



OUR RIGHT TO CLEAN AIR IS NON-NEGOTIABLE

AGENDA FOR ACTION FOR DELHI-NCR

INCONVENIENT FACTS



1 The air we breathe in Delhi is toxic, and it harms our health. There is ample evidence that we inhale particulates and toxic gases, which damage our lungs; even raise risk of heart diseases. That is why government pollution advisories warn that even when air quality is 'poor', prolonged exposure can damage lungs. Yet this is the air we breathe every day.

3 GRAP or the Graded Response Action Plan, was, and is, an emergency-alert system, like a fire drill—you take action when things are really bad. The point is if action is taken throughout the year, there will be no need to invoke GRAP and close schools, etc. GRAP is not a proxy for action that needs to be taken.

2 The sources of pollution are much the same throughout the year; what changes in winter is the weather. Cold air is heavier, winds drop, and there is moisture. This traps pollutants close to the ground.

4 No, cloud seeding will not work; such annual charades must stop. We need to act, and fast.



**WHY POLLUTION?
WHAT HAS BEEN DONE?
WHAT NEEDS TO BE DONE?**

**NO IFs,
NO BUTs.
NEEDS
IMPLEMENTATION**

**THIS IS A
PUBLIC
HEALTH
EMERGENCY**

SOURCES

STUDIES POINT TO THE FOLLOWING

Vehicles

Industry and Power plants

Waste burning

Fuel used in households

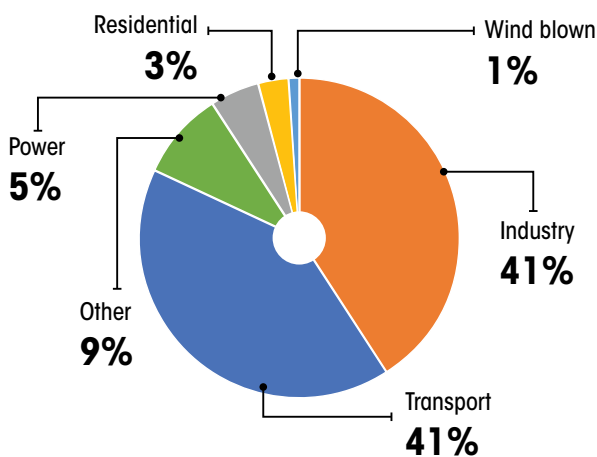
Dust

(It is not a pollutant, but when coated with toxins from combustion sources, it adds to our health challenge)

SOURCES OF POLLUTION ARE KNOWN

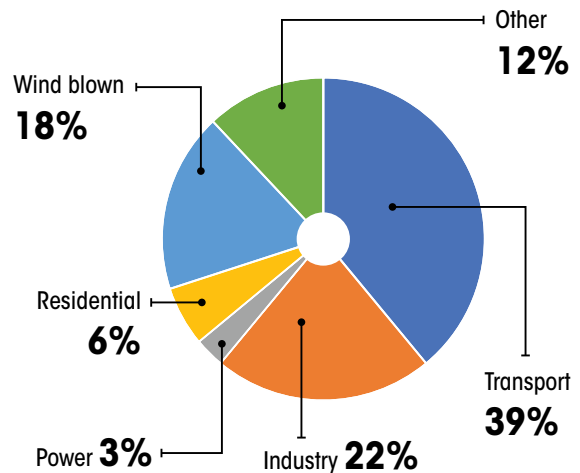
Vehicles, industry, power plants, household fuel, waste burning and dust (coated with toxic emissions)

