although it is very difficult to eliminate such impact in toto, it is, however, possible to reduce its intensity by implementing mitigation measures,” reads the EIA study that also suggests measures to control air pollution (*see box: Air pollution mitigation measures*).

However, villagers alleged that the Air Pollution Management Plan was only on paper. They complained that the project authorities did not regularly sprinkle water on unpaved roads and in construction zones, which was causing high dust pollution and consequential health effects.

“We often tell the stone crusher contractors to sprinkle water but our plea falls on deaf ears,” said Meena Panwar of Ranogi village. “The dust from the stone crusher is making my son sick. His eyes are dry and I have to put medicine in his eyes. The nearest health centre is over 40 kilometres away,” said Rinki Panwar, who was visiting her maternal village Ranogi along with her young son. She now lives in Vikas Nagar.

Experts point out that though there is a dust management plan, localised air quality monitors were not installed and air quality was not being tracked in real-time. “In absence of regional data, it is difficult to design a targeted effective policy for Uttarakhand on managing air pollution. We need to first know the source of pollutants in the air—forest fire, vehicular movement, or construction dust,” said Alok Sagar Gautam, Assistant Professor at Hemvati Nandan Bahuguna Garhwal University, Srinagar, Garhwal, Uttarakhand.

Generating Evidence and Way Forward

There are no field-based scientific studies to corroborate the complaints of local villagers and link high air pollution to a rising disease burden. Efforts are being made to collect village-level health data.

On July 2, last month, a private hospital from Dehradun organised a health camp for people residing in the vicinity of the dam project. “Around 50 patients, who registered at the camp, were examined. Most of them complained of joint pain, skin allergies, eye irritation caused by dust, respiratory issues, and high blood pressure,” Manish Kumar from the Graphic Era Hospital, told *ON AIR*. The team of doctors also noted cases of mental stress and insomnia due to living and working in a polluted and noisy zone.

Local people told *ON AIR* that they were doing all they could to deal with their coughs, throat irritations and chest congestion by way of home remedies, such as drinking lukewarm water.

“When access to healthcare is limited, the community adapts and shows strong reliance on traditional home remedies to reduce the after-effects of prolonged dust exposure,” said Nidhi Singh, a Fellow at Center for Ecology Development and Research (CEDAR), a Dehradun-based non-profit.

“We found that many residents took steam after returning home, drank lukewarm water or ginger tea, and consumed jaggery,” said Singh who has been studying health impacts of air pollution and the occupational risks faced by vulnerable communities.

According to her, there is an urgent need to integrate public health into infrastructure development in the Himalaya. “Health burden associated with poor air quality in rural and mountainous regions cannot be addressed by asking communities to adapt on their

Air pollution mitigation measures

THE CRUSHERS should be provided with scrubbers, so as to minimise the release of particulate matter into the atmosphere.

THE CHIMNEYS of the Diesel Generator Sets should be kept at height as per environment protection rules. The DG sets should be properly maintained.

REGULAR WATER sprays at the crushing sites, quarrying/excavation, dumping sites as well as on roads should be ensured.

DUST MASKS should be provided to the workers and staff.

CONTROLLED BLASTING during construction activities will be ensured.

AMBIENT AIR quality shall be monitored seasonally during the construction phase at different locations with the help of any reputed agencies.

Source: Environmental Impact Assessment Study of Lakhwar Multipurpose Project, December 2020

own. Adaptation is important, but it should complement the responsibility of governments, project authorities, and public health institutions,” she stressed.

Experts point out that regular mobile health camps should be organised in affected villages to provide respiratory screening, free medicines, health awareness, and special support for vulnerable groups such as children, women, older adults, and people with pre-existing respiratory illnesses.

Minimising the risk, putting dust-control measures in place through the construction period and strict monitoring and compliance should be built into the project, insisted Singh. Continuous air quality monitoring should be established around major infrastructure projects, and the data should be made publicly accessible so that communities are aware of their exposure and authorities remain accountable.

