Blue skies and clean lungs post pandemic: Agenda for new normal

CSE

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Centre for Science and Environment

The New World (Dis) Order
Building a greener and better world in the post-pandemic era

AAETI, September 23-25

1

City enveloped in smog, back to pre-CNG levels

'सांसों' पर स्मॉग की 'स्याह' परतें

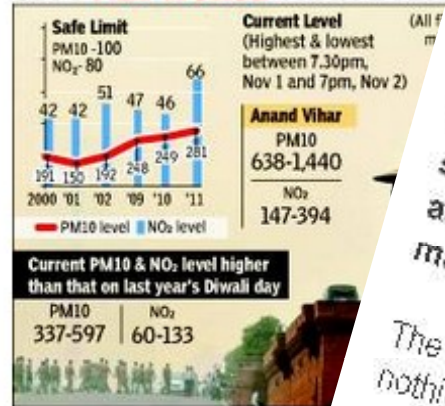Updated on: Thu, 15 Nov 2012 02:00 AM (IST)

Gains Of Switch To Cleaner Fuel Frittered Away

Neha Lalchandani | TNN

New Delhi: Delhi's air pollution has reached alarming levels. For proof, just look out of the window. The grey-white 'haze' that has been covering the city since October 28, say experts, is actually smog that is linked to the rapid rise in

▶High pollution, P 6

CITY AIR WORSE THAN EVER

Safe Limit
PM10 -100
NO₂ 80

Current Level
(Highest & lowest
between 7.30pm,
Nov 1 and 7pm, Nov 2)

42 42 51 47 46 66

191 150 192 248 249 281

2000 '01 '02 '09 '10 '11

PM10 level   NO₂ level

Anand Vihar
PM10
638-1,440

NO₂
147-394

Current PM10 & NO₂ level higher
than that on last year's Diwali day

PM10   NO₂
337-597   60-133

Delhi winter smog is not an act of God

Nov 22, 2012

During the first week of November, Delhi went under a thick blanket of smog. The breeze nearly stopped, and the skies turned grey and dank. Cool and calm weather led to fumes settling close to the ground. People held masks, scarves or handkerchiefs to their

The resultant outcry in
nothing new

ubbornly insisting that this was

Smog leaves Delhi gasping for breath

TNN | Nov 3, 2012, 01.33 AM IST

poisonous gases'. Not co-   air quality, the judiciary   (see

smog   ighbouring   GA snapshots of smoke billowing in from
Punjab   This triggered a blame game: who is
es of errant farmers' smoke?

Disadvantage Delhi: Smog here to stay

Darpan Singh, Hindustan Times
New Delhi, November 08, 2012

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0 Comments   f Like   3   🐦 Tweet   0

The Centre for Science and Environment (CSE), in its latest report, has delivere
The smog is here to stay. It has also warned that Delhi is in the grip of a multi-p
matter is not the only thing choking us. Nitrogu

Should we Leave Delhi?

2

Blue sky: Surreal?

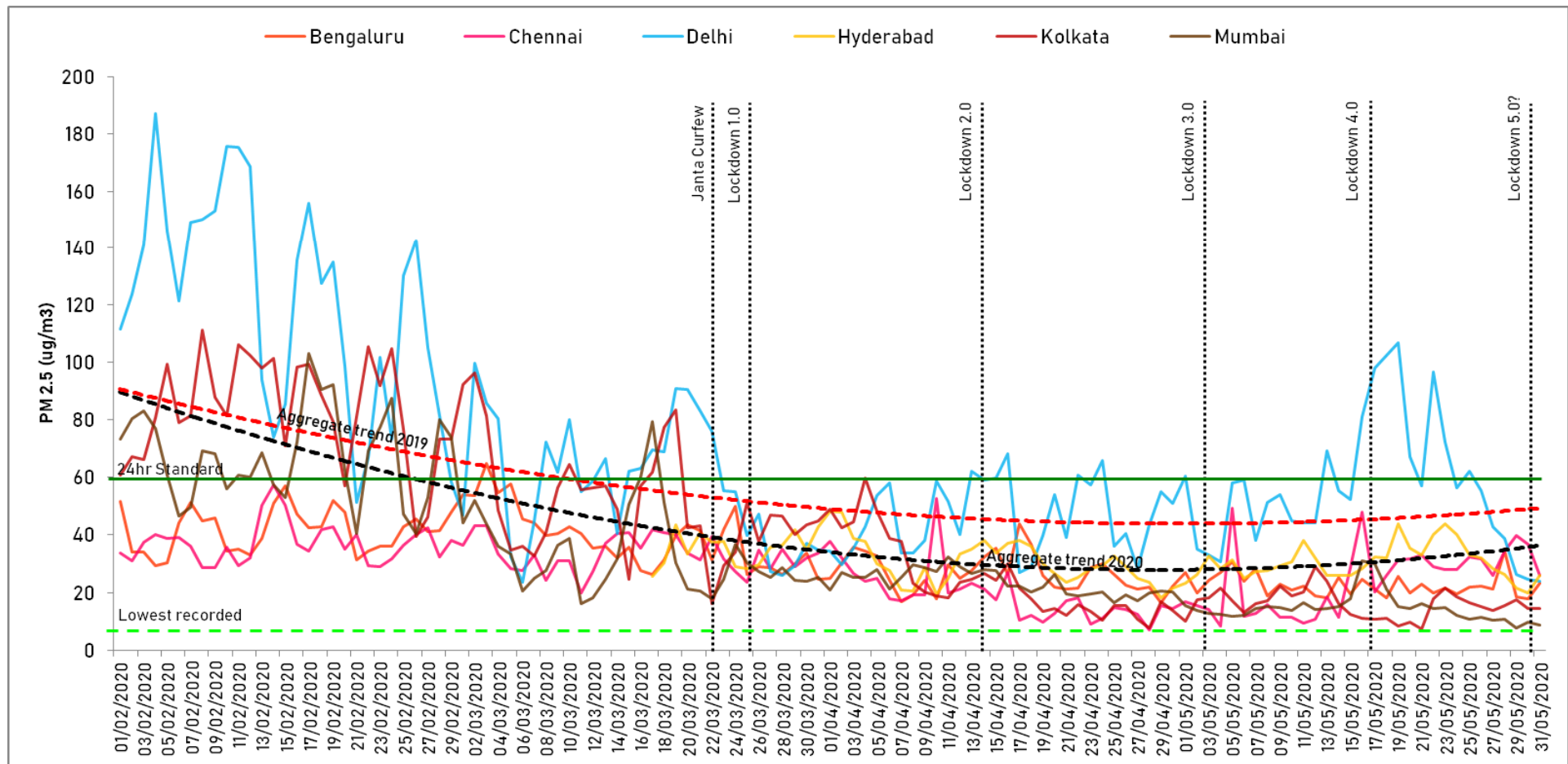View of the Himalayas from Saharanpur. Photo Courtesy: Twitter/@rameshpandeyifs

Air quality has improved remarkably during the shutdown

3

The big drop

PM2.5 levels in six mega cities

45-88% drop across six mega cities;
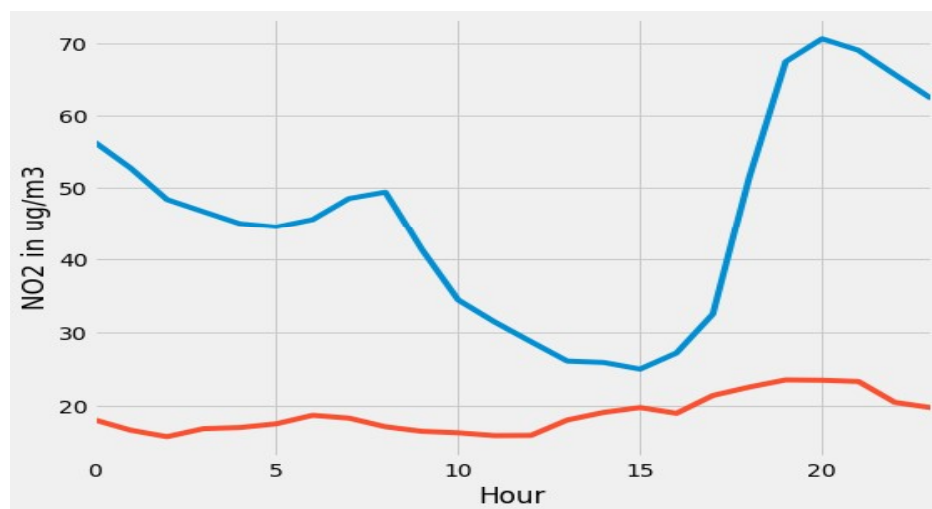## But 2-6 times increase during lockdown 4

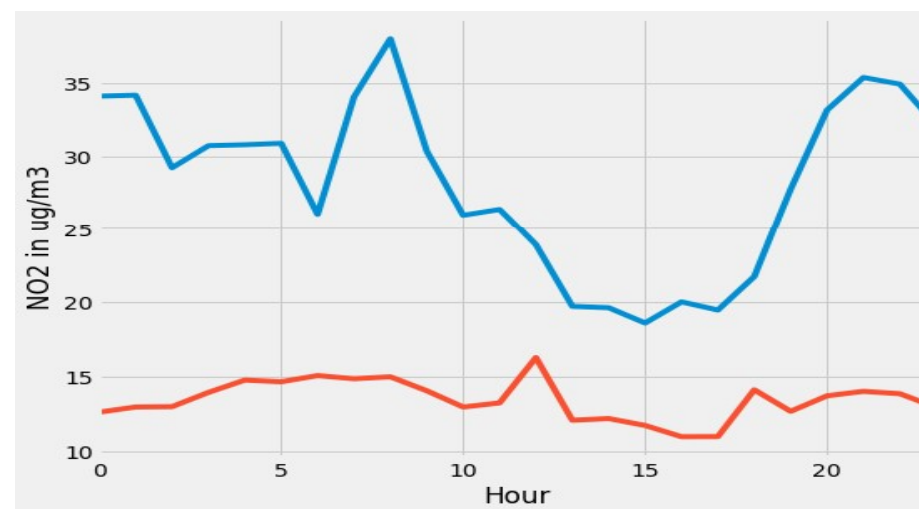Source: CSE analysis based on rreal time data accessed from CPCB portal