Delhi-PM_{2.5}

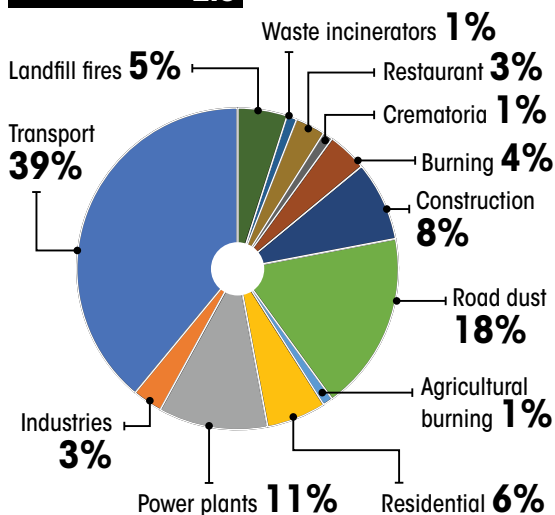


Source: SAFAR, 2018

NCR-PM_{2.5}

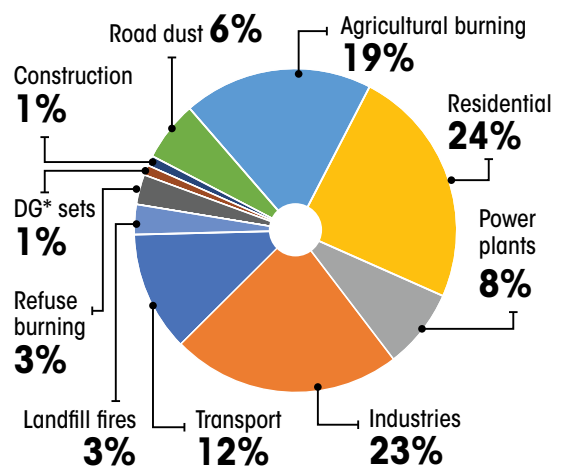


Delhi-PM_{2.5}



Source: ARAI and TERI, 2018

NCR-PM_{2.5}



* Diesel generator sets

STUBBLE BURNING/ DIWALI TIP US OVER

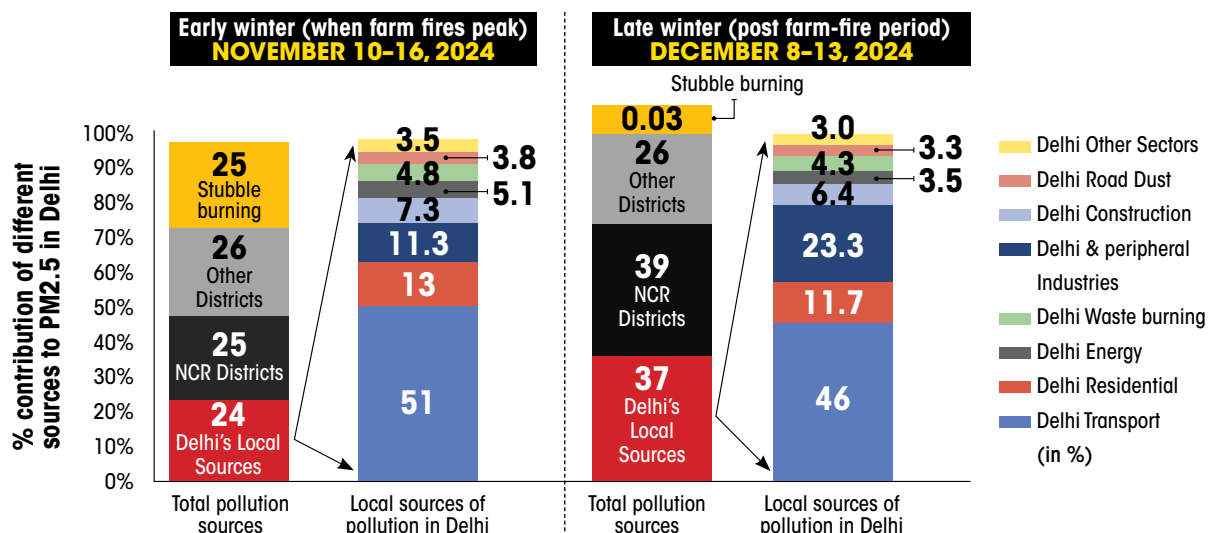
Data from 2024 shows that in the weeks of November when farmers burn paddy straw to clear fields, its contribution to pollution can be as high as 25 per cent on particular days

Yet local sources of pollution in Delhi remain high, with the bulk coming from vehicles

In the weeks after Diwali, when pollution is also high, most of it comes from Delhi's local sources or the neighbouring region—again, with vehicles contributing the bulk

