Impact of Vehicular Pollution in Kolkata ?

Need to promote NMT & Electric Vehicles

Overview

A NEERI 2019 study of Kolkata claimed cars contribute to about 20 - 25% of the air pollution. By using the data from Rabindra Bharati University (RBU) continuous monitoring station of Central Pollution Control Board (CPCB) from 2018- 2020, the study show that air quality was impacted by the plying of vehicles on weekdays and the economic reopening post COVID-19 lockdown

What does our analysis show?

1. There are major differences in air quality between **working days** and **holidays** which can be linked to lower vehicle movement

2. The **COVID19 lockdown** has shown an improvement in air quality as economic activities and vehicle movement were stalled.

Overall Trend of PM 2.5

An analysis of the annual **PM 2.5 level** has been done for the last **3 years** and the trend clearly shows that **Kolkata's air quality has been deteriorating**.

Annual Average PM 2.5 concentrations

In 2019	2.7X	↑	than 2018
In 2020	1.1X	↓	than 2019 * Lockdown could have impacted the air quality
In 2020 winter	1.2X	↑	than 2019 winter

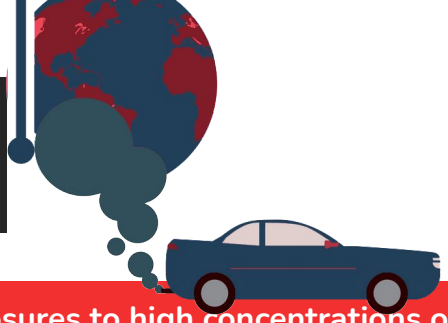
2X Winter (Dec- Feb) ↑

1X Post Monsoon (Oct- Nov) ↑

2020 air quality has further degraded from the 2017 levels in both winter and post monsoon months

***COVID-19 improved the air quality in 2020 but with reopening air quality soon started degrading with winter air quality worse than 2019**

When does air quality of Kolkata deteriorate?

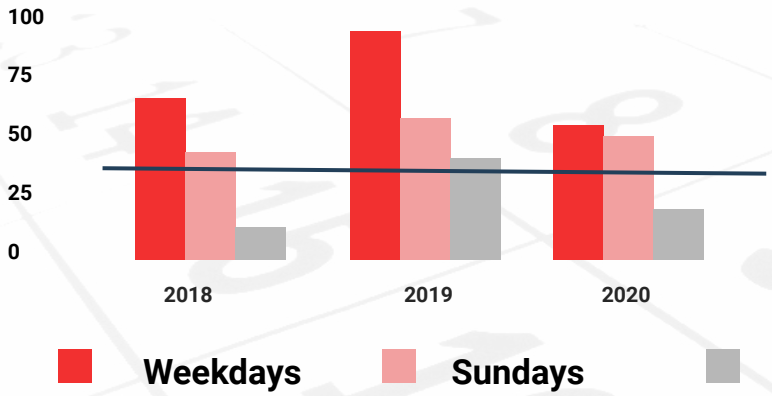


An analysis of the impact of vehicular emissions on the air quality was carried out by studying the changes in the patterns of **Nitrogen Dioxide (NO2) concentrations** which can be attributed to come from **fuel combustion in vehicles**.

Prolonged exposures to high concentrations of NO2 may contribute to asthma and increase susceptibility to respiratory infections like COPD, breathing discomfort etc.

To read more on **NO2**. www.bit.ly/3olgcwH

NO2 concentrations on weekdays, weekends & public holidays



40 ug/m3 **NO2** standard concentration (CPCB)

NO_2

Globally Harmonized System of Classification

Average NO2 concentrations on weekdays were higher than public holidays -
- **5 times higher in 2018**
- **2 times higher in 2019**
- **3 times higher in 2020**

Average NO2 concentrations on the weekdays of 2018 and 2019 were up to 57% times higher than Sundays.

NO2 concentrations on weekdays were almost **2-3 times** more than the **national standard** across the last 3 years.

