

Corona Pandemic as an Epistemic Opportunity – Changes in Air Quality

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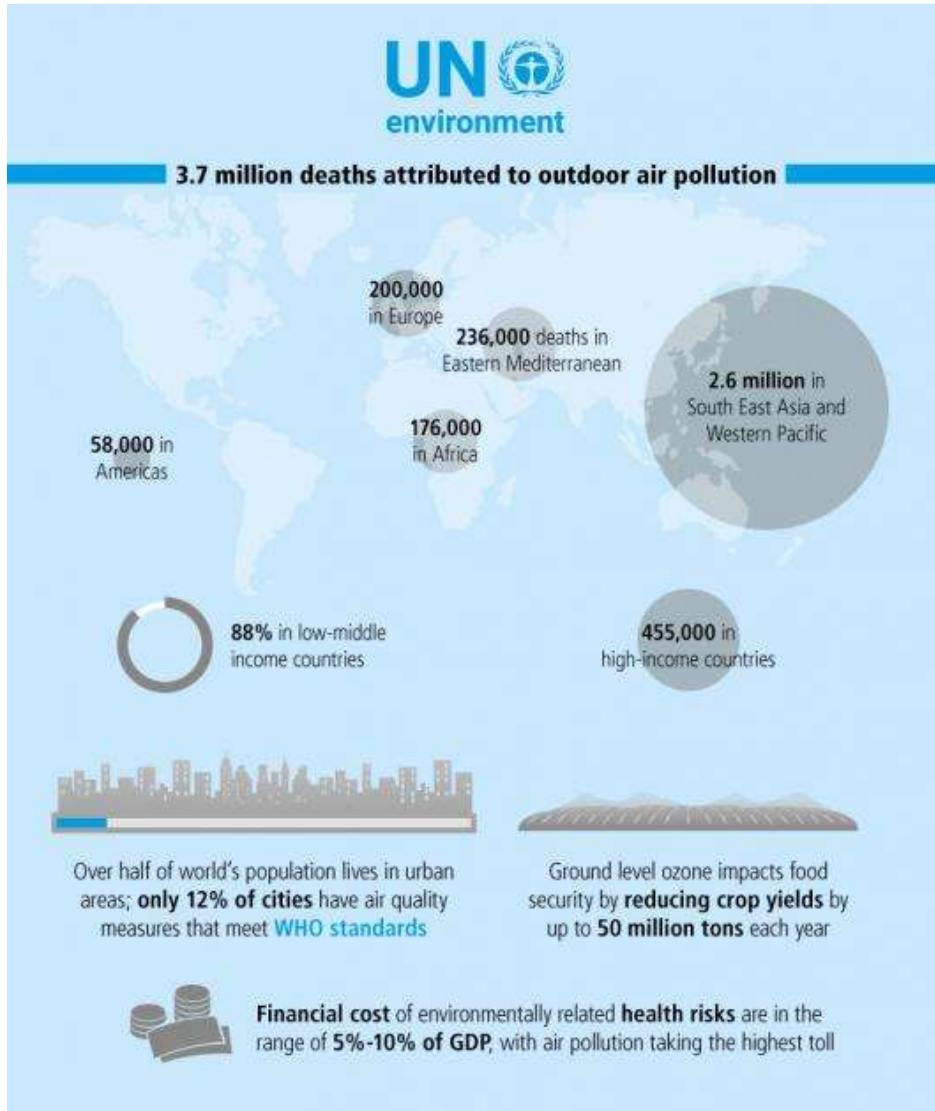
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Air Pollution: The Challenges

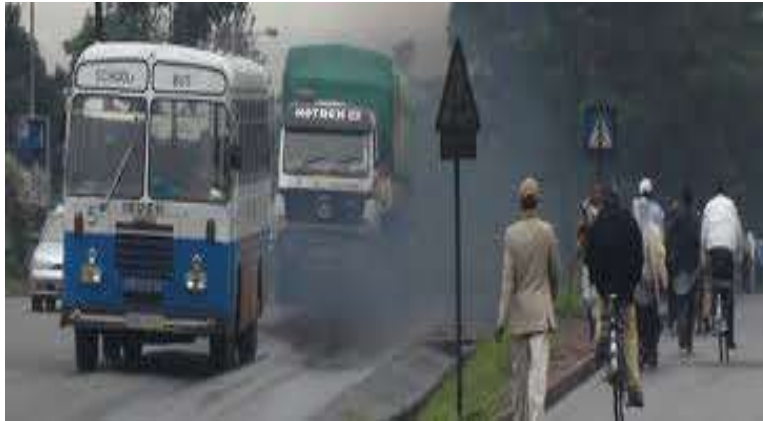


- Global problem
- Megacities experiencing elevated air pollution levels.
- Critical in megacities of developing countries like India, China.
- **According to the WHO air quality database, 97 per cent of cities in LMIC do not meet air quality guidelines.**