TRANSPORT CONTRIBUTES MAXIMUM IN DELHI

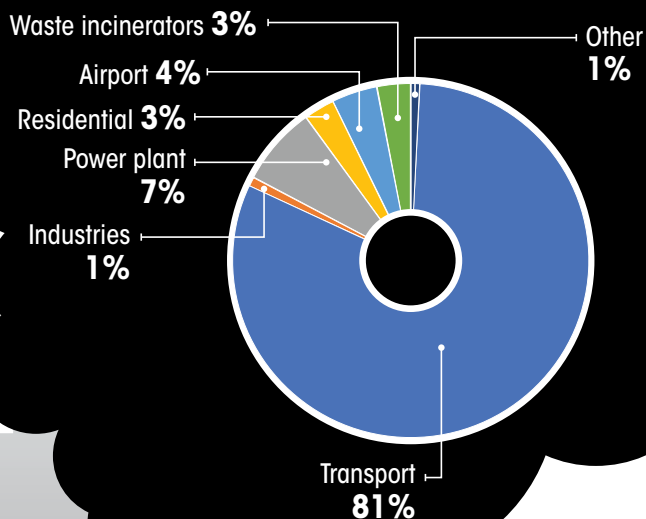
Dynamic forecasting of pollution sources to PM2.5



Source: CSE analysis based on data from the Decision Support System for Air Quality Management in Delhi of IITM

NO_x

ANOTHER IMPORTANT INDICATOR IS THE RISE IN NO_x EMISSIONS, WHICH COMES FROM VEHICLES AND FROM CONGESTION, AS VEHICLES GET CAUGHT IN TRAFFIC

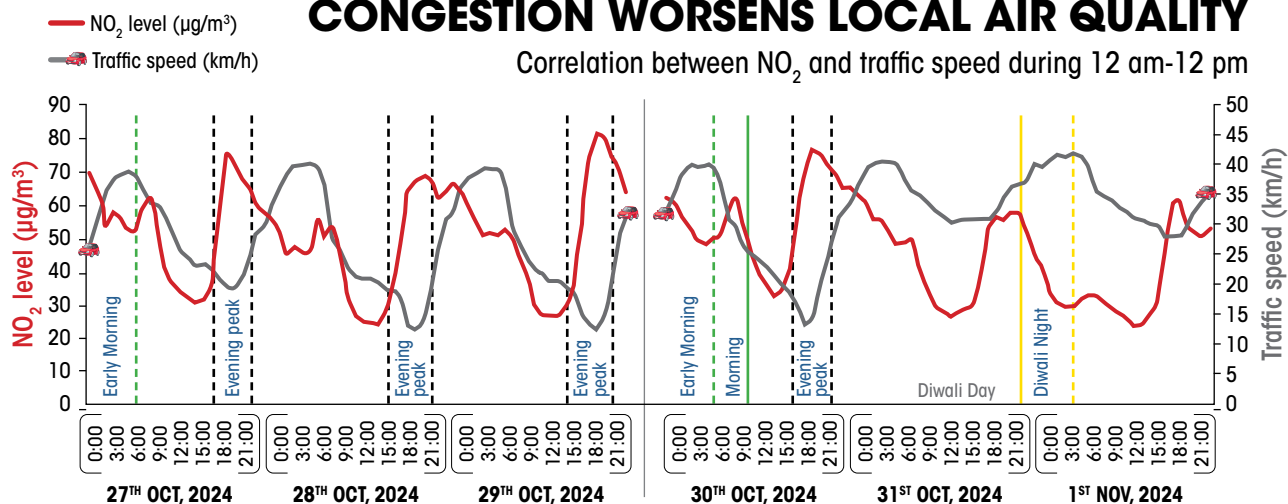


VEHICLES ARE THE DOMINANT SOURCE OF NO_x POLLUTION

Source apportionment and emission inventory by TERI-ARAI, 2018

CONGESTION WORSENS LOCAL AIR QUALITY

Correlation between NO₂ and traffic speed during 12 am-12 pm



Source: CSE analysis of CPCB's real-time air quality data and traffic data from Google map

During peak hours (5 pm-9 pm), when traffic speed averages 15 km/h, NO₂ levels rise 2.3 times compared with midday (12 pm-4 pm), when traffic moves at around 21 km/h. Inversion during evenings aggravates this



WHAT DO WE DO

Take each source;
assess what has
been done and
what still needs to
be done

Recognise that the
challenge is both
to cut emissions
drastically and to
scale up action