Flattening of curve
NO2: Daily peak pollution flattens in Delhi NCR
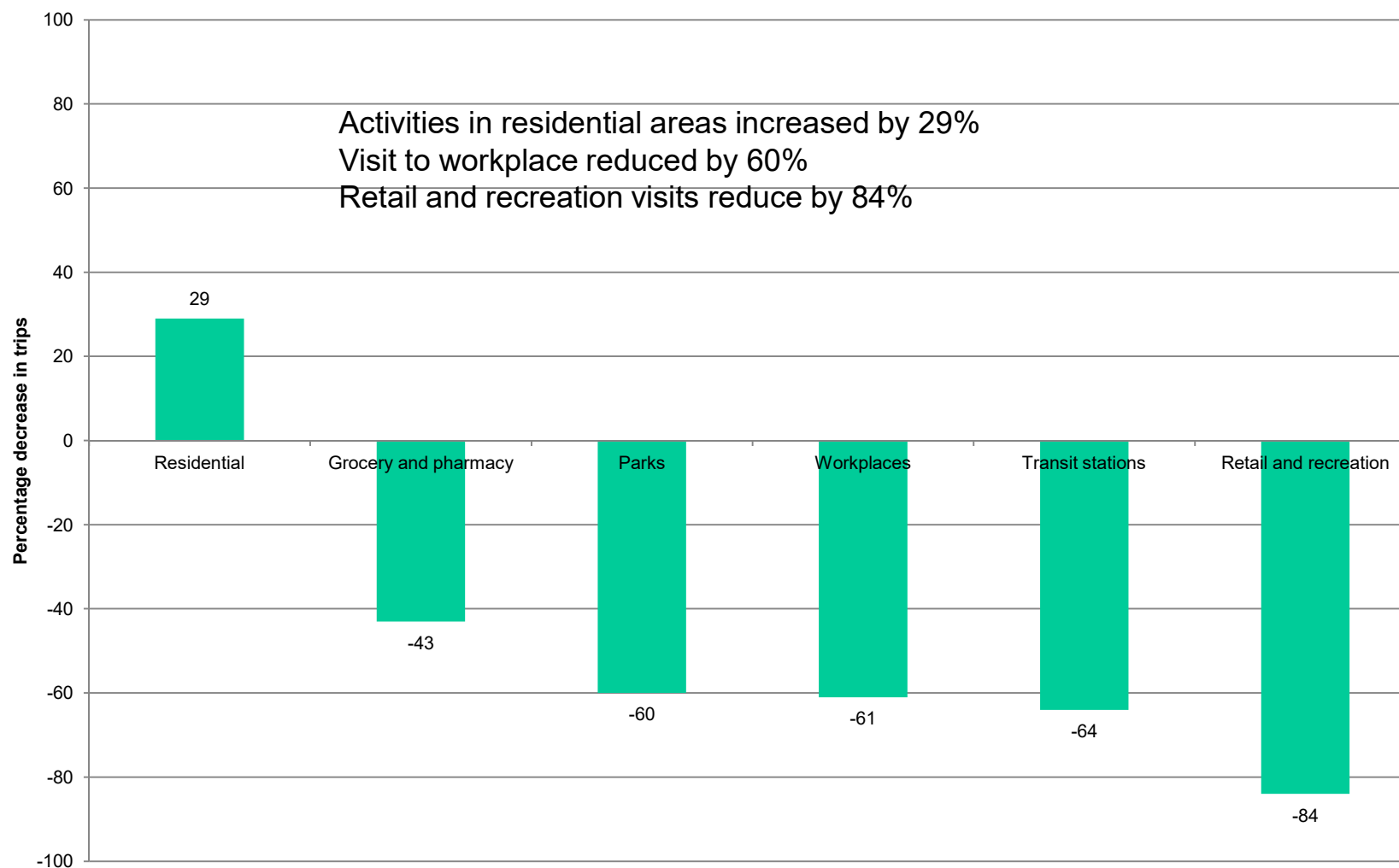

Delhi
(March 16-21 vs March 30-April 3)

Gurugram
(March 16-21 vs March 30-April 3)

Source: CSE analysis based on data available on CPCB online portal

Lockdown phase: Change in activity pattern in India

Activities in residential areas increased by 29%
Visit to workplace reduced by 60%
Retail and recreation visits reduce by 84%

Global challenge: Air pollution and COVID 19 connect

Evidence from round the world:

China – Impact of pandemic higher in polluted regions

US, Europe: Doubling in mortality for the most exposed province.

Harvard study 2020: People in areas with high-particulate pollution are 8% more likely to die from COVID

European Parliament Report, 2020: Patients suffering from cardio vascular diseases at increased risk of mortality from COVID-19.

India
World Bank Feb 2021: 1% increase in long-term exposure to PM2.5 leads to an increase in COVID-19 deaths by 5.7% point, and COVID-19 fatality rate by 0.027% point. Underlying health conditions such as respiratory illness due to air pollution increase risk.

COVID-19 deaths could have been avoided if exposures were lower. Age, pre-existing medical conditions and exposure matter

The new guidelines from the WHO – raising the bar for clean air

- **Even before we could meet our air quality standards, the WHO has significantly tightened the guidelines for air pollutants**

- **Asks for near elimination of particulate pollution**

- **Guidelines for all pollutants made stricter**

- **Rationale and guiding principle – mounting health evidence suggest that** air pollution can cause harm at much lower levels than previously thought.

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High health risk: quite uniformly distributed
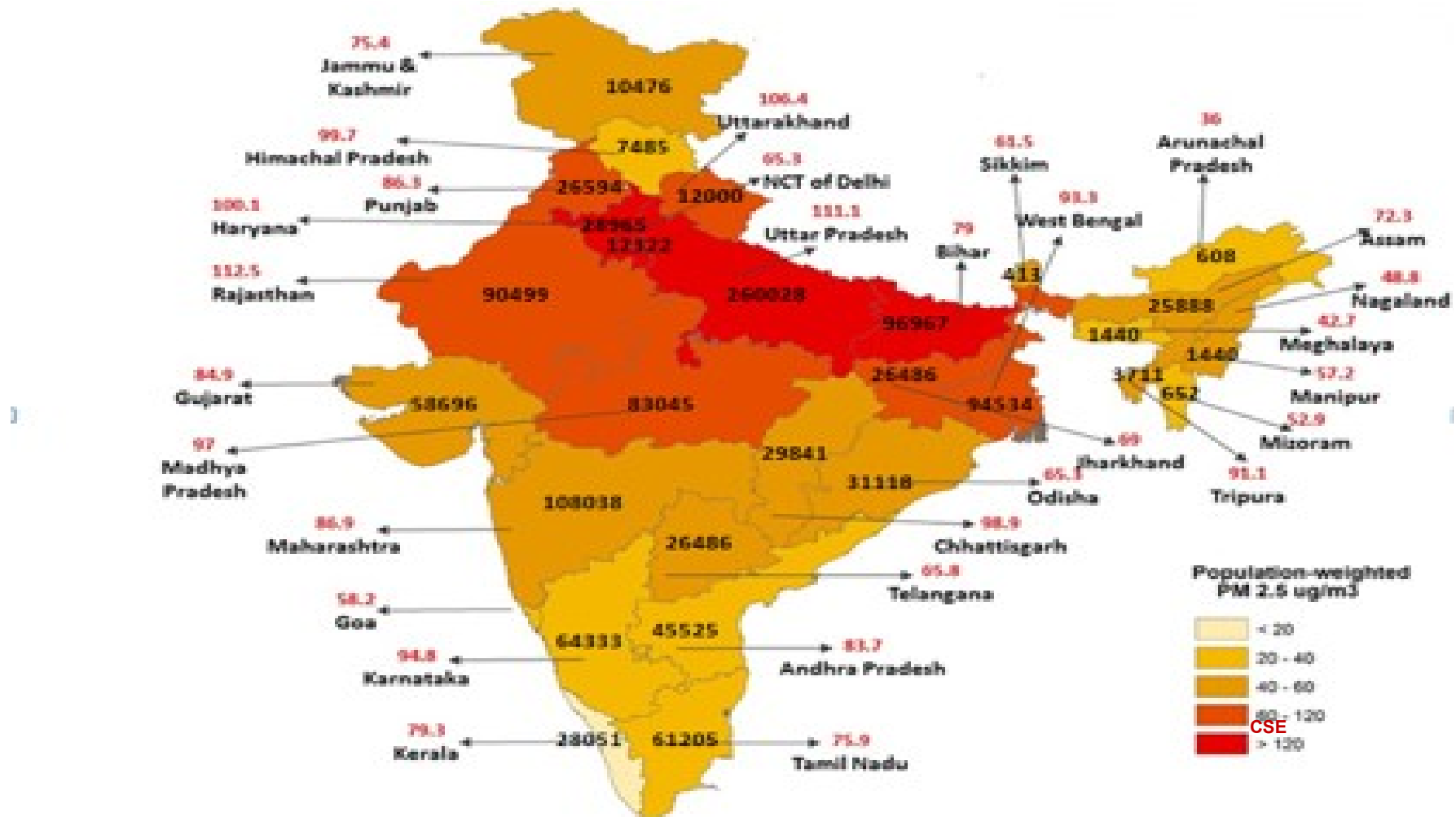
Source: Based on the data from The impact of air pollution on deaths, disease burden, and life expectancy across the states of India: the Global Burden of Disease Study 2017

Health emergency

- **High number of deaths:** 1.24 million premature deaths; India has disproportionately high burden of chronic respiratory diseases. (A 2018 Lancet report); 98% breathing unsafe air that exceed WHO guidelines (WHO 2017)

- **Children among most vulnerable:** India records highest premature deaths of children under five years due to toxic air. (WHO 2017)
- Children in polluted environment growing up with smaller lungs (Journal of Pediatrics 2017)

- **Household air pollution strongly implicated:** Outdoor air pollution caused 6.4% of India's total life years lost due to illness and premature deaths and 4.8% due to household pollution. **(**2017: IHME-ICMR-PHFI study). Household pollution needs addressing (K Smith et al 2019)

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- **Air pollution linked with new genre of diseases;** PM2.5 linked diabetes high in India (600,000 premature deaths). (The Lancet Planetary Health 2018)

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Delhi lungs

Bad air! We all know about it. But the fact that it gets into our bodies and inflicts fatal injuries is unknown to most of us. Surgeons who have the privilege of seeing inside us have a funny story to tell. They can tell, just by looking at the colour of the lungs, whether the person is from a dirty big city or not. Actually a shocking tale!

Look at the spotless lung below. The fortunate owner comes from a relatively cleaner place.