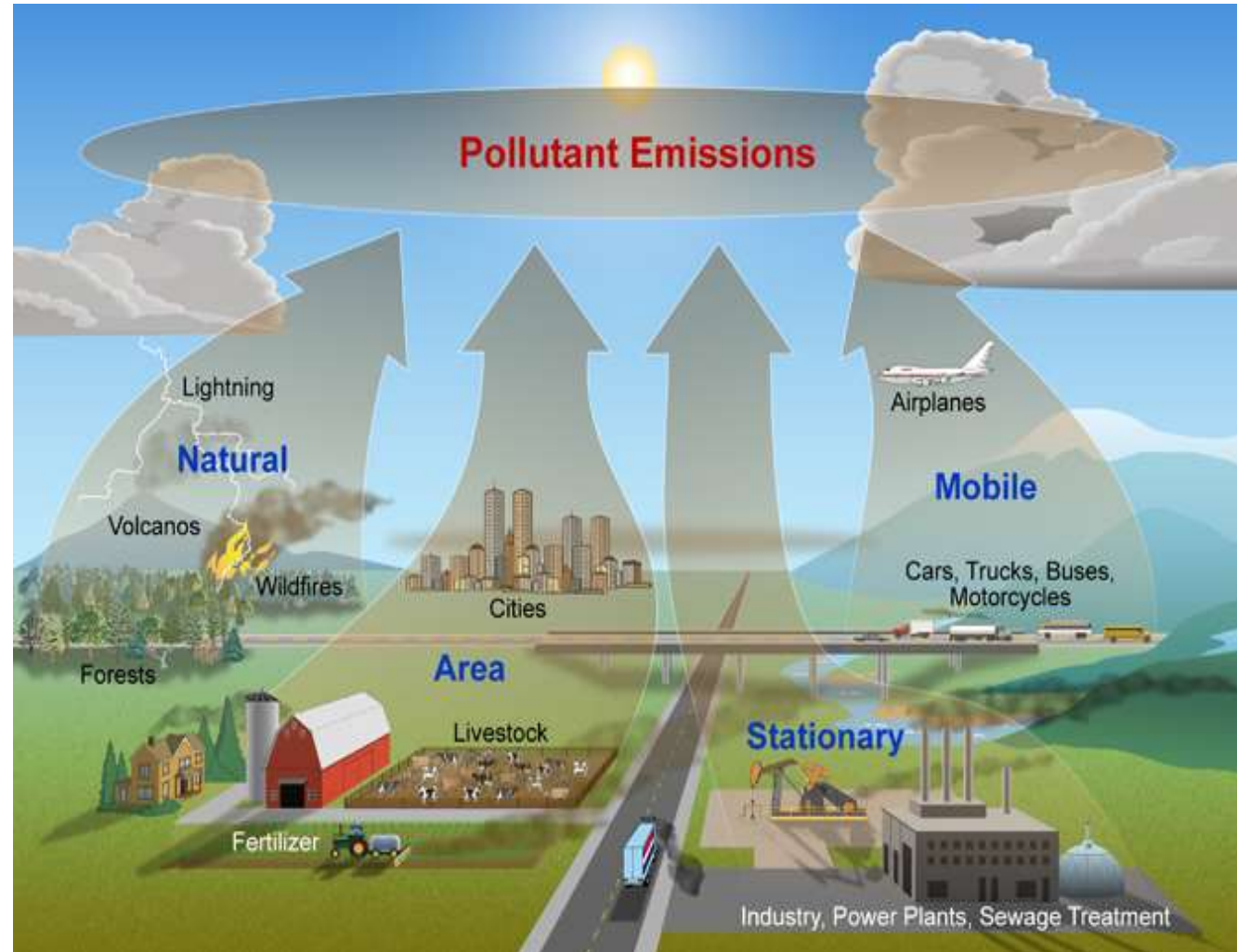
Causes of Urban Air Pollution

- Uncontrolled sources
- Unaccounted sources
- Geographic location
- Meteorology

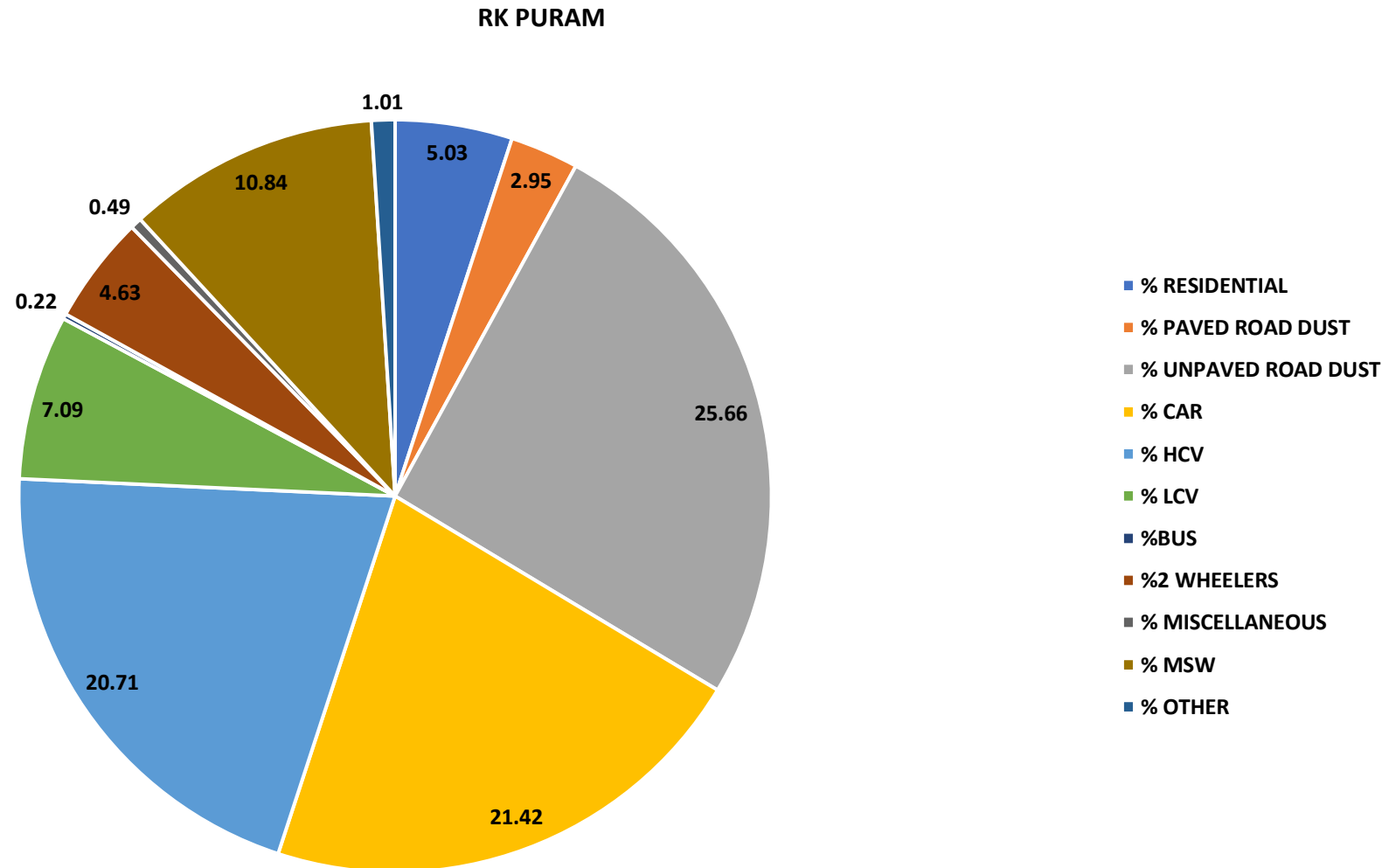


The Urban Sources

- Motorized traffic
- Industries (Thermal power plant, Industrial clusters)
- Domestic (Kitchen)
- Open biomass burning
- DG sets
- Construction dust
- Agriculture residue burning in surround rural area
- Re-suspension of road dust
- Transport of dust from surrounding area outside city