Understand
that we need
implementation;
and time-bound
action

We cannot
do nothing
throughout
the year and
then expect
pollution to
disappear
when weather
turns adverse

LET'S UNDERSTAND HOW VEHICLES POLLUTE

Emission factor (in terms of age because of deterioration/emission standard)



Length the vehicle travels



Number of vehicles



POLLUTION

WHAT HAS BEEN DONE: first-second gen reform

Fuel quality has improved drastically

Sulphur content in BS6 fuel has fallen from 10,000 ppm to less than 10 ppm

Emission standards in vehicles are more stringent

Under BS6, heavy-duty vehicles such as trucks emit 90% less than they did under BS4

Congestion charge for trucks entering Delhi imposed

A bypass created, so that night-time pollution from these vehicles reduces drastically

Taxis, buses and autorickshaws run on CNG,

Which emits less particulates than petrol and diesel

NEEDED NEXT-GEN ACTION: which vehicles and why

MAXIMUM TRAVEL

in terms of km/day



Buses
200-220 km



Taxi
200-300 km

MAXIMUM POLLUTION

in terms of number



Cars
500 registered each day in Delhi



2 wheelers
1,500 registered each day in Delhi

MAXIMUM POLLUTERS

in terms of emission standards



old trucks and old commercial vehicles





AGENDA 1

COMMERCIAL VEHICLE FLEET REPLACEMENT

1 Target old commercial vehicles. All must be replaced. Incentivise scrappage to replace the old with new cleaner BS6 trucks

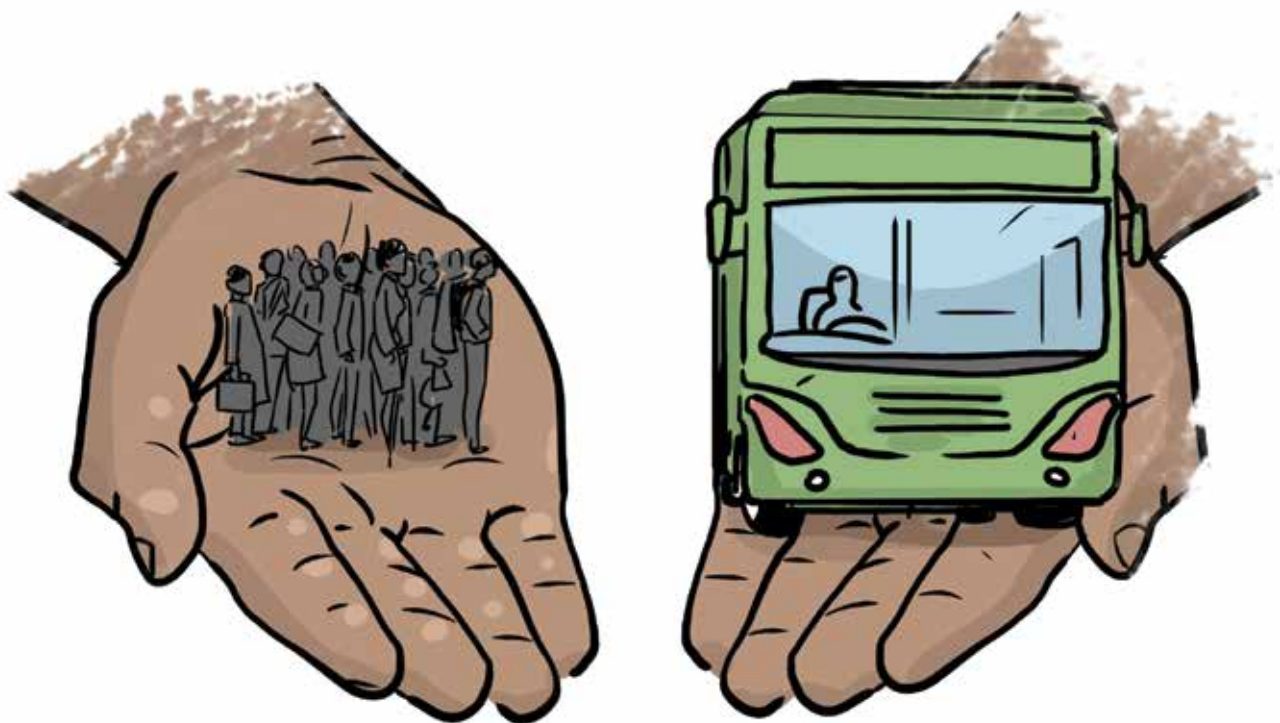
2 Target taxi/auto/para-transit: incentivize scrappage and replace fleets with e-vehicles