In 2020, NO2 concentrations on weekdays was **only 1.4 times higher than national standard,** which could be an **effect of the lockdown**

This indicates that NO2, which can be attributed to come from vehicles - has impacted the air quality severely on weekdays as compared to public holidays and Sundays.

COVID-19 Lockdown effect

The effect of **COVID-19 induced national lockdown** brought about a complete closure in all economic activities and forced people to stay at home. During this period the **vehicular movement was reduced by significant amount**. We analysed the data to understand the state of air quality during the period.

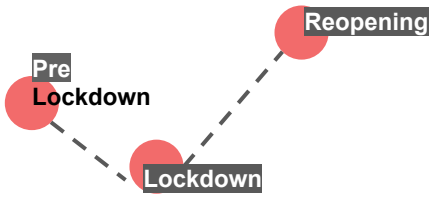
What happened to air quality post lockdown?

1.4X

PM2.5 levels have increased by almost **1.4 times in winter months of 2020**.

NO2	SO2
94%	110%

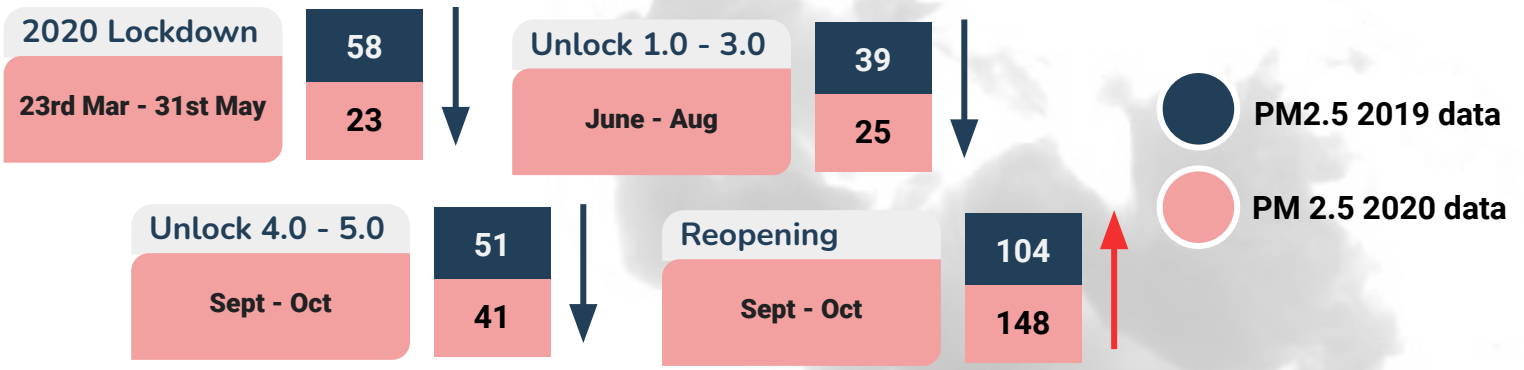
NO2 and **SO2** concentrations shows a **94%** and **110% increase** respectively.



Average PM 2.5 concentrations were **60% lesser** in lockdown period than 2019 but increased **29% in the reopening** period.

Lockdown and Unlock effect as a result of COVID -19

(based on PM 2.5 Concentrations)



PM2.5 levels during reopening have **increased by almost 6 times** from the lockdown period.

NO2 & SO2 concentrations show **94% & 110% increase** after lockdown respectively.

In fact, winter PM 2.5 concentrations **in 2020 were 1.4 times worse than the previous year** (2019).

PM 2.5 concentrations were found to be **highest on weekdays, moderate on weekends and lowest on public holidays.**

As lockdown restrictions gradually relaxed from June 2020, **average PM 2.5 levels increased by up to 5 times increase from standard within 3 months.**

Conclusion & Way Forward:

In line with the NEERI Study, data from the study points at cars being the main source air pollution in the city.