Sources & Status of Air Pollution: before lockdown

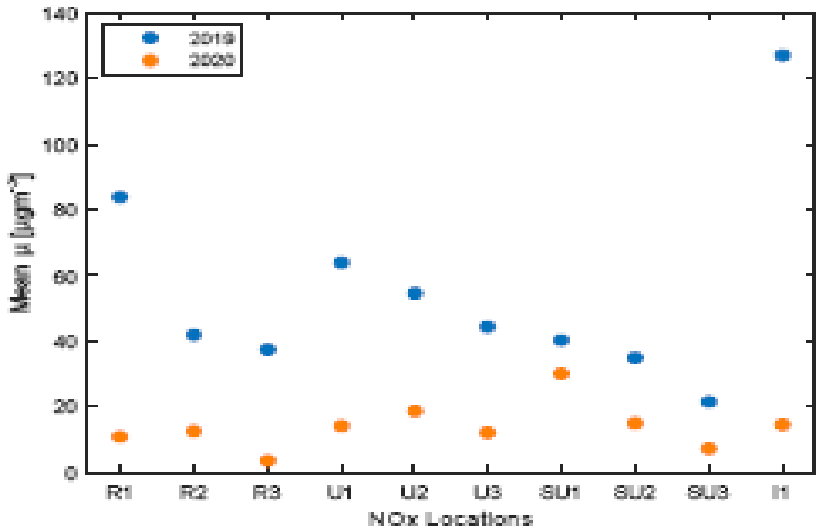
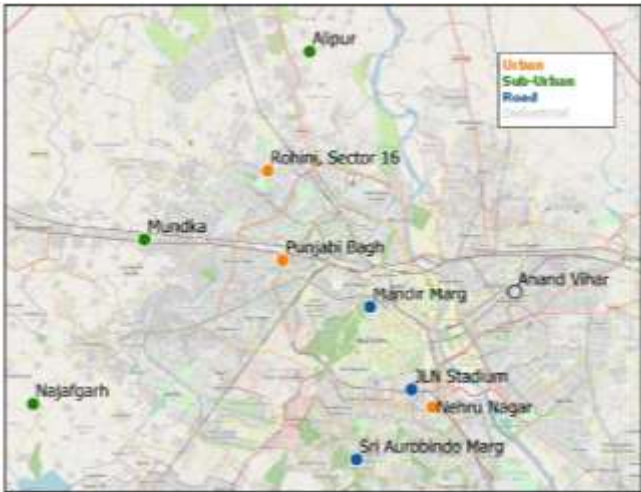


Covid-19 Impact on Air Quality in Delhi(2019 vs 2020)

complete lockdown(25/03-14/04)

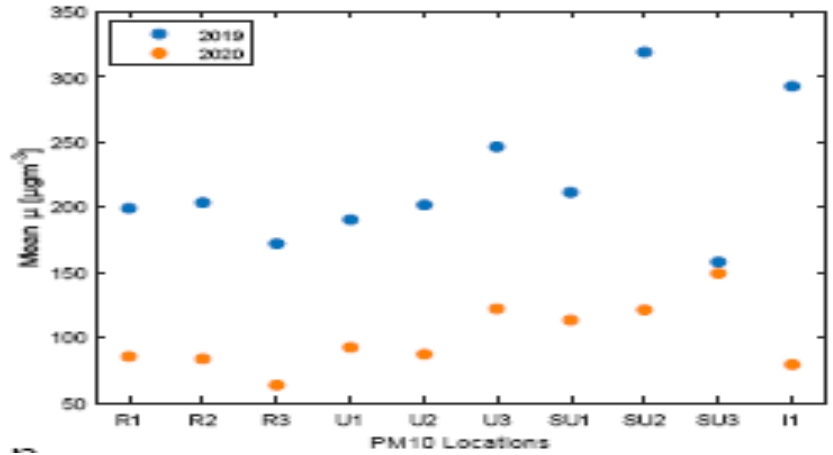
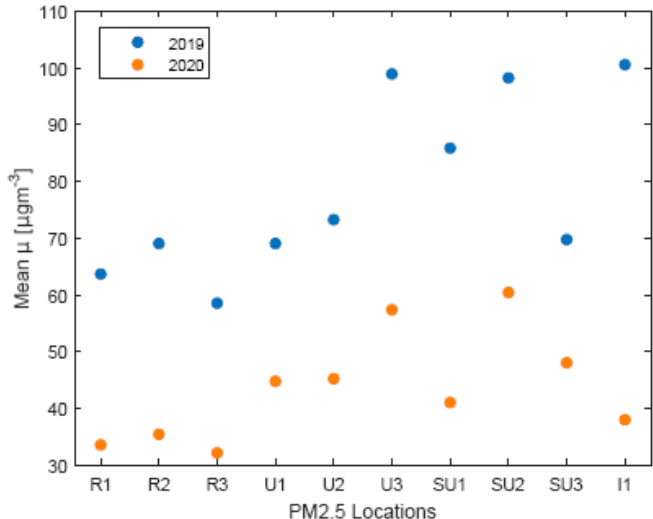
Schafer, Benjamin, R. Verma, A. Giri, H. He, S. Nagendra, M. Khare & C. Beck (2020), "Covid19 Impact on Air Quality in Mega Cities", under process of publication.