Because deterioration is high in this category. Replacement could yield big gains. Was successfully done when diesel bus/autos were replaced

Needs to be time-bound

Needs to be incentivized; carefully monitored

Advantage scrap can be used to reduce emissions for steel manufacture



AGENDA 2

PERSONAL VEHICLES: MOVE PEOPLE, NOT CARS

Desperately need less vehicles on road

For this, we need vastly improved public transport systems in Delhi and NCR

Today we are adding buses, even clean buses. But bus ridership is decreasing

Need to plan for last-mile connectivity

Need to plan so that buses are reliable and effective

Vehicle use can be restrained through charges on parking, congestion tax, etc

AGENDA 3

CLEAN FUEL FOR INDUSTRY

Delhi and its surrounding region host a large number of polluting industries

They exist, but are 'not counted' because they have shifted into unauthorised areas and to urban villages that are not under the control of pollution regulators

Fuel switch is critical. Delhi/NCR has banned the use of coal but without a viable alternative the shift will not happen

Natural gas must be made available at competitive prices

Under the current tax regime on natural gas, tax on imported LNG is 30-50% of its final price



Clean fuel is game-changer

- Bring natural gas under GST and remove all other taxes so that it can compete with coal
- It is cleaner and so it will have less regulations/less need for pollution control equipment
- Large-scale and compulsory use of natural gas for industry and power generation needed