“Local communities should be encouraged to report pollution incidents and participate in air quality monitoring using simple tools and low-cost sensors. Their observations can complement scientific monitoring and strengthen environmental governance,” Singh suggested.

ON AIR reached out to Executive Director (Civil-Lakhwar Vyasi), UJVN Ltd for a response to complaints of air pollution due to construction of the project. However, no reply has been received yet. **OA**



“The dust from the stone crusher is making my son sick. His eyes are dry and I have to put medicine in his eyes,” said Rinki Panwar.



“Almost 75-80% of my patients are from rural backgrounds.”

DR SHREEHAS SUHAS
BARDAPURKAR, Consultant
Allergist & Pulmonologist,
Shree Nursing Home,
Chhatrapati Sambhajnagar,
speaks to PANKAJA SRINIVASAN

● **Industrial hubs and fast-growing cities like Chhatrapati Sambhajnagar (formerly Aurangabad, Maharashtra) are seeing worsening air quality, particularly around Waluj industrial area. Does it affect human health?**

There has been an increase in patients complaining of respiratory ailments from industrial areas of the city. But, it is not just outdoor pollution causing respiratory problems, but the more neglected issue of indoor pollution. Indoor pollution happens due to chulha smoke, mosquito repellent coils and even incense sticks, all of which are an integral part of daily life in smaller cities.

● **Has there been a change in the types or number of respiratory cases in the city that you attribute to worsening air quality? Where are these patients coming from?**

The trend is shifting. Patients who once visited general physicians are now consulting pulmonologists because of the rise in respiratory ailments. Almost 75-80 per cent of my patients are from rural backgrounds.

● **What are the ‘red flags’ that can warn patients that their problem is actually pollution-induced lung distress?**

Dust, air pollution and increased seasonal allergies are contributing to respiratory problems like allergic rhinitis [an inflammatory response triggered by inhaling airborne allergens], atopic dermatitis [inflammatory skin disease], allergic conjunctivitis [eye inflammation], bronchitis, bronchial asthma and COPD [chronic obstructive pulmonary disease, which is often confused with bronchial asthma].

The ‘red flag’ isn’t the pollution but the patient’s perception about the disease itself. As much as 80 per

cent of asthmatic patients have just one symptom—dry cough; and it’s treated inadequately for years. It is precipitated by air pollution and aeroallergens!

● **Could you explain how prolonged exposure to Chhatrapati Sambhajnagar’s traffic and construction dust can affect cardiovascular health or increase the risk of stroke?**

Prolonged exposure to air pollution caused by increased vehicular traffic, rising construction and biomass fuel emissions affects every system of the body, including skin and ocular allergies, rising cardiovascular morbidity and mortality. This can be effectively countered by planting native trees wherever possible. This is the only solution as industrial growth cannot be avoided, neither will the number of vehicles decrease.

● **Adults and children in tier-2 cities spend a lot of time outdoors, walking to school or visiting markets. How severely does this daily exposure impact their long-term lung capacity?**

Asthmatics (children or adults) suffer from hyper reactive airways, which can be very effectively managed and treated with inhalers. Inhalers have medicines in micrograms, which are delivered directly to airways and act within minutes. Oral and injectable medications cannot do this. Inhalers are not habit-forming. They can be safely administered to every age group, during pregnancy and to patients with any comorbidity like diabetes, heart diseases, anemia, thyroid issues, and kidney diseases.

Health isn’t optional, it’s the only thing we carry for life. Outdoor pollution can be controlled by political will. Awareness about this should be ingrained from school days. Indoor pollution is totally in our control and it needs far more attention. **OA**