Himachal lung

Delhi lung
Capital punishment
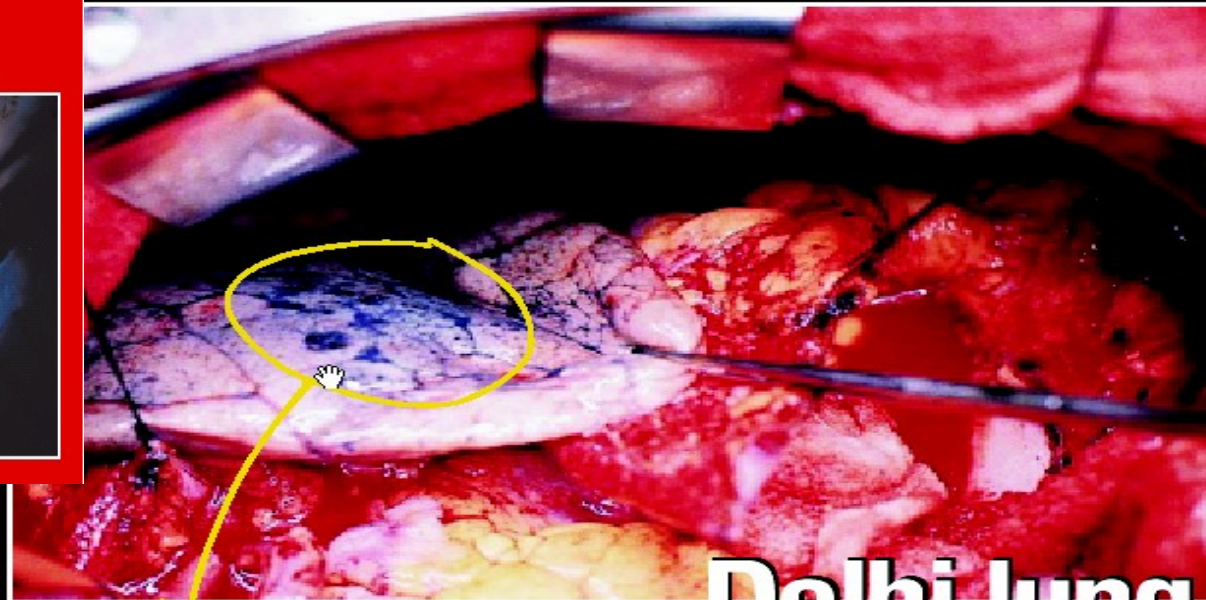
Look at these black spots on the lung. The unfortunate owner lives in Delhi and has been breathing polluted air. Air full of carbon particles which accumulate in the lungs (black spots). What you can't see is a cocktail of gases and tiny particles, even smaller than carbon that get into our bodies.
Actually, you are getting polluted.

Scary? But those cars are so cozy!

Source: CSE

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How do we sustain air quality gains during new normal?

National Clean Air Programme

Air pollution reduction target of 20-30%

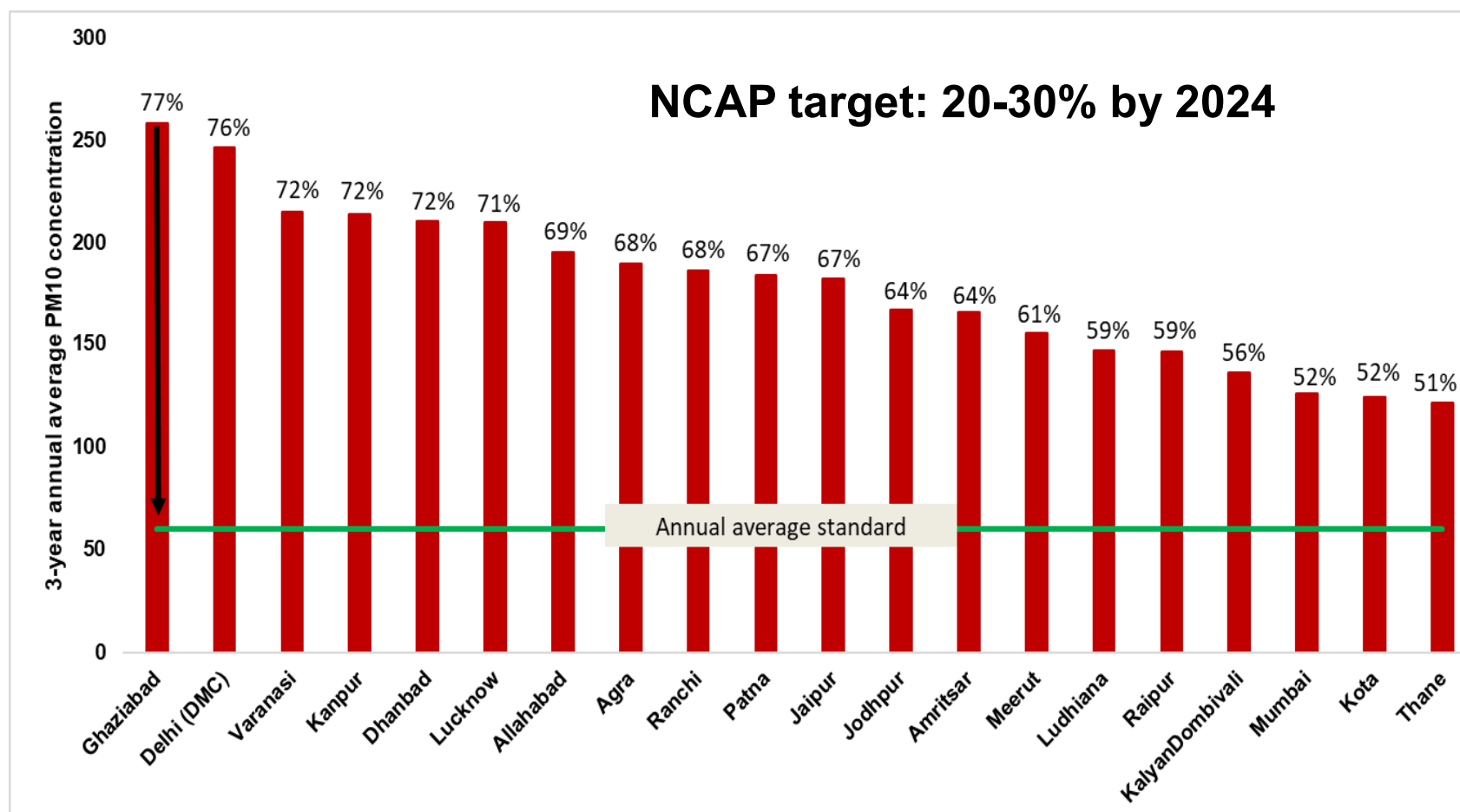**122 cities - Several questions…..**

- Compliance, monitoring and accountability framework for implementation of clean air plans
- How will this work within the federal system?
- How to enable higher level of ambition at state/city level?
- Need regional framework
- Funding strategy for action plan NCAP on mission mode?
- Benchmark for effectiveness of clean air action plans
- Household pollution excluded

New funding programme under the recommendations of the 15th Finance Commission

- Rs 4,400 crore for Urban Local Bodies and State Pollution Control Board in cities with more than a million population

- Target of 5% annual reduction in particulate pollution over five years

- Need detailed indicators and benchmarks for the spending to make this performance based

- Cities struggling to develop effective strategies

Reduction target to meet PM10 standard

NCAP target: 20-30% by 2024

Chart: 3-year annual average PM10 concentration with reduction target percentages

- Ghaziabad — 77%
- Delhi (DMC) — 76%
- Varanasi — 72%
- Kanpur — 72%
- Dhanbad — 72%
- Lucknow — 71%
- Allahabad — 69%
- Agra — 68%
- Ranchi — 68%
- Patna — 67%
- Jaipur — 67%
- Jodhpur — 64%
- Amritsar — 64%
- Meerut — 61%
- Ludhiana — 59%
- Raipur — 59%
- KalyanDombivali — 56%
- Mumbai — 52%
- Kota — 52%
- Thane — 51%

Annual average standard

15

Multi-sector clean air action plans in non-attainment cities

- Air quality monitoring and management

- Vehicles and transportation

- Industry

- Power plants

- Waste management (all streams of waste – solid waste, construction and demolition waste, plastic waste etc)

- Solid fuels for cooking (households, open eateries, resturaunts etc)

- DG Sets

- Road dust

- Greening

- Mining – as applicable

What it takes to bend the pollution curve?

Lessons from Delhi .....

Third generation action

First generation: **Action for urgent relief – Address gross polluters -** CNG, shifting of industry, old vehicle phase out

Second generation: **New generation policies and standards –** Emissions standards for vehicles and power plants, Regulations for waste (C&D and MSW); NUTP, TOD, NHS, clean energy access etc. Changing governance principles

Third generation: **Need implementation, enforcement, compliance framework, institutional capacity, design rich solutions**…. for transformative changes at a scale across sectors

More decentralised local and regional action

Two action plans in Delhi

Graded Response Action Plan – January 12, 2017

Comprehensive Clean Air Action Plan – June 2018

What has Delhi done already?

Vehicles

- Implemented BSIV in 2010 and BSVI in 2020

- Public transport and local commercial vehicles on CNG

- Phased out 10 year old diesel and 15 year old petrol vehicles

- Ten year old truck cannot enter Delhi, all truck pay environment compensation charge to enter Delhi, RFID system for electronic monitoring and cashless payments. Real time tracking of truck entry

- Environment Pollution Charge on all big diesel cars and SUVs

Industry and power plants

- Expanson of natural gas in industrial sector

- Approved fuel list notified – bans use of coal, petcoke, furnace oil etc

- All coal based power plants closed

Transportation

- Parking rules notified as a vehicle restraint measure

- Multi-modal integration of 70 metro stations

- Metro system and push for augmented bus number and service

Expansion of household LPG

Desperate measures during winter

October 12, 2018 to March 15, 2019 - Very Poor category action implemented

- Badarpur coal power plant closed (Now permanently)
- Diesel generator sets not allowed
- Industrial units on coal and biomass shut; Brick kilns shut

November 1-12, 2018

- Ban on construction activities, hot mix plants and stone crushers

November 4-12, 2018

- Industries using coal and biomass as fuel shut

November 8-12, 2018

- Truck entry ban

December 24-26: Emergency action

- Industries closed in hotspots
- Construction ban
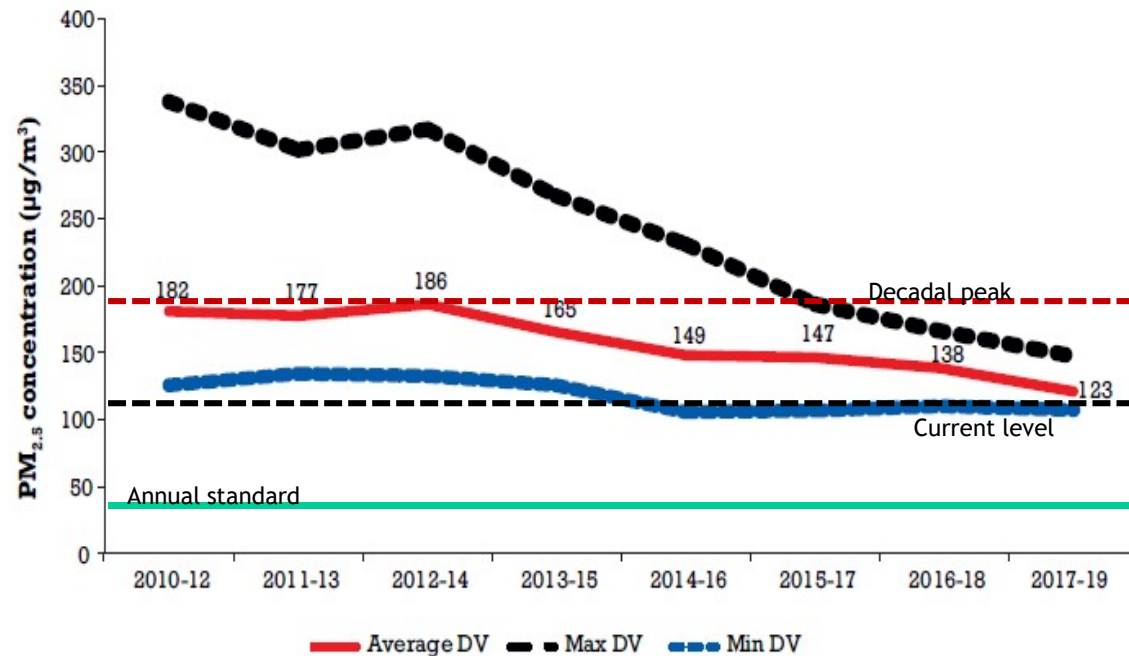- Enforcement on waste burning and construction (enforcement challenges)

January 4-5, 2019

- Truck entry ban

Delhi's long term trend

Graph 2: Trends in PM$_{2.5}$ concentrations in the five oldest stations

25%

reduction in PM2.5
levels in last decade.