AGENDA 4

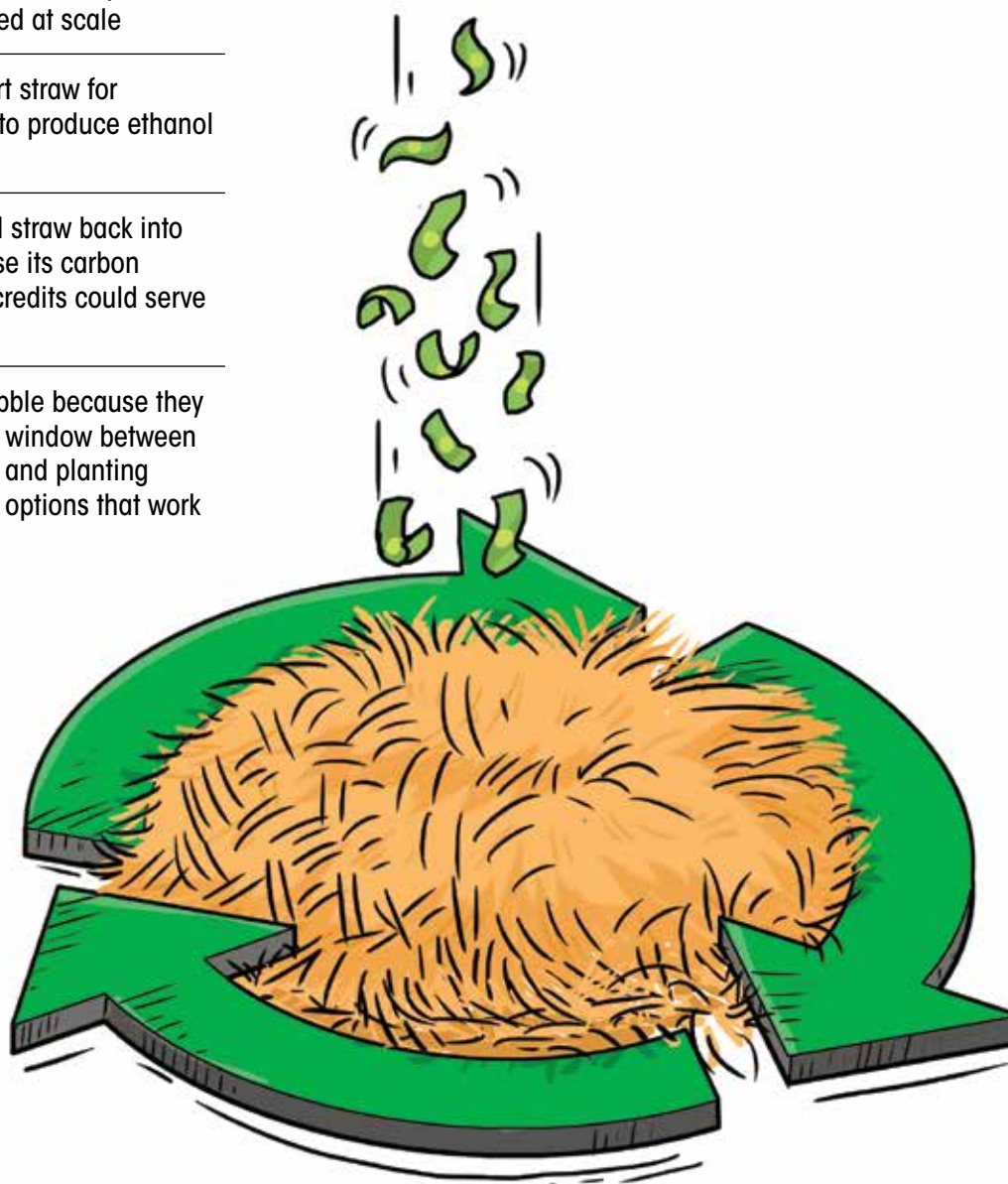
INCENTIVISE FARMERS TO SELL/REUSE STRAW

Technologies and plans exist to reuse crop stubble. But they are not being implemented at scale

Bale and transport straw for bio-methanation to produce ethanol or natural gas

Decompose or till straw back into the soil to increase its carbon content (carbon credits could serve as an incentive)

Farmers burn stubble because they have only a short window between harvesting paddy and planting wheat. They need options that work at their doorstep





AGENDA 5

WASTE MUST NOT BE BURNT

This is a no-brainer

All government programmes are designed so that we segregate our household waste, wet and dry; this is then processed

But this is not happening in Delhi and its neighbouring cities

Instead, it is being dumped, littered and even sent to landfill, and then burnt

Adds to pollution

We need to implement policies and practices for garbage/solid waste



AGENDA 6

ENFORCE, ENFORCE, ENFORCE

POWER PLANTS: There is a direction to all coal plants in NCR to install pollution-control equipment. But this has not happened and deadline has been postponed. This must be done

BRICK KILNS: Zigzag technology can reduce emissions. It has been mandated, yet is not being implemented. One can still see black smoke from stacks

STONE-CRUSHERS: Enforce dust-control measures as mandated in policy

CONSTRUCTION SECTOR: Enforce dust-control measure as mandated

NEED SMART MONITORING: Enforcement must be carried out throughout the year

AGENDA 7

NO NEW PLAN NEEDED. ACT WITH SPEED, AT SCALE, ACROSS THE YEAR

We know what needs to be done. The Clean Air Action Plan (CAP) was finalised in 2018 and then re-finalised in 2022-23. Yet the plan is still not being implemented

What we must learn from the CNG transition is that change requires both scale and speed

In just 2 years, 1,00,000 vehicles were converted to gas

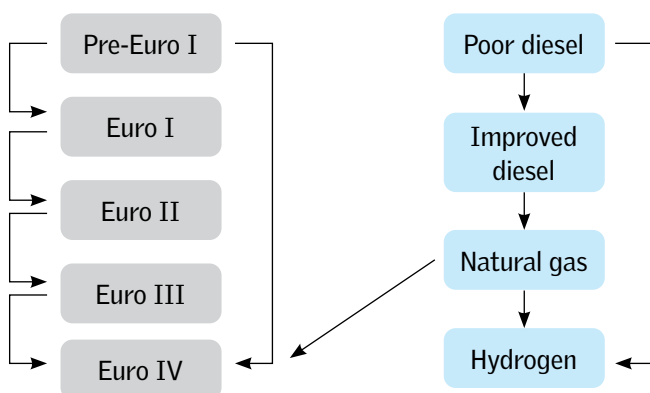
Delhi could see the stars again as air quality improved



THE FIRST-GENERATION REFORMS 1996-2002

LEAPFROG

CNG leapfrog propelled us ahead of Europe—a major solution, not an incremental one. The question now is: what next?