चिनाब की वादियों में प्रदूषण घोलते स्टोन क्रशर

जम्मू-कश्मीर के डोडा ज़िले में स्थित खूबसूरत चिनाब घाटी एक गंभीर पर्यावरण संकट से जूझ रही है। यह इलाका कभी अपनी ताज़ा पहाड़ी हवा, घने जंगलों और साफ़ झरनों के लिए जाना जाता था। लेकिन आज यहाँ चारों तरफ़ फैक्ट्रियों से निकलने वाला धुआँ छाया हुआ है। इसकी सबसे बड़ी वजह डोडा के हाईवे और चिनाब नदी के किनारों पर चल रहे स्टोन क्रशर (पत्थर तोड़ने वाली मशीनें) हैं। इन छोटे कारखानों से निकलने वाले वायु प्रदूषण ने सार्वजनिक स्वास्थ्य आपातकाल (हेल्थ इमरजेंसी) की स्थिति पैदा कर दी है और नेशनल ग्रीन ट्रिब्यूनल (NGT) के सामने एक गंभीर कानूनी लड़ाई खड़ी कर दी है।

सरकारी आंकड़ों के मुताबिक, जम्मू-कश्मीर केंद्र शासित प्रदेश में लगभग 700 रजिस्टर्ड स्टोन क्रशर और हॉट मिक्स प्लांट हैं, जिनमें से 500 से ज़्यादा इस समय धड़ल्ले से चल रहे हैं। अकेले डोडा में ही इन क्रशरों के खिलाफ़ स्थानीय सामाजिक संगठनों और पर्यावरण कार्यकर्ताओं ने मोर्चा खोल रखा है। इसकी एक बड़ी वजह इलाके में हो रहा तेज़ी से निर्माण कार्य है, खासकर नेशनल हाईवे 244 (डोडा-किश्तवाड़ सड़क) को चौड़ा करने का काम, जिसने पत्थर और रेत की मांग को बहुत बढ़ा दिया है।

जम्मू-कश्मीर प्रदूषण नियंत्रण समिति (JKPCC) ने खुद NGT के सामने माना है कि पहाड़ों के मुश्किल रास्तों और भूगोल की वजह से इन दूर-दराज़ के क्रशरों की लगातार निगरानी करना बेहद कठिन है। इसी ढिलाई का फ़ायदा उठाकर दर्जनों क्रशर नियमों को ताक पर रखकर स्कूलों, रिहायशी इलाकों, खेतों और धार्मिक स्थलों के बिल्कुल पास लगा दिए गए हैं, जो कि तय कानूनी दूरी (buffer zone) के नियमों का सरेआम उल्लंघन है।

‘जम्मू और कश्मीर स्टोन क्रशर्स, हॉट एंड वेट मिक्सिंग प्लांट्स रेगुलेशन रूल्स (S.O. 60 of 2021)’ के तहत इसके लिए सख्त कानूनी नियम तय किए गए हैं (देखें बॉक्स: कानूनी ढांचा)। इतने साफ़ नियमों के बावजूद, सामाजिक संगठनों ने सबूतों के साथ दिखाया है कि इन कानूनों की सरेआम धज्जियां उड़ाई जा रही हैं।

NGT का दखल

डोडा का यह संकट तब देश की सबसे बड़ी पर्यावरण अदालत के पास पहुँचा, जब जाने-माने सामाजिक कार्यकर्ता राजा मुजफ़्फ़र भट ने अपने वकील एडवोकेट सौरभ शर्मा के ज़रिए एक याचिका (O.A. No. 1362/2024) दायर की। 14 दिसंबर 2024 को नई दिल्ली में NGT की प्रिंसिपल बेंच के सामने यह मामला आया।

सभी चित्र: निधि जम्वाल
(केवल सांकेतिक चित्र)



कानूनी ढांचा

‘जम्मू और कश्मीर स्टोन क्रशर्स, हॉट एंड वेट मिक्सिंग प्लांट्स रेगुलेशन रूल्स (S.O. 60 of 2021)’ के तहत कुछ अनिवार्य शर्तें तय की गई हैं:

जगह तय करने का नियम (Siting Criteria): अगर 1 किलोमीटर के दायरे में 20 या उससे ज़्यादा घर हैं, तो कानूनन उसे सुरक्षित रिहायशी इलाका माना जाएगा।

तय दूरी (Buffer Distance): मैदानी इलाकों में नेशनल हाईवे से 100 मीटर और पहाड़ी इलाकों में 50 मीटर के अंदर कोई भी स्टोन क्रशर नहीं चलाया जा सकता। इसके अलावा, मुख्य ज़िला मुख्यालयों के 1 किलोमीटर के दायरे में भी इन पर पाबंदी है।