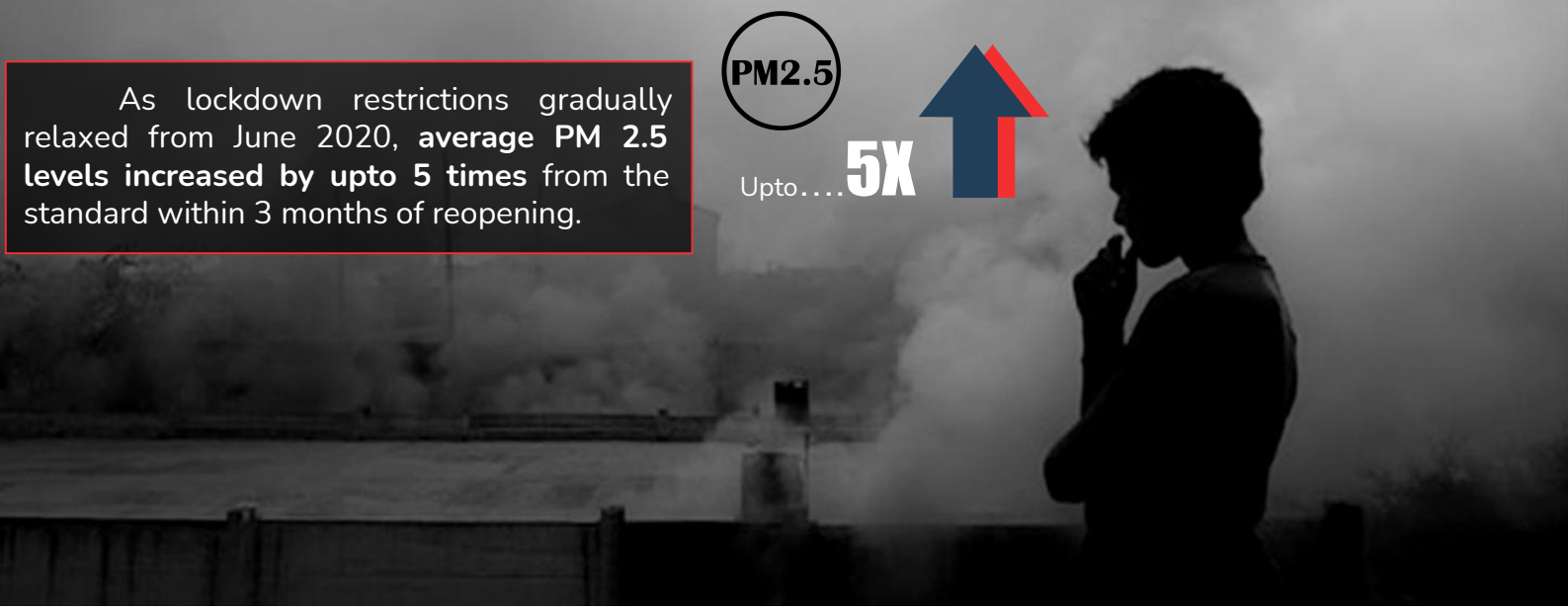
Data of Nitrogen Dioxide (NO_2) concentrations, largely attributed to come from vehicles, from Kolkata RBU station shows that NO_2 concentrations...

On weekdays were about twice higher than that of public holidays.

On weekends were upto 2.5 times more than the national standard across the last 3 years.

The year 2019 saw the highest level of NO_2 concentrations, exceeding about 2.5 times than the national standard.

As lockdown restrictions gradually relaxed from June 2020, **average PM 2.5 levels increased by upto 5 times** from the standard within 3 months of reopening.



Hence, there is an immediate need to shift to sustainable mobility

Immediately lift restrictions on bicycles in Kolkata and build safe infrastructure for cycling

Identify car free corridors in Kolkata and discentivise car use and free use of public spaces for vehicle parking

Scale up adoption of electric vehicles, e-bikes and scooters. Prioritise revival of Kolkata trams, as the oldest and first form of e-mobility to be introduced in Asia

Amend the Motor Vehicles Regulations Rules, 1989 and incorporate bicycles and NMT policies that prioritises them over motor vehicles.