

Impact of COVID-19 on Environment and Strategy to Revive it

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Abstract:

The COVID-19 pandemic is an infectious disease caused by severe acute respiratory syndrome corona virus 2. First and foremost, it was identified in December 2019 in Wuhan city China and has been spreading globally, as a result, millions of cases confirmed all over the world. This paper presents the conceptual framework of impacting COVID-19 on the environment and strategy to revive it in India. The purpose of this paper is to verify the impact of corona virus diseases 19 on the environment and to find out the consequences after lockdown. Experts state that the transport sector has a huge contribution to it. There has not been a movement of vehicles, lesser no. of planes are flying. So obviously, there is a massive decline in CO2 emission. Experts are predicting that is the biggest decline in CO2 emission after world war 2. In this way pollution from vehicular emission has dipped drastically. After lockdown air quality also improved. The air has become so clear that the Himalayan peaks are visible from Jalandhar in Punjab, situated 140 kilometres away. Not only air quality improves but also water. We see Yamuna water cleaner amid lockdown. It's only due to shut down of industries due to which flow of industrial pollutants in the river has stopped. Similarly, River Ganga has also become cleaner after lockdown. The no. of cars plying on the roads have become less at the time of lockdown 2.0 and 3.0, Factories have shut down in the cities so that the concentration of NO2 in the air has fallen drastically. If talking about NO2, it's a toxic gas i.e. emitted from the engines of vehicles and factories. This NO2 gas caused in breathing pipe which can lead to problems like asthma. This paper will present a complete picture of India how the situation improves drastically all of a sudden. The study finds that pollution can be controlled up to some extent by using CNG equipped vehicles along with petrol vehicles. There should be lockdown every year for a week so that the entire population of the country realizes and see how clean the air and water can become.

Keywords: COVID-19, Pollution, Pandemic, Movement of vehicles, Environment.

1. Introduction

The Covid-19 pandemic is an infectious disease firstly identified in Wuhan, province of Hubei, China in December 2019 was declared by WHO on March 11, 2020, caused by a new strain of the pre-existing corona viruses called as Cov-19 that has been spreading globally through the human transmission to 210 countries so far (CDC, 2020; FDA, 2020; WHO, 2020a).Gautama and Hens (2020) reported the information about the first affected person by SARS-CoV-2 in the Kerala state of India in late January 2020. They also highlighted the travel history of the affected person, who returned from China. After the month, Kerala state was the topmost state in India having several cases affected by Novel Corona virus due to rapid transmission to all surrounding people with unprotected contact and first confirmed cases in India. As of 28th March 2020, the total number of positive COVID-19 cases world-wide is 617288, total deaths reported 28377 and total recovered patients are 137336. In India, the total number of positive cases is 933, total death reported 20, and a total of 84 patients recovered. The number of positive cases is increasing exponentially in India. As of 7th June 2020, there are 6,663,304 confirmed cases and deaths cases are 392,802 worldwide, whereas there are 235,657 confirmed cases and a total of 6,642 deaths cases in India as per the WHO report.

Considering the situation of the country, In India, the first curfew was implemented by our Government of India on 22nd March 2020 to reduce the chances for community spread and it was named “Janta curfew “. After the successful implementation of Janta curfew, the complete lockdown was imposed on 24th March 2020. During the lockdown, everything was closed like Industries, vehicle transit, shopping malls, fitness centres, Educational institutes, and so on. On the one hand, economic activities were hampered on the other it impacted on environment positively. This lockdown gave us a glimpse of what our cities and air quality scan be like without polluting engines.

Expert states that air quality and water quality also improved amid lockdown. This is only due to shut down of travelling agencies and all human and economic activities closed on a routine basis. Recent researchers also reported the transport sector has a huge contribution to revive the environment amid lockdown but it’s for the short term.

2. Literature Review

According to the World health organization report this disease has been spreading to 210 countries so far, therefore, made it the largest pandemic in the world. Thereafter social lockdown was imposed by the Government in our country to reduce human transmission.