ज़रूरी मंजूरी (Consent): एयर एक्ट और वॉटर एक्ट के तहत हर यूनिट के पास वैध ‘कंसेंट टू एस्टेब्लिश’ (CTE - लगाने की मंजूरी) और ‘कंसेंट टू ऑपरेट’ (CTO - चलाने की

मंजूरी) प्रमाणपत्र होना अनिवार्य है।

प्रदूषण पर रोक (Pollution Control): क्रशर मालिकों के लिए कम से कम 15 फीट ऊंची पक्की दीवार (wind-breaking wall) बनाना ज़रूरी है ताकि धूल बाहर न उड़े। साथ ही, पत्थर टूटने वाली जगह पर पानी छिड़कने का ऑटोमैटिक सिस्टम होना चाहिए, जो क्रशर से इस तरह जुड़ा हो कि अगर पानी छिड़कने की प्रणाली बंद हो, तो क्रशर भी अपने आप बंद हो जाए।

हरियाली की पट्टी (Green Belt): क्रशर के चारों तरफ बड़े पत्तों वाले पेड़ों की तीन कतारों वाली एक ग्रीन बेल्ट बनाना ज़रूरी है ताकि उड़ती हुई धूल को रोका जा सके।

कोर्ट के न्यायाधीश जस्टिस प्रकाश श्रीवास्तव और डॉ. सेंथिल वेल की बेंच ने एक ऐतिहासिक आदेश जारी करते हुए JKPCC को निर्देश दिया कि वे डोडा में चल रहे सभी वैध और अवैध स्टोन क्रशरों की एक विस्तृत रिपोर्ट पेश करें। याचिकाकर्ता ने आरोप लगाया था कि डोडा शहर के महज़ 5 से 6 किलोमीटर के दायरे में करीब 10-12 स्टोन क्रशर गैर-कानूनी तरीके से चल रहे हैं, जो चिनाब नदी में मलबा बहा रहे हैं और हवा में ज़हर घोल रहे हैं।

सुनवाई के दौरान एक और बड़ी चिंता डोडा की भौगोलिक स्थिति को लेकर जताई गई। वकीलों ने दलील दी कि डोडा ‘हाई-सिस्मिक ज़ोन’ (भूकंप के प्रति बेहद संवेदनशील इलाका) में आता है। यहाँ के पहाड़ पहले से ही ज़मीन धंसने (land sinking) की समस्याओं से जूझ रहे हैं। ऐसे में इन पहाड़ों पर गैर-कानूनी माइनिंग यहाँ के निवासियों के लिए तबाही का सबब बन सकती है।

NGT के निर्देशों का पालन करते हुए, JKPCC ने एक तीन-सदस्यीय जांच समिति बनाई। मार्च 2025 में सौंपी गई कमेटी की अंतरिम रिपोर्ट ने ज़मीनी हकीकत की पोल खोलकर रख दी। कमेटी ने पूरे डोडा ज़िले में कुल 24 स्टोन क्रशर यूनिट्स की पहचान की। इनमें से 5 यूनिट्स तो अकेले डोडा शहर के 5-6 किलोमीटर के दायरे में पाए गए।

जांच की गई सभी यूनिट्स में एयर पॉल्यूशन कंट्रोल डिवाइस (प्रदूषण रोकने वाले उपकरण) या तो ‘अधूरे’ पाए गए या फिर उनमें गंदे पानी को साफ़ करने वाले सैटलिंग टैंक (settling tanks) जैसे ज़रूरी हिस्से ही गायब थे। चौंकाने वाली बात यह है कि समिति ने अपनी रिपोर्ट में बताया कि क्रशर मालिकों ने इस्तेमाल होने वाले कच्चे माल के स्रोत और उसकी मात्रा की जानकारी देने से भी साफ़ मना कर दिया।