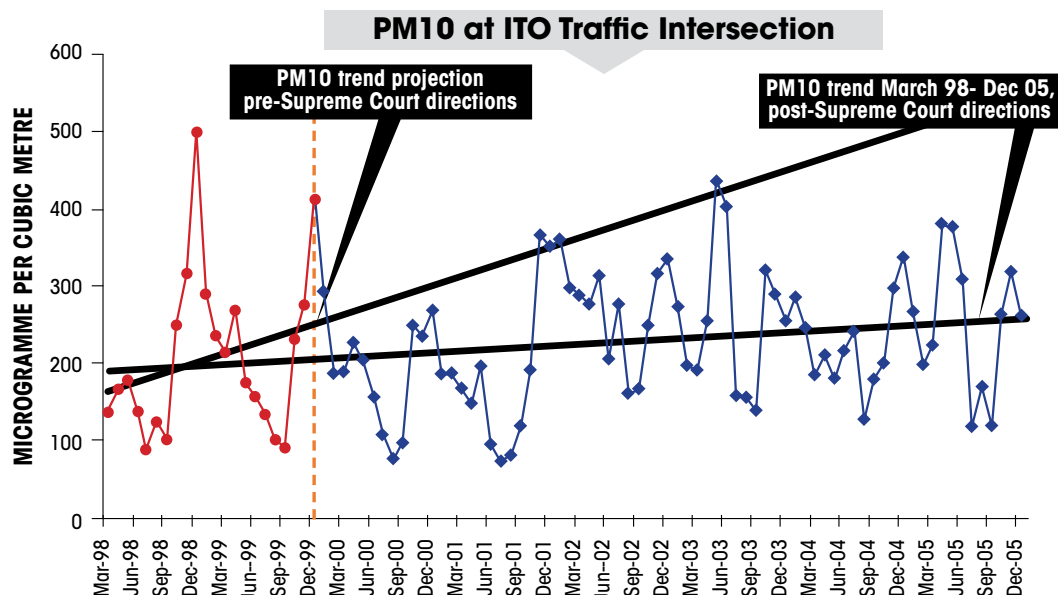


LESSON

Intervention needs to be targeted; planned with scale and speed



DELHI GOT CLEANER AIR: IT AVOIDED POLLUTION. WE SAW THE STARS



CPCB: 24% drop in PM10 levels in 2002 compared to 1996 levels

Resources for Future, US: CNG bus programme reduced RSPM, CO, SO₂ levels

Jawaharlal Nehru University study: Drop in polycyclic aromatic hydrocarbons levels in Delhi's air immediately after the introduction of the CNG programme

World Bank: Delhi has avoided more than 3,500 premature deaths a year

LEARN FROM CHINA

It went from smog to clean air

TWO KEY INTERVENTIONS

1. Large-scale introduction of natural gas/closure of industry that did not conform to new standards
2. Large-scale vehicle fleet replacement/electrification



LESSON

Bottomline is that it can be done. We need to act on a plan and need to act throughout the year, rather than waiting for the next winter when cold air, Diwali and farm fires combine to create a season of despair

AIR POLLUTION: GREAT EQUALISER

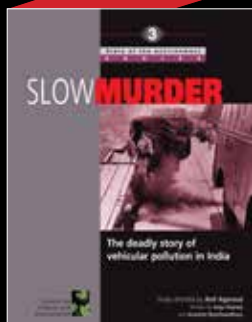
Air pollution is a great equaliser: the rich cannot buy their way out of the air pollution crisis— air purifiers will not work as a long-term solution

Airshed has no boundaries. The poor will add to toxins if they lack access to clean energy. Rich will pollute with private cars. We need clean energy and clean mobility for all



**Our right to clean air
is non-negotiable.
A plan exists. What
is needed now is
implementation,
across seasons.
We need year-long
actions**

2006



2010



2017



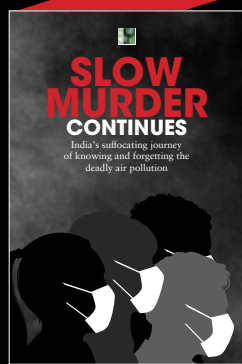
2018



2024



2025



2025



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