As per **(Das and Paital, 2020)** social lockdown as the only preventive measure to control Covid-19. He observed all humans are locked indoor and their dominant activities are stopped, as a result, important environmental indices such as the reduction in the concentration of NO₂, CO₂ emissions, water pollution, and air quality also improves in Many polluted cities.

According to **(Lu et al., 2020; Wan et al., 2020; Zhu et al., 2020)** this virus was found to have 86.9% resemblance to a bat corona virus, and, hence, is suspected to develop from bats. The duration of the survival of death is 6 to 41 days after infection of the corona virus. It depends on the age, health, and clinical conditions of the patients. Unany therapy may be useful along with allopathic treatment; antiviral drugs with hydroxyl chloroquine and azithromycin are used to treat the patients. To control this disease, it is most important to avoid sneezing, cough at the public place. The hand cleaning with soap and sanitizers, mouth and nose coverage with mask during sneezing and coughing are essential. Thoroughly washing foodstuffs before cooking may help in this regard. The regular and proper care of the homes and hospitals is very important to control this calamity.

Ashour et al., 2020; FDA, 2020; Jin et al., 2020, found out exact medicines is not available for its treatment. Still, the world is eagerly waiting for a vaccine against COVID-19 and hopefully, it will be available soon as per (Ahn et al., 2020).

(Luan and Ching, 2020) explained the major death cases of corona virus outbreak are happening mainly in old people probably because of a poor immune system that allows rapid growth of viral infections. According to **(Kucharski et al., 2020)** to reduce these crisis Special restrictions, strategies and efforts should be applied to protect the highly vulnerable populations such as children, health care workers, and older aged people. As per (Mossa-Basha et al., 2020) guideline has been already published for the medical employees, health care providers, and public health individuals and researchers who are interested in working in the corona virus. **McCloskey and Heymann, 2020** cited first and foremost it is not certain for how long this dip in emission will be.

According to **(Guo et al., 2017; Guo et al., 2019)**. Particulate matter is the most dominant pollutant; in major parts of India has major contributions from vehicles, residential, energy, industrial, and dust. Where it is expected that PM 2.5 had a maximum reduction in most regions among all pollutants. Delhi observed the maximum reduction of AQI was 49%. The reduction of AQI was also associated with a change in dominant pollutant in many cities. While in Gaya, Kolkata, Kanpur, and the dominant

pollutant during the lockdown changed to O₃, this changed to NO₂ for Agra and Patna. As per world health organization, it was recommended by the World Health Organization and Central Pollution Control Board (CPCB) Indian cities have always been making into the top 20 most polluted cities of the world for the past few years and exceeding the ambient air quality standards.

It is suggested that strict social move and self-isolation for a considerable period to handle the CoV-19 pandemic. Eventually, researchers are leading to the development of vaccines and medicines are extremely required for healthcare systems to take care of infected patients. (Wright,2020) cited the average nitrogen dioxide level in major cities of India reduced by 40–50% by March 2020 as compared to March 2019. The sky of New Delhi was visible than four months ago and also the Yamuna river, as well as Ganga's water, became cleaner amid lockdown. Locals claimed that they have never seen such sparkling Yamuna river water and the blue sky. According to (Gandhiok, 2020) it may be due to the shutdown of industries in New Delhi and lack of release of their effluents into it.

2.1. Objectives of the Study

- The main aim of this conceptual study to verify the impact of COVID 19 on the environment in India.
- This paper aims to show the exact consequences amid lockdown on the environment.
- To control the pollution up to some extent and give suggestions to adopt a strategy for revival of the environment.