स्टोन क्रशर का सेहत पर वार

स्टोन क्रशिंग यूनिट्स का हमारे पर्यावरण और शरीर पर बहुत

ही खतरनाक असर पड़ रहा है। पत्थर तोड़ने वाली ये भारी मशीनें (mechanical jaw crushers) जब बड़े-बड़े पत्थरों को आपस में पीसकर तोड़ती हैं, तो हवा में भारी मात्रा में धूल उड़ती है। इस धूल में मोटे कण (PM10), बेहद बारीक कण (PM2.5) और क्रिस्टलाइन सिलिका (crystalline silica) बहुत ज़्यादा मात्रा में मौजूद होते हैं।



सरकारी आंकड़ों के मुताबिक, जम्मू-कश्मीर केंद्र शासित प्रदेश में लगभग 700 रजिस्टर्ड स्टोन क्रशर और हॉट मिक्स प्लांट हैं, जिनमें से 500 से ज़्यादा इस समय धड़ल्ले से चल रहे हैं

उनकी बढ़त रुक जाती है। स्थानीय किसान बताते हैं कि क्रशर वाले इलाकों में पैदावार लगातार गिर रही है, जिससे उनके गुज़ारे पर संकट आ गया है।

माना कि जम्मू-कश्मीर में बेहतर परिवहन कनेक्टिविटी और विकास ज़रूरी है, लेकिन नियमों को ताक पर रखकर पर्यावरण को नुकसान पहुँचाने वाली परियोजनाएँ नागरिकों के साफ़ वातावरण के संवैधानिक अधिकार का सीधा उल्लंघन कर रहीं हैं। **OA**

यह बारीक कण इतने खतरनाक होते हैं कि हमारी नाक का कुदरती फिल्टर सिस्टम भी इन्हें रोक नहीं पाता। डॉक्टरों का कहना है कि जब हम लंबे समय तक इस हवा में सांस लेते हैं, तो ये कण फेफड़ों की गहराई तक उतर जाते हैं। इससे कोशिकाओं में तनाव पैदा होता है और दमा (asthma), ब्रोंकाइटिस और सिलिकोसिस (silicosis) जैसी खतरनाक बीमारियाँ हो जाती हैं। सिलिकोसिस फेफड़ों की एक ऐसी बीमारी है जिसका कोई इलाज नहीं है, और यह अक्सर क्रशर के पास रहने वाले लोगों और वहाँ काम करने वाले मज़दूरों में देखी जाती है।

चिनाब घाटी मुख्य रूप से केसर की खेती, फलों के बागों और सीढ़ीदार खेती पर निर्भर है। जब इन स्टोन क्रशरों से निकलने वाली धूल पेड़-पौधों और फसलों पर जमती है, तो सुबह की ओस से मिलकर वह पत्तों के ऊपर सीमेंट जैसी एक मोटी परत बना लेती है। इसकी वजह से पौधों के सांस लेने के छेद (stomata) बंद हो जाते हैं, जिससे वे सूरज की रोशनी से अपना खाना नहीं बना पाते (photosynthesis) और

DELHI'S EV FUTURE RIDES ON BATTERY CIRCULARITY

ASHISH SRIVASTAVA &
BHAVYATA MAHAJAN

ON JULY 1, the Delhi government launched its Delhi Electric Vehicle Policy 2026. It aims for 30 per cent of all new vehicles in the city to be electric by 2030. Registrations for new petrol/ CNG auto-rickshaws will stop on January 1, 2027. From April 1, 2028, all new two-wheelers must be electric. These account for nearly 67 per cent of Delhi's vehicle stock. Subsidies, road tax waiver and other incentives are proposed to promote electric vehicles (EVs) in the national capital to clean up its air.

The new policy has been welcomed as an ambitious roadmap to accelerate Delhi's transition to electric mobility. However, questions are being raised around the circularity of rechargeable lithium-ion batteries (Li-ion) that are used in EVs.

Unlike conventional vehicle parts, Li-ion batteries contain heavy metals (manganese, copper, lead, aluminium) and electrolytes. If not handled properly, these toxic pollutants can leach into water bodies and soil and pollute the environment, and also affect human health. As EV adoption scales up, the number of such batteries reaching end-of-life will increase, creating an entirely new waste stream.

"Battery circularity is not just an environmental issue but also a strategic economic and energy security issue. Planning for end-of-life battery management cannot wait until the waste stream becomes large," said Amit Bhatt, India Managing Director at the International Council on Clean Transportation (ICCT), an independent, nonprofit research organisation.

"EV batteries contain valuable critical minerals that India imports. Recovering these materials through recycling can reduce import dependence, strengthen domestic supply chains, lower future battery costs and improve resource security. As battery volumes increase over the coming years, building an efficient collection ecosystem will be important," he added.

The new policy places strong emphasis on battery circularity through Extended Producer Responsibility (EPR), battery collection systems, and traceability. EV manufacturers are responsible for batteries

even after they sell them. This includes collection and sending for proper recycling. Delhi Pollution Control Committee (DPCC) and Delhi Environment Department are tasked to ensure the EPR compliance. The nodal agency to implement the policy is Delhi Transport Department.

A key provision in the policy is a battery traceability-enabled ecosystem built on unique identifiers. This allows batteries to be tracked across their life-cycle before being refurbished, repurposed or recycled. A robust traceability system can improve EPR compliances, reduce illegal disposal, and support safe recycling in second-life battery markets.

But merely assigning batteries a digital identity is not enough. While the policy requires Original Equipment Manufacturers (OEMs) to meet EPR obligations and periodically report battery traceability, enforcing compliance across a fragmented market could prove difficult, particularly among smaller manufacturers and unregistered assemblers operating in the two- and three-wheeler segment.

Implementation will require common data standards, digital infrastructure, coordination among manufacturers, recyclers and government agencies, and integration of the informal sector, said Bhatt.

According to Bharati Chaturvedi, Director of Chintan Environmental Research and Action Group, the success of the EV policy depends on involving the informal sector. "Our recent study More Watts, Less Waste shows that managing any waste in India is based on deeply interlinked formal and

informal value chains. Latter plays a critical role in collection, repair, refurbishment, and dismantling," Chaturvedi explained.

She suggested that instead of creating an entirely new system, the government should identify those already handling batteries and help them transition into the formal ecosystem through registration, dedicated space, incentives and proper channelisation to authorised recyclers.

"The government should prioritise setting up ward-level battery take-back mechanisms, track the flow of batteries from collection to recycling, monitor recycling agencies and create financial incentives for consumers to return used batteries," said Chaturvedi. **OA**



Assigning batteries a digital identity is only the first step. Enforcing EPR obligations and battery traceability across a fragmented market will be the real test. UNSPLASH



India's Multi-Season Ozone Crisis

A **DANGEROUS, INVISIBLE** air pollutant is quietly taking over urban India. According to a six-year data analysis (2021–2026) released by New Delhi-based Centre for Science and Environment (CSE), ground-level ozone (O₃) pollution is no longer just a brief summer problem. It has rapidly transformed into a year-round public health crisis, spreading aggressively beyond traditional northern hotspots into western, southern, and coastal cities.

The CSE study evaluated 25 major cities between March 1 and May 10, 2026, revealing that 15 breached the national eight-hour safety standard of 100 micrograms per cubic meter (100 µg/m³) during the summer. While Delhi-NCR remains the country's most persistent hotspot—violating safe limits on all 71 days of the study period—the crisis is spreading to other regions as well.

Chandigarh registered the highest summer-time average at a striking 173 µg/m³, followed by Jaipur (120 µg/m³), Ahmedabad (115 µg/m³) and Bhopal (109 µg/m³). Mumbai exhibited a near year-round ozone footprint indicating that ozone is no longer only a summer problem.

The analysis found that ozone is staying at high concentrations for longer intervals and not dissipating at night. Bhopal logged the highest sustained exposure, remaining above safe limits for an average of 17 hours per day, followed closely by Lucknow (16.3 hours) and Mumbai and Bengaluru (15.9 hours each).