But,

60% more
reduction needed to
meet the Indian
standard.

Source: CSE analysis of CPCB real-time PM$_{2.5}$ data using the USEPA method

Sources of pollution and action to take

Understanding pollution sources: Need sectoral approach and deep cuts
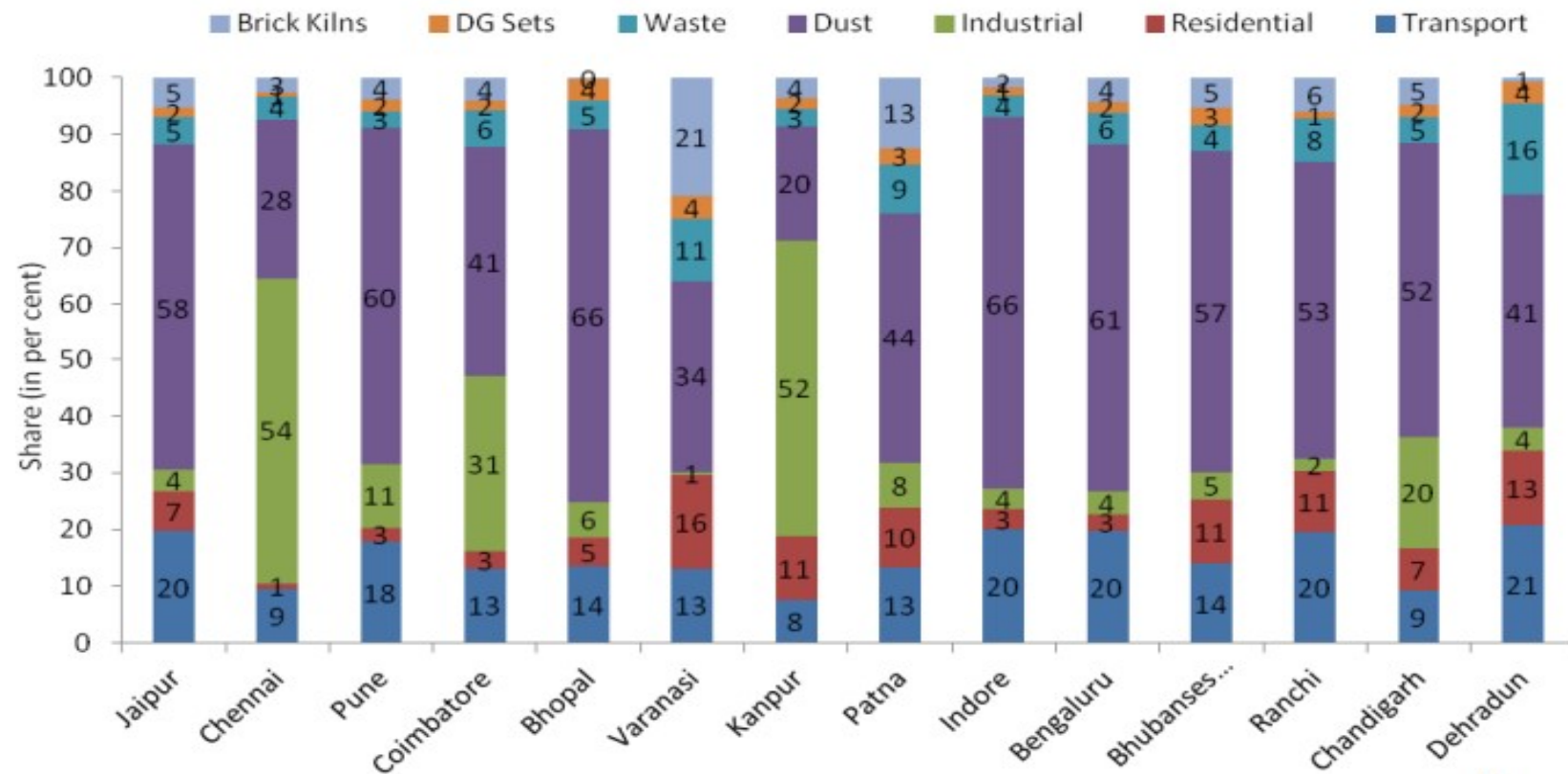
Source: Urban Emissions, 2017, http://www.urbanemissions.info/wp-content/uploads/apna/frontpage/index.html

Understanding dust pollution

- Geographical disadvantage – loose soil and high wind effect in Indo-Gangetic Plain –
- Dry winters/summers add to the problem
- Road dust carrier of toxins from combustion sources
- Only road sweeping will not help
- Address mismanaged urban construction and roads
- Urban greening agenda

Comprehensive Air Action Plan
for Air Pollution Control (CAP) for
Delhi-NCR Notice issued under
section 3 and section 5 of the
Environment Protection (EP) Act
1986 in 2018.

**From sectoral issue based
approach to multi-sector
strategy**

Need massive transition

Transition to clean fuels and technology

Massive mobility transition

Paradigm shift in waste management

Need scale and effectiveness

Need accountability

Awareness and advocacy to deepen understanding and build support for solutions

Industry
Action in Delhi-NCR

Delhi

- Big industries shifted

- Expansion of natural gas supply to industries.

- Most registered industries in NCT switched to cleaner fuel

- Notified approved fuel list – bans dirty fuels including coal

NCR region

- Ban on petcoke and furnace oil in four states

- SOx and NOx emissions standards for industries

- Ban on import of petcoke

- Direction to industries to switch to PNG in NCR

- Problem of small boilers

Coal dominates industrial fuels: 1.41 million tonnes of coal is consumed annually in the six districts

Industrial pollution: Next steps

Switch from coal to cleaner fuels -- only option for smaller units

Natural gas pricing –dirty coal is under GST so tax is lower and industries get credit; under OGL – so can be imported.

But gas is heavily taxed – over 40% tax; bring under GST like coal

Encourage but monitor use of agro-residue as an intermediary fuel

Develop roadmap for centralized steam boilers

Industrial solid waste management

Control fugitive emissions from industries and industrial area

Ensure smart monitoring in large industries – strengthen CEMS regime

Delhi shuts all coal power plants

- **All coal power plants shut -- 2mt/y+ coal use stopped**
- Bawana – Moved to natural gas
- Fly ash remedial measures started in Badarpur

NCR:
Burns 35+mt coal/year

- **Within 300km radius of Delhi** - 11 TPPs of 13.5 GW (5 in Haryana, 4 in Punjab and 2 in Uttar Pradesh)
- **Old capacity retired (commissioned before 1990) –**Retired (1,720 MW); other plants to be reviewed/closed or modified
- **2019 deadline for new standards not met**
- **Current status:**
  - 2 complying with SO_2 norms, 3 work-in-progress most likely to comply, rest lagging behind
  - 7 plants report compliance with NO_x norms, rest in the process of awarding tenders
  - All stations complying with PM norms

Power plants: Next steps

Ensure implementation of 2015 standards as per deadline of 2022 – But deadline delayed

Penalty lower than cost of compliance

Do this through incentive for first-run plants

CSE research finds that Delhi has closed its 'dirty' power plants, but it buys power from the 'dirtiest plants' across the country

Trash and biomass burning

Improper management of landfills and frequent fire. Municipal Waste (mis) Management and urban poverty

Legal ban on trash burning does not work – link it with waste management

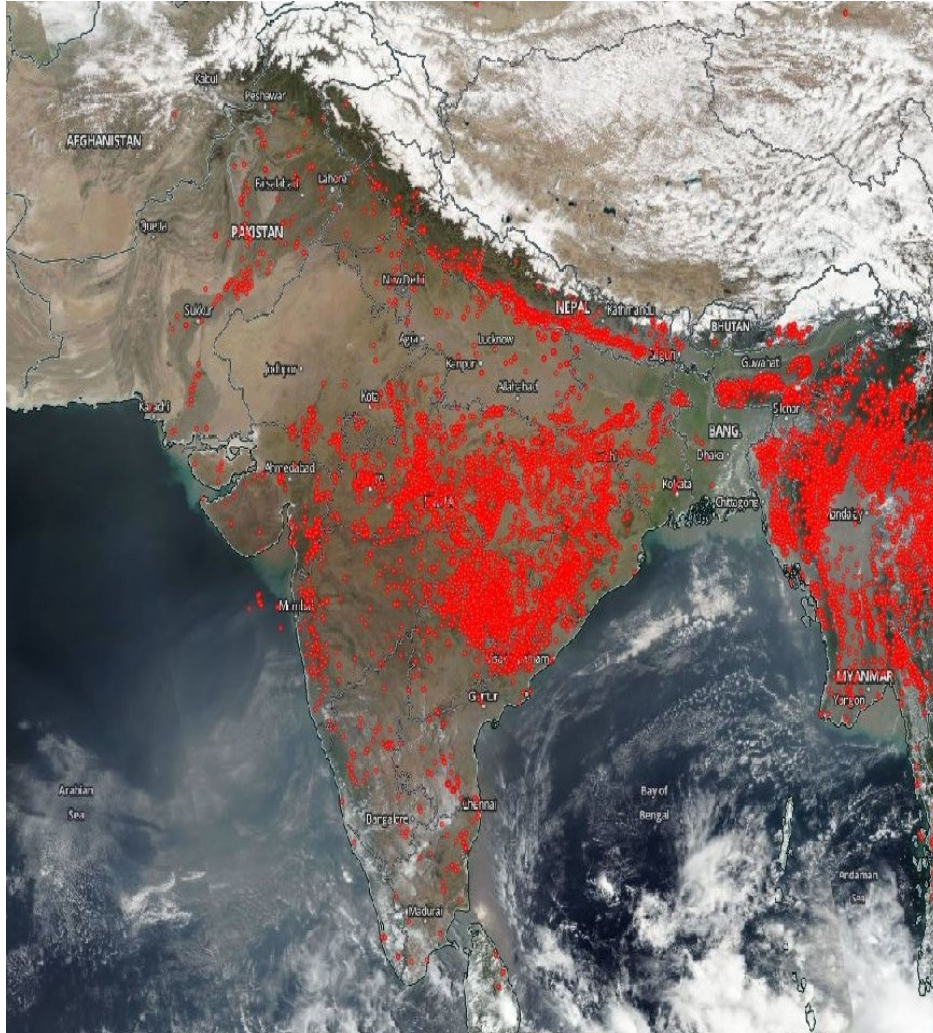Delhi has adopted bye laws or solid waste management

Need accountability for decentralised management, segregation

Charge and penalty

Management of landfill sites and methane extraction

Crop residue burning

Satellite Image of India on April 11, 2017, where each red dot indicates a biomass based fire. Source: NASA MODIS data

In-situ and ex-situ projects

Small and marginal farmers should be allowed free rent and use of machines

Custom Hiring Centers should use the APP developed for this purpose

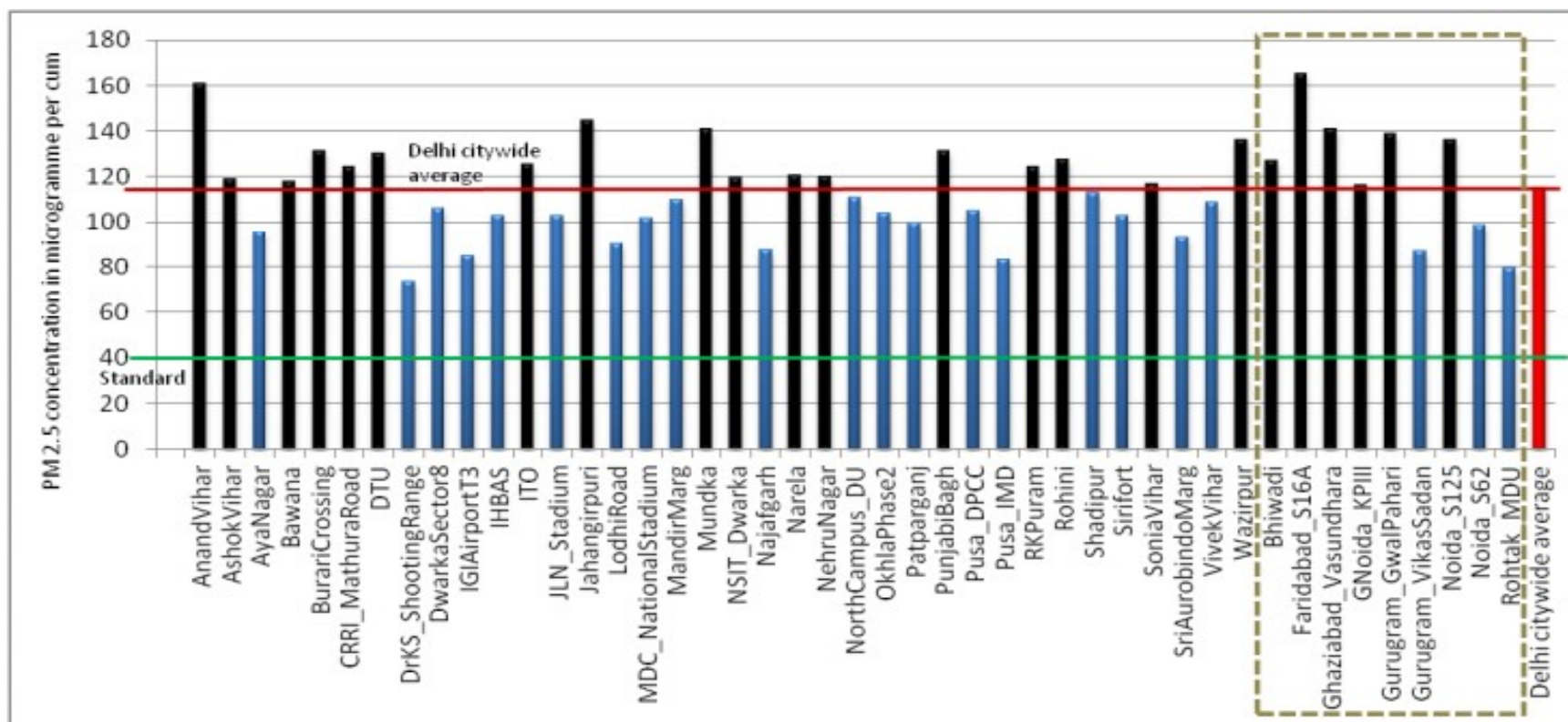Need public awareness about the machines and the option for stubble management

Ex-situ projects should be advanced; Crop diversification

.

Hotspots

PM2.5 concentration in all locations of Delhi NCR in 2018

Stations in black are those that are above the Delhi city average

Note: All stations that have less than 60 per cent data availability are not included in the analysis
Source: CSE analysis based on real-time data from CPCB on-line portal

Hotspot pollution: Abatement plans

- DPCC, HPCB, UPPCB, RPCB have made plans for individual hot spots; identified sources of pollution; agencies responsible
- Key sources across hotspot:
- A. Fugitive dust emissions from empty lands; roads etc
- B. Industrial stack pollution
- C. Garbage burning; plastic and dumping of C&D waste
- **Plans require on-ground implementation**
- Implementation needs to be secured year-after-year and structural responses found
- Roads must be fixed; greened
- Solid waste; particularly industrial waste must be managed/recycled
- Illegal fuel usage must be checked; enforced on ground

Construction and demolition waste

•BIS recognised recycled C&D waste as substitute for natural aggregate in concrete mix.

•Delhi an NCR C&D Rules for handling, collecting, processing and reutilization

•Delhi increased recycling capacity 5-folds since 2010. Doubling now

•Gurugram, Ghaziabad, and Noida have recycling facilities and expanding

•Adopted mandatory utilization of recycled waste in government projects.

•EPCA issued checklist for active construction sites dust control
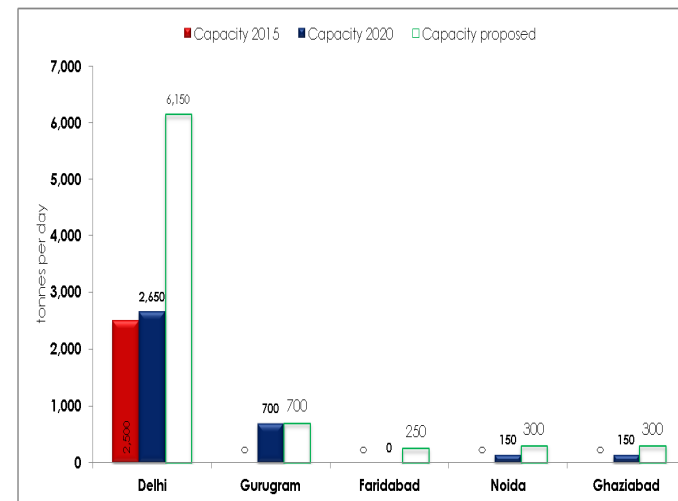
Source: CSE analysis

C&D waste: Next steps

•Effective monitoring of transportation and zero tolerance toward littering or illegal dumping of C&D waste.

• Incorporate informal sector

• Regulate demolition services to reduce waste generation.

• Expand recycling facility to cover non-concrete and non-brick component of C&D waste.

•Reduce GST on recycled material

• Other NCR towns yet to develop and adopt recommended C&D waste management policies.

Action on vehicles and transport

Vehicles: Action taken

Vehicles and fuel standards
- BSVI fuel (10ppm sulphur) in 2018 and BSVI standards in 2020
- Public transport and local commercial vehicles on CNG

Trucks
- Ban on non-destined trucks; Eastern and western expressway (SC orders of 6.12, 2001, 11.2.2005, 11.3.2005 and 1.8.2005)
- Environment Compensation Charge imposed on each truck entry – Dedicated fund created for pollution mitigation (SC order Oct 9, 2015)
- Entry of ten year old truck banned (SC order Dec 16, 2015)
- RFID system for electronic monitoring & cashless payment linked to VAHAN (SC order August 22, 2016)
- Weigh in motion bridges to check truck overloading

Diesel cars
- Environment Pollution Charge on big diesel cars with 2,000 cc engines (SC directive 2016); SC upholds NGT ban on 10 year old diesel cars

Impact on truck pollution

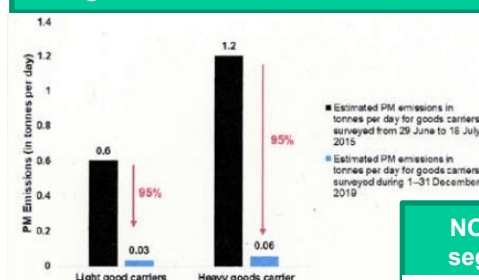### Reduction in number of goods carriers of different categories in major entry points
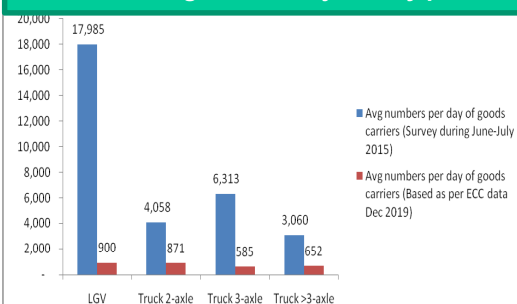
Source: CSE study based on commissioned survey June-July 2015 and SDMC data of Dec2019-1ˢᵗJan2020
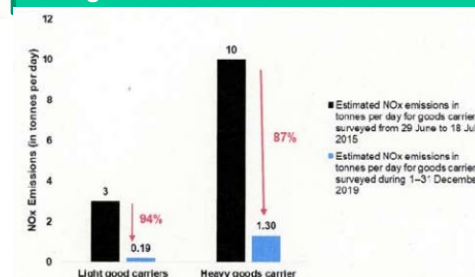
-- 95% cut in particulate load from trucks entering from 13 locations, compared to 2015.

-- 94% drop in NOx loads from light-heavy duty vehicles entering from 13 locations.