**DELHI,
Monitoring
locations**



NOx

PM2.5

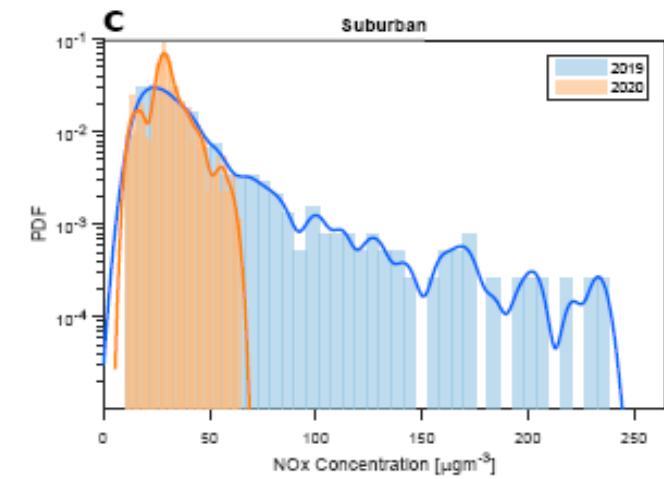
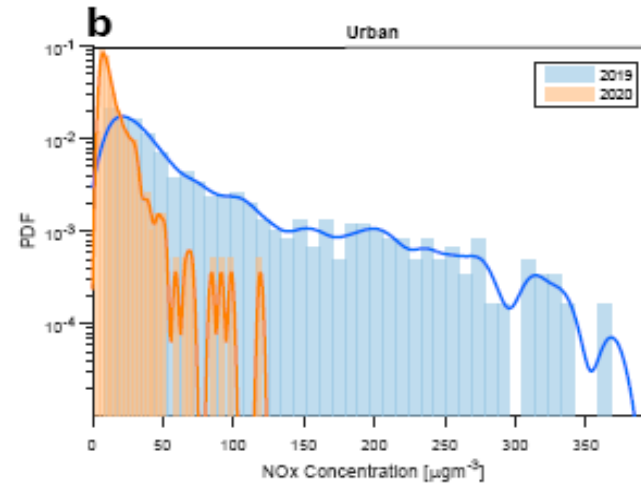
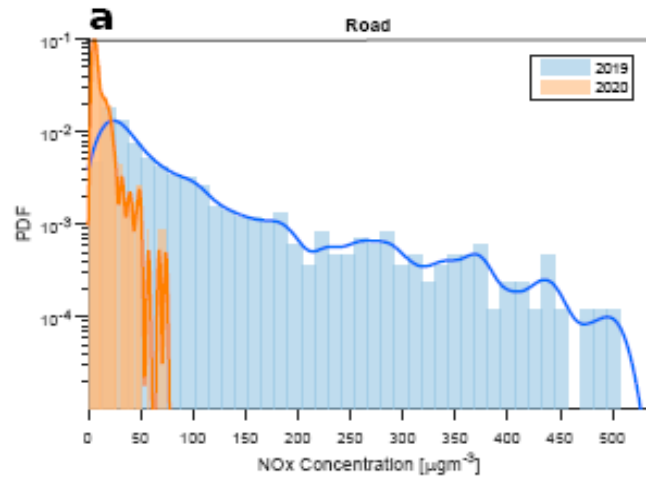