Driven by intense and rising heat, bright sunlight and rising emissions of gases (NO_x and VOCs) that form ozone, this invisible secondary pollutant is a major health hazard. Ground-level ozone acts as a powerful irritant that inflames airways, severely triggers asthma, and causes long-term lung damage. Over time, prolonged exposure is linked to increased instances of chronic obstructive pulmonary disease (COPD), reproductive issues, and cardiovascular deaths like strokes and heart attacks.

“While the current national clean air programme (NCAP) focuses on particulate matter reduction, NCAP 2.0 must adopt a multi-pollutant strategy. By targeting precursor gases like NO_x and VOCs that form ozone in the air, the new framework can accelerate the shift toward clean combustion, zero-emission pathways and integrated regional airshed management,” said Anumita Roychowdhury, executive director, CSE. **OA**

ज़हरीली ओज़ोन और गर्म लू पर नई रिपोर्ट

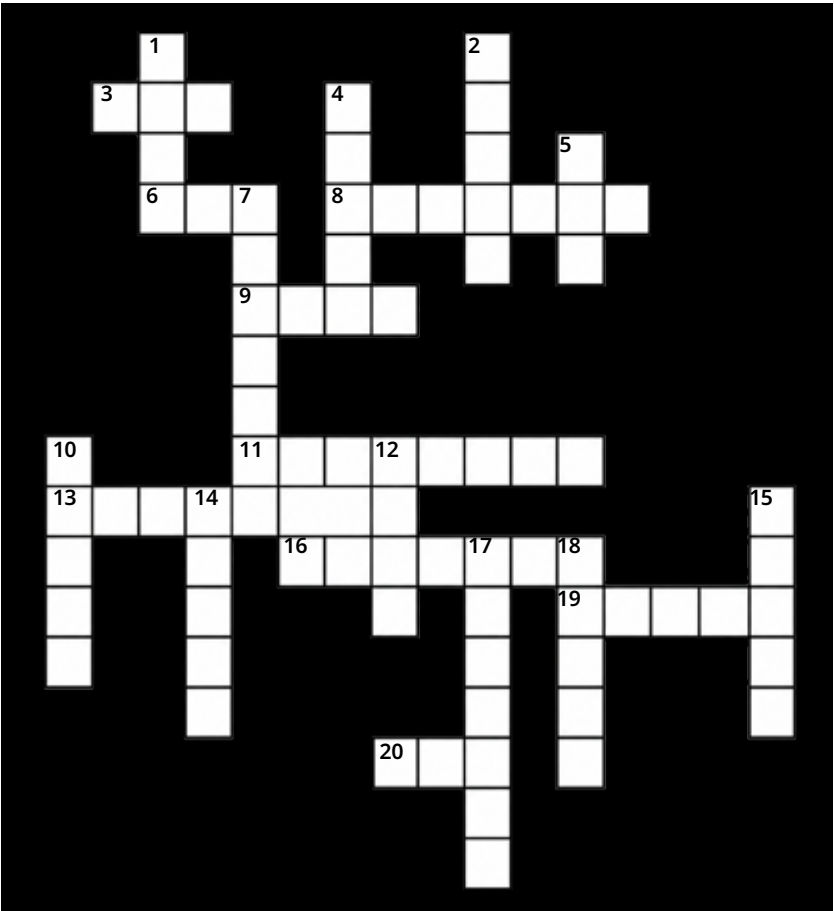
भारत में लू (heatwaves) की तीव्रता की समस्या लगातार बढ़ती जा रही है। आईआईटी खड़गपुर के ‘सेंटर फॉर ओशन, रिवर, एटमॉस्फियर एंड लैंड साइंस’ (CORAL) की एक नई स्टडी ने इस पर एक चिंताजनक रिपोर्ट पेश की है। यह 2002 से 2024 तक का पहला ऐसा व्यापक विश्लेषण है, जो यह बताता है कि लू के दौरान देश में ‘सतही ओज़ोन’ (surface ozone) के स्तर में क्या बदलाव आए हैं।