PM emission load from different segments of commercial vehicles

Source: 2018, SAFAR study and 2015, Status of Pollution Generated from Road Transport in Six Mega Cities, CPCB and data collected from the survey

NOx emission load from different segments of commercial vehicles

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Vehicles: Action taken

On-road emissions

- Audit of PUC centres, 2017: Led to linking of insurance with PUC certificate; notification of new PUC norms for BS VI vehicles

- SC approved use of hologram-based colour coded stickers based on fuel type. (August 2018)

- Remote sensing pilot program for fleet screening to identify highly polluting vehicles on road. MoRTH framing rules

- Centralised inspection and maintenance centre in Jhuljhuli

PUC – challenges of on-road emissions management
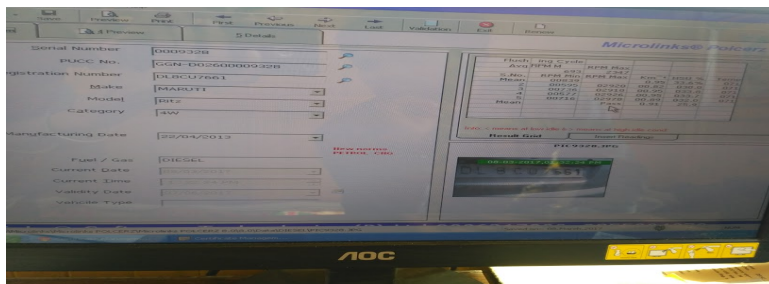
2016-17 audit in Delhi NCR

Testing with no working knowledge

Non functional equipment

Fake software

Flyby night illegal centres

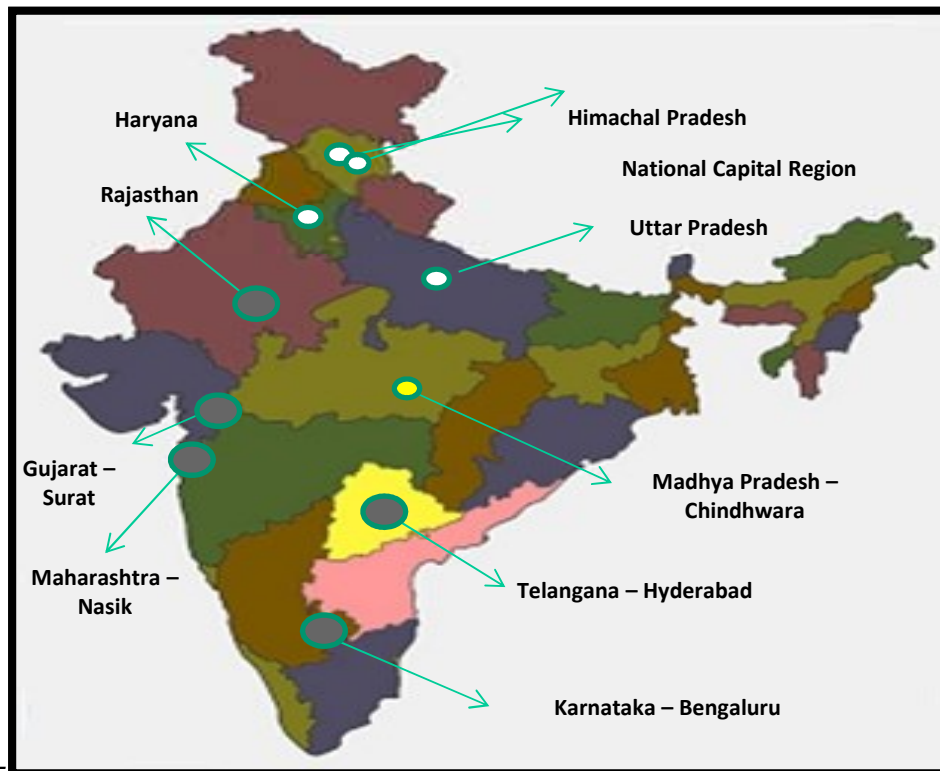# Advancing zero to remote sensing
Kolkata has pioneered this

Delhi: ICAT pilot; MORTH-ARAI to develop guidelines
To develop threshold limit to pull out gross polluters
How to use this for compliance

Source: CSE field visit

Centralised inspection test centres

10 Model I&C Test Centers being established..

Centers to be facilitated by ARAI
Centers to be facilitated by iCAT
Center to be facilitated by SIAM

This is not scalable: Leverage them strategically; Need other supportive measures for basic screening

Source: ARAI

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Prevent cheating and tampering

Tube blocked

EGR tampering

External zapping device
• External black box plugged behind EOBD socket

Mechanical tampering
• Physical change in engine compartment
• blocking gas tube with a baffle
• sealing hose to the vacuum actuator

DPF removed
•Missing part or visible alteration (e. g. welding seam) of exhaust pipe
•Soot in exhaust of a Euro 5/6 vehicle, may indicate DPF removal (an indication, no proof for manipulation)
DPF gutted
•Soot in exhaust of a vehicle, may indicate DPF removal

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Electric vehicles - uncertain targets

- **Policy intent: Ministerial announcements -- 30@30**

- **NITI Aayog 2019:** 70% electrification of all commercial cars, 30% of private cars, 40% of buses, and 80% 2/3 -wheelers by 2030.

- **Not backed by any regulatory mandate and long-term policy roadmap**

- **Automotive industry's voluntary targets (SIAM 2019)**: All new vehicle sales for intra-city public transport fleets to be electric by 2030; 40% of new vehicle sales to be electric by 2030. All new vehicle sales to be electric by 2047.

- **State level target**: Eg Delhi – 25%electrification by 2024; Others too

But ..... against the minimum target of 30@30

Currently…. (According to the VAHAN data base):

- **E2Ws**: 0.15% of market share

- **Private electric four-wheelers**: 0.02%

- **Electric buses**: 0.16%

- **Electric goods vehicles**: 0.1%

- **Original target of National Electric Mobility Mission Plan of 2013**: 60–70 lakh electric vehicles by 2020

- **2012-2021:** India registered 6.3 lakh E-vehicles (4.9 lakh e-rickshaws).

- **2012–2019:** EV numbers - an average CAGR of 45% from very tiny stock.

- **Need to maintain minimum average CAGR of 46%** going forward. Challenging for high volume sales.

Vehicles: Next steps

- Scale up electric vehicle programme - Battery-power vehicles (e-vehicles) – Link this with economic stimulus

- Priority segments – which travel highest – autorickshaw; taxi and bus

- Advance on-road emissions monitoring – remote sensing in Delhi and big NCR towns

- Need zero emissions mandate – electric mobility

Need clean vehicles but also less vehicles on road

Transportation and vehicle restraint strategies

Cities are losing the battle of car bulge....

Source: CSE

Cars occupy more road space, carry fewer people, pollute more, guzzle more fuel.

They edge out public transport users, pedestrians, bicycles, cycle rickshaws ..

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# Clean air action plans mandating transport reforms

- **Augment bus numbers and service, modernise bus fleet**
- **Implement the full range of ITS integration** within the city bus system – ETVMs, Smart Card, GPS tracking and central monitoring, PIS
- **Implement a fare policy for the city/ capital region** to reduce journey cost by not penalising interchanges
- **Physical integration of modes**
- **Organise para transit**
- **Implement urban street design guidelines** to prioritise design for public transport access, walking and cycling infrastructure
- **Design safe and universal access**
- **Implement zonal plans for NMT network**
- **High street density with well designed pavements and cycling facilities** & adequate protection for pedestrians and cyclists
- **Adopt compact urban form code** to create high density, mixed use, mixed income development; accessible streets to reduce distances

Delhi Decongestion Report: How to achieve target and scale?
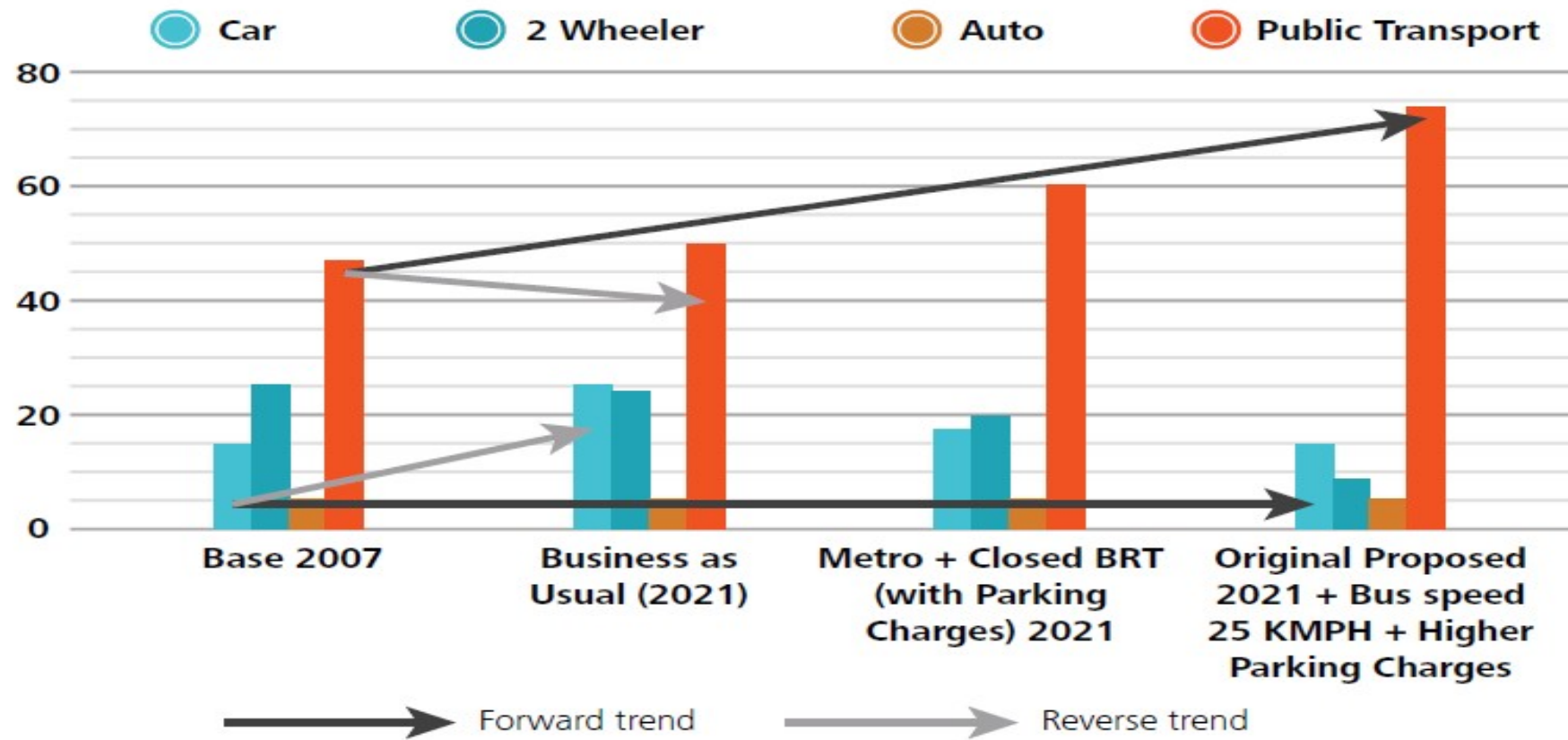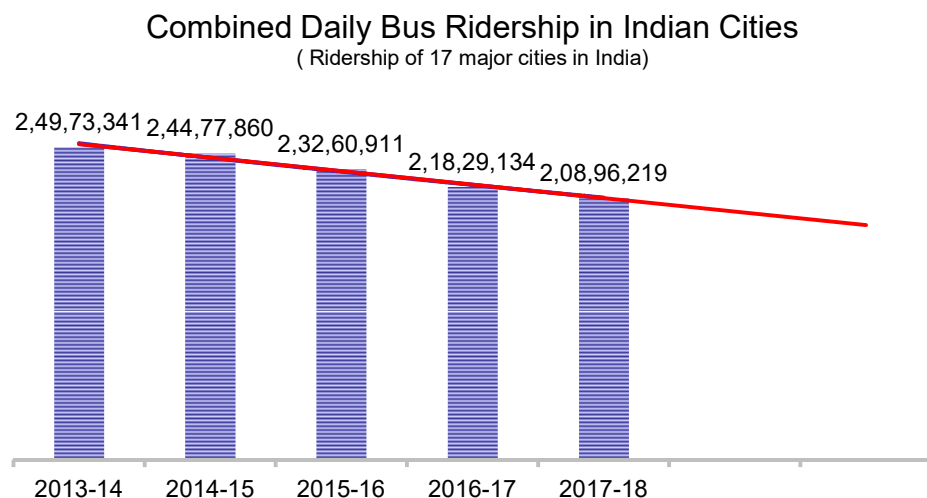
Buses: Slowest to improve