PM10

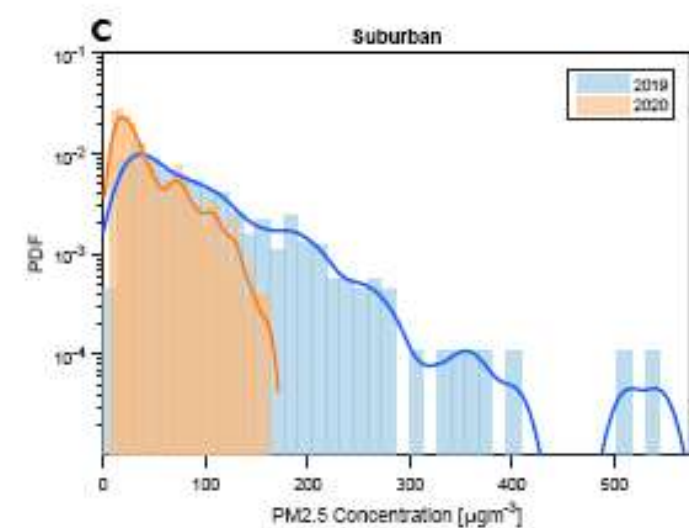
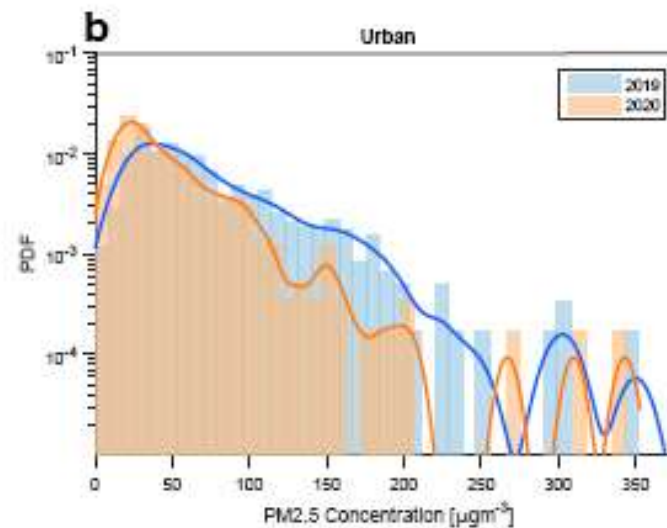
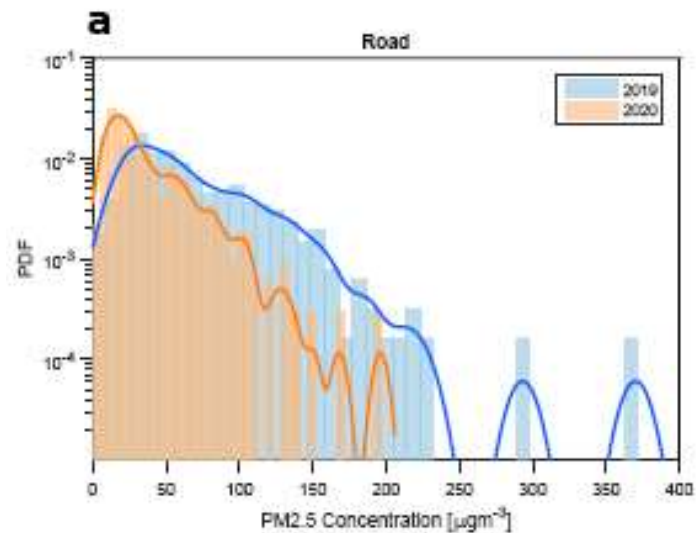
Probability Density Function(2019 vs 2020)

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Delhi



NO_x



PM_{2.5}

Reduction in PM_{2.5} during first lockdown

- In April 2020, a reduction in aerosol loadings was observed for Delhi (11-29%)
- highest (52%) relative reductions in PM_{2.5} in Delhi.

Delhi: much stronger decrease of pollution concentrations, including high pollution states.

Questions remains: The lockdown was at an enormous economic cost, but can a small change in behavior or a well-designed and balanced control mechanism lead to a sustainable and significant improvement in air quality in the future?

Urban Air Quality Major Strategic Interventions/Programs

NAMP

(cpcb.nic.in/namp-data)

CAP

(cpcb.nic.in/cap)

NCAP

(cpcb.nic.in/cap)

Smart City Mission

(smartcities.gov.in)

Urban Air Quality Policy Tools

EPCA

**National Action
Plan
for Air
Pollution,
(NGT)**

**Graded
Response
Action
Plan (GRAP)**

**High
Level
Task
Force,
PMO**

**National
Air
Quality
Index
(AQI)**

NAAQS

Corona Pandemic as an Epistemic Opportunity

- It helped us in knowing the background of air pollution in Delhi which can be utilized for future modeling purpose.
- It also concluded anthropogenic air pollution sources as major contributors to Delhi ambient air quality deterioration.
- Baseline for future mitigation plans.



*Act Now
for
Better Tomorrow*



THANK YOU