‘नेचर’ जर्नल में छपी इस स्टडी के मुताबिक, पिछले दो दशकों में गर्मी के मौसम (मार्च से जून) के दौरान देश के लगभग हर हिस्से में ओज़ोन का स्तर वर्ल्ड हेल्थ ऑर्गेनाइजेशन (WHO) द्वारा तय की गई सुरक्षित सीमा को पार कर गया है। आंकड़े बताते हैं कि 2004 से 2024 के बीच देश में 188 बार ऐसी लू चली, जब ओज़ोन का स्तर खतरे के निशान (70 µg/m³) से काफी ऊपर निकल गया। इसमें उत्तर भारत की स्थिति सबसे खराब रही, जहाँ ओज़ोन का स्तर 85 से 110 µg/m³ तक पहुँच गया।

यह ज़हरीली ओज़ोन सीधे तौर पर हमारी जान की दुश्मन बन रही है। शोधकर्ताओं का अनुमान है कि साल 2024 में लू के दौरान फेफड़ों की गंभीर बीमारी (COPD) से 15,615 मौतें और दिल की बीमारी (ischemic heart disease) से 10,898 मौतें हुईं। लू चलने से पहले के मुकाबले इन मौतों में 3.2 प्रतिशत की बढ़ोतरी देखी गई है। जानकारों का मानना है कि जैसे-जैसे भारत में लू और भीषण होती जाएगी, ओज़ोन प्रदूषण हमारी सेहत के लिए एक बहुत बड़ी पर्यावरणीय चुनौती बनकर उभरेगा। **OA**

PAVITRA: CLEAN AIR PLATFORM

PAVITRA IS A new multi-institutional air pollution intervention and modelling platform designed to tackle India's complex air quality challenges. At its heart is the InMAP-PAVITRA model, a computationally efficient tool that simulates the link between emissions and ambient pollutant concentrations with high precision. Led by the Indian Institute of Technology (IIT) Bombay, PAVITRA is a collaborative effort involving the University of California, Berkeley; the University of Washington, Seattle; and the Center for Study of Science, Technology and Policy (CSTEP), Bengaluru. This project is vital for identifying the most effective sectoral interventions to reduce pollution and enhance human health. By converting emission changes into visible air quality impacts, it allows for data-driven decisions. To know more, visit <https://pavitra.org/> **OA**



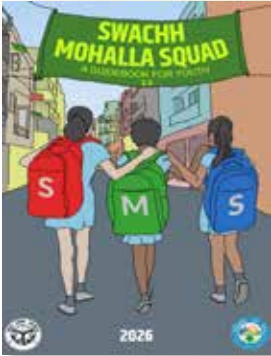
- ACROSS**
- 3. Natural decomposition
 - 4. Dark and sticky petroleum waste
 - 5. Material made from petroleum byproducts
 - 6. Wheeled waste collection box
 - 7. A large place for piling waste
 - 8. Vertical waste tube at large construction sites
 - 9. What organic waste becomes
 - 10. The other "R" after Recycle and Reuse
 - 11. A container for collecting waste
- DOWN**
- 1. Separating recyclable material
 - 2. The other "R" after Reduce and Recycle
 - 3. I come from trees and carry your news
 - 4. To unload a waste truck
 - 5. The other "R" after Reduce and Reuse
 - 6. Discarded material or metal
 - 7. A place where waste is thrown
 - 8. Word for general household waste
 - 9. Colour of eco-friendly initiatives
 - 10. Waste type for leaves, fruits, and veggies
 - 11. Vehicle used to haul waste

Crossword Developed by
Dr Sarath Guttikunda



Read other publications from Chintan on the areas we work on: air pollution, circular economy, and climate change. Learn about what justice means for women and children, particularly the most marginalised, as you browse our reports, comics, fliers, and films.

Read more on www.chintan-india.org



Reach us at onair@chintan-india.org

CROSSWORD SOLUTION: Across: 3. Rot 6. Tar 8. Plastic 9. Cart 11. Landfill 13. Chute 16. Compost 19. Reduce 20. Bin Down: 1. Sort 2. Reuse 4. Paper 5. Tip 7. Recycle 10. Scrap 12. Dump 14. Trash 15. Green 17. Organic 18. Truck