Trend in Delhi's bus number and ridership
(DTC and cluster services)
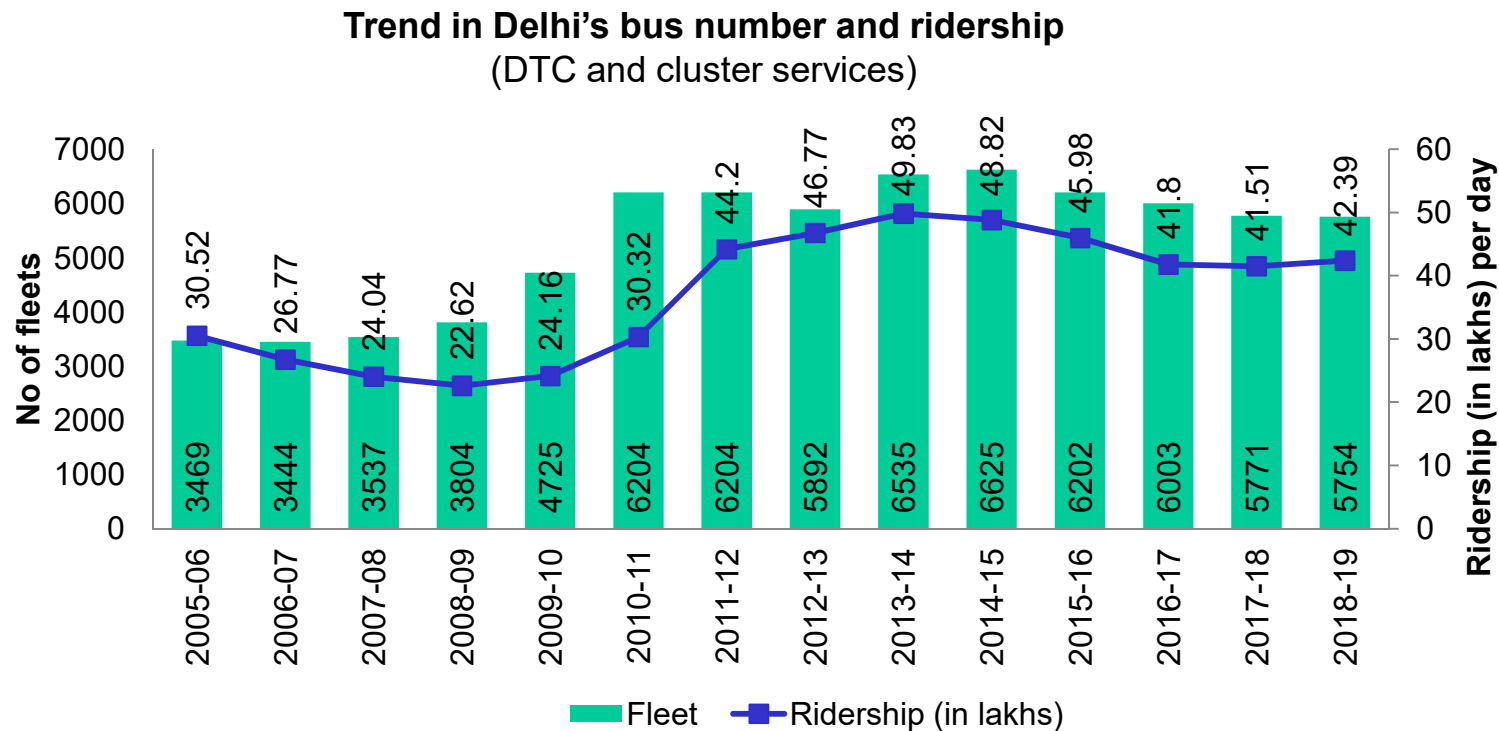
Source: DTC operational statistic 2016; Economic survey of Delhi 2018-19

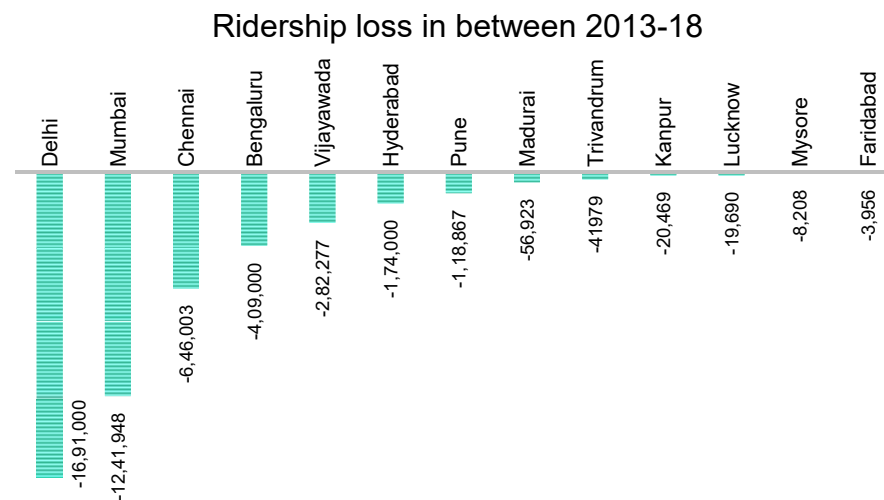**In 2019-20, Delhi has added 733 buses**

How do we build scale?
Bus ridership and fleet declining in major cities of India

Combined Daily Bus Ridership in Indian Cities
(Ridership of 17 major cities in India)

2,49,73,341 2,44,77,860 2,32,60,911 2,18,29,134 2,08,96,219

2013-14   2014-15   2015-16   2016-17   2017-18

Source: RTI filed by CSE, 2019

Ridership loss in between 2013-18

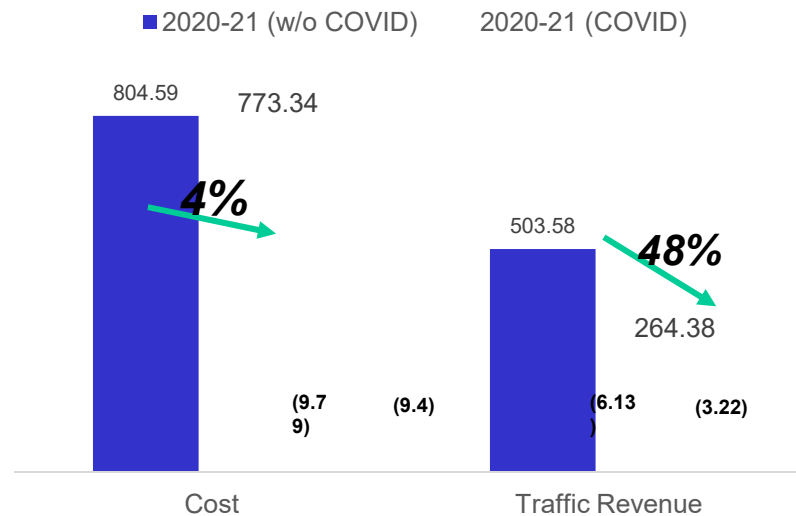| City	Loss
Delhi	-16,91,000
Mumbai	-12,41,948
Chennai	-6,46,003
Bengaluru	-4,09,000
Vijayawada	-2,82,277
Hyderabad	-1,74,000
Pune	-1,18,867
Madurai	-56,923
Trivandrum	-41979
Kanpur	-20,469
Lucknow	-19,690
Mysore	-8,208
Faridabad	-3,956

Source: RTI filed by CSE, 2019

Between 2013 - 18, 12 cities have lost combined ridership of 40.8 lakhs
NTDPC report: Passenger traffic will grow by 15-16 times over a economic growth of 7-9% per annually; India needs to invest 8-10% of GDP in transport infrastructure

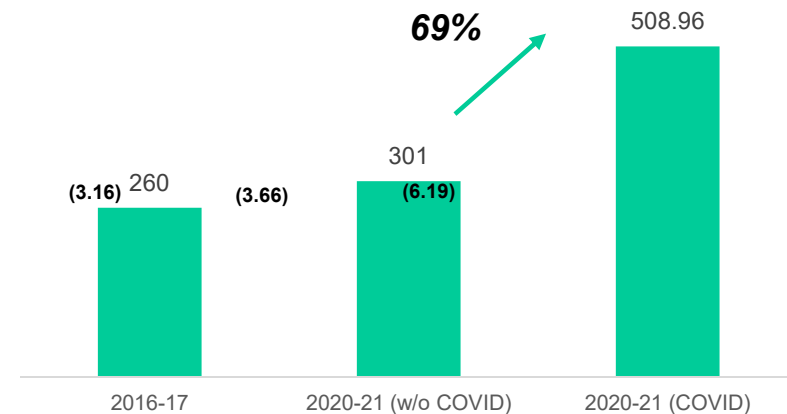# Impact of lockdown on bus transport in India: Need green recovery

Impact of COVID-19 lock down on total cost and traffic revenue compared to Normal operations (in INR Billion)- 2020-21

■ 2020-21 (w/o COVID)   2020-21 (COVID)

```
804.59    773.34
              4%
                                503.58
                                          48%
                                        264.38
          (9.79)    (9.4)      (6.13)    (3.22)
          Cost              Traffic Revenue
```

* Estimated for period from March 2020 to February 2021 considering regular operations from May 2020

Source: GIZ

Impact of COVID-19 lock down on Annual VGF requirement* (In INR Billion) in 2020 values- 2020-21

```
                              69%        508.96
              301
     260
(3.16)      (3.66)    (6.19)
2016-17    2020-21 (w/o COVID)    2020-21 (COVID)
```

When the cost reduced by 4%, the traffic revenue reduced by 48%.
This created a 69% increase in the annual VGF requirement of bus transport agencies in India

Car centric road design lock in enormous pollution

-- Major share of transport sector investment in car centric infrastructure

-- Engineering changes once made cannot be reversed easily… It permanently decides our travel choices
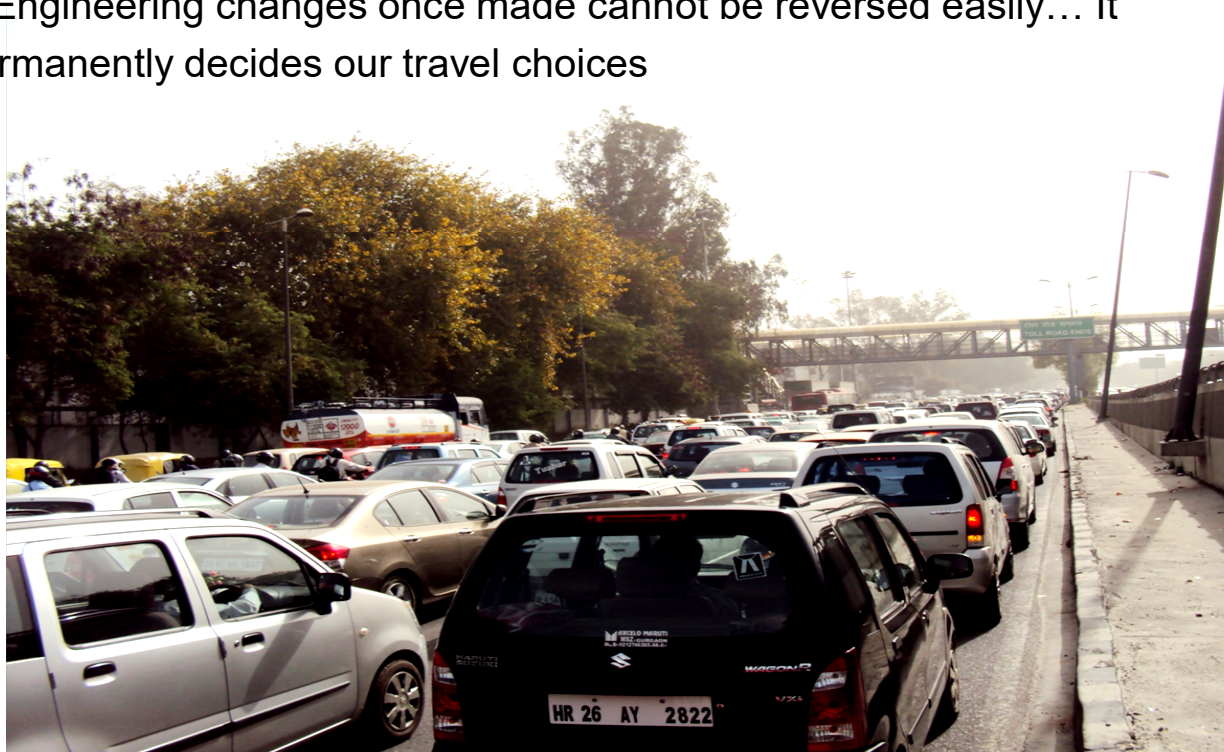
CSE

Delhi: Wrong road design and unsafe crossing compromise public transport suage

Public transport needs safe walk access

In Delhi accidents near foot over bridges have increased

Need walkability and commuter safety audits

Source: Delhi Traffic Police

Footpath for the Pedestrians | Segregated Track for NMT | Cars & Cycles parked in Parking Bays

Pay attention to access and multi-modal integration

Source: UTTIPEC

NOW

UTTIPEC Concept Plan

Change is possible

Restructuring Ajmal Khan road

Car parking | Walking Space

22 streets in Delhi identified for pedestrianisation

Restructuring Chandni Chowk

Cities have natural pedestrian precincts
Leverage this to make pedestrian zones.

Rediscovering walking and cycling

Rapid increase in demand for contact free active transportation – walking and cycling

- **City bike count increased** by 74% to 470% (Melbourne, New York, Philadelphia, Chicago, Shenzhen, Edinburgh, Glasgow, Manchester, and Wuhan).

- **Increased use and sale of bicycle** (UK , European countries, and the US).

- **Pop up temporary bike lanes** -- repurposing traffic space

- **Big investment planned to create bike lanes** (Australia, California, France, etc); --- New York - ambitious plan to reconfigure road space for walking and cycling; -- **Mayor plan to fast track change by transforming streets** with wider footpaths, pedestrianisation of streets and reclaim parking spaces
- **Cities banning parking in front of shops** to increase standing queue space for customers…. And more

Pop up bike lanes

Parking policy: losing the plot

CSE

NMT policy also require a parking policy

Bhubaneswar

2018-12-21 16:00

66

Vehicle restraint: parking policy

Delhi

- Notification of Delhi Maintenance and Management of Parking Places rules and Guidelines, Sept 2019

- 3 Pilot parking Area management plans (Lajpat Nagar III - residential area, Kamala Nagar and Krishna Nagar mixed use commercial areas. (SC order and EPCA report)

Delhi-NCR: Next steps
SC order 10.08.2020

- City-wide implementation of 'Delhi Maintenance and Management of Parking Rules, 2019, in Delhi.
- Expand this strategy to rest of NCR
- EPCA report 114, 19 August 2020, provides guidance to NCR

Parking policy: A clean air tool

Parking Rules notified

It is an area level plan to be prepared local body

Demarcates all types of legal parking spaces for all modes in an area

- On-street, off-street and multi-level parking facilities and there integrated management
  - Vending zones
  - Multi-modal integration facilities
  - Green open spaces along with the allied traffic
  - Pedestrian / NMT circulation plans
  - No parking in green areas, near intersection, near bus stands etc

Penalise illegal parking

Introduce variable parking pricing

Promote shared, priced and public parking

Parking revenue for local area development

IT based parking area management and reform

of contractual agreement

68

Effectively priced parking can make a difference

No meters   **Meters**   **Prices quadrupled**

Grosvenor square, London

Need compact and mixed use development

TOD Building typology

Kolkata: -- Roof of retail used as public space for residents.
-- Zero Setbacks.
-- Mixed Use (Commercial/ Civic/ Residential within same block)
-- Privacy of residents ensured.
-- Retail facing the street with homes overlooking, keeps pedestrians (women) safe

70

Where do you feel safe to walk?

Lonely unsafe car centric streets

Source: CSE

Leverage environmental assets: Storm water drains as eco-mobility network

OASIS Inc

Next steps

- Scale up bus fleet and service

- Metro and multi-modal integration and last mile services

- Walking and cycling infrastructure

- Parking policy as a restraint measure

- Organize IPT services with proper routes, fare structures, dedicated pick-up and drop off locations etc

Agenda for clean air

Mobility transition
- Public transport strategy
- Vehicle restraint measures – parking policy

Clean energy transition
- **Ban coal in NCR** – Delhi has done this
- Shift to natural gas and electricity for all energy needs
- Ensure implementation of 2015 TPP standards

Need circular economy
- Address hotspots – solid waste, C&D waste, industrial waste, plastics

Clean energy access – 100% LPG in households and eateries

Cities are moving away from car centric infrastructure ... let us not repeat the mistake

Before | After

Seoul's Cheonggyecheon restoration project

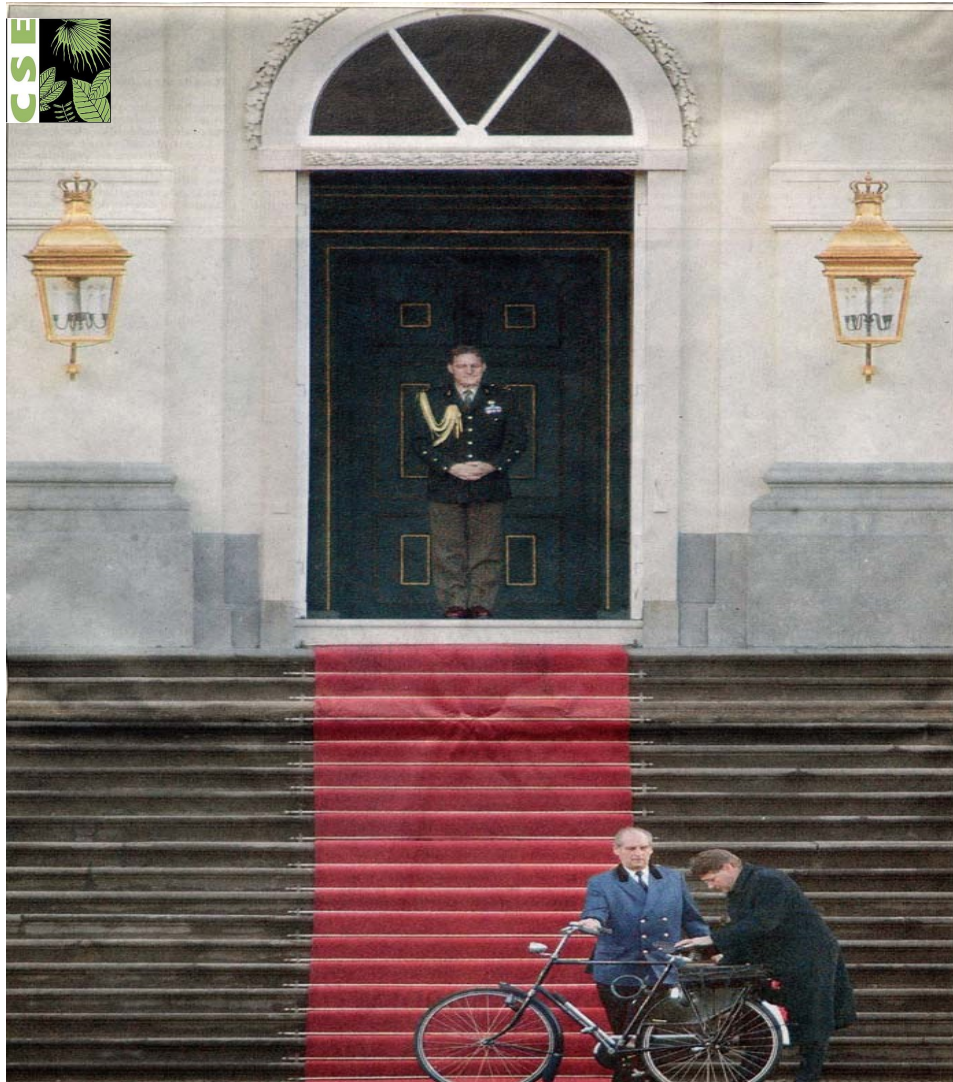## Cities that have destroyed roadways

San Francisco
Milwaukee
New York
Portland
Toronto
Seoul

Dutch Minister visits the queen

Source: GIZ

Thank You