3. Finding and Discussions

Reduction of NO₂ emission in India

During the lockdown, all the industries and the movement of vehicles were stopped in the cities, so that the concentration of NO₂ in the air has reduced drastically. If talking about NO₂, it's a toxic gas i.e. emitted from the engines of cars, buses, trucks, and from industries as per WHO report. If NO₂ gas is more in concentration than 200 micrograms then it can cause breathing pipe which can lead to problems like asthma. The average concentration of NO₂ in major cities such as Mumbai, Pune, and Ahmadabadare reduced at least by 40–50% by March 2020 than in March 2019. The sky of New Delhi is clearly visible than four months ago. People are now feeling safe to breathe pollution-free air. Hilariously, it has also been posted that unlike before, Burj Khalifa, Eiffel Tower is now can be seen

from Noida city, New Delhi, which was not visible due to huge pollution. However, the effects of lockdown on the reduction of pollution in New Delhi are seen to be accurate.

Reduction of CO2 emission

COVID-19 affected about 210 countries, for seeing grave situation our PM requested citizens to stay at home for their safety. All their regular activities were restricted. Motorways are cleared and factories are also closed. During the lockdown there has been a decline in all of it- lesser number of cars, buses, trucks, and so on is plying on the road, lesser no. Of planes are flying. So, there is a massive decline in CO2 emission. Researchers are predicting that is the biggest decline in CO2 emission after world war 2. In this way pollution from vehicular emission has dipped drastically. After lockdown air quality also improved. The air has become so clear that the Himalayan peaks are visible from Jalandhar in Punjab situated 140 km away According to the news reports. Not only air quality improves but also water. We see Yamuna water cleaner amid lockdown. It's only due to shut down of industries due to which flow of industrial pollutants in the river has stopped. Similarly, River Ganga has also become cleaner amid lockdown. It is resulted in the dirty brown pollution belts to shrink over multiple cities and industrial areas in the country that follow lockdown.

Reduction of PM 2.5

Particulate matter 2.5 is one of the most harmful forms of air pollution. It's included in the category of group carcinogen and it is so small. That it can travel from your lungs into your bloodstream which will not only cause respiratory problems but also heart attacks and can also premature deaths. So, PM 2.5 is so deadly that WHO has estimated that every year, worldwide more than 4 million people are died due to PM 2.5 caused heart diseases, strokes, Lung cancer, chronic lung diseases, respiratory infections. Now, due to lockdown, even the PM 2.5 levels have reduced worldwide. It has depleted by a significant amount. This is the reason we can view the clear blue sky in different cities across the country and can see stars at night. If PM 2.5 levels have reduced so drastically under lockdown then the number of people dying of air pollution would also have become less. The lives of people must be getting saved due to the fall in air pollution. A scientist from Stanford University has researched this. He collected the data of the PM 2.5 levels in the Chinese cities and compared it to the mortality rates and observed what impacts would falling PM 2.5 levels would have on the mortality rates. this research concluded that the falling levels of pollution in china in just this one month. More than 77000 lives have been saved just in one month due to the decrease in air pollution. It's such a massive number. The total number of deaths due to the corona virus worldwide is around 75000 right now at the time of 2019. So, it is very harmful to us.

4. Conclusion

The Covid-19 outbreak has emerged as a deadly infectious disease causing the greatest pandemic all over the world. Thereafter lockdown was implemented by our Honourable PM Due to which all travelling agencies, every industry, organizations were closed down. This dreadful virus in one hand threatening our lives and on the other NO₂, PM 2.5 and CO₂ emissions are radically reduced in many metropolitan cities across the world and India's major cities like Mumbai, Delhi, Bangalore, Punjab, and so on amid lockdown. It was observed that lockdown has contributed to a positive impact on the environment so, it is important to take into account the negative impacts on social aspects, considering the deaths caused by COVID-19. As per recent studies, along with strict social lockdown, masks and maintaining social distancing must be used to prevent COVID-19, It was realized that this disease is spreading among those who are not taking it seriously and are not following the directions of WHO and the local governments. Where Delhi megacities of India are often listed within the world's topmost polluted cities that exceed the ambient air quality standard and therefore air quality improvement in the Delhi has international relevance of its own. At this juncture, it is very important to note that reducing car traffic to quickly reduce pollution; residential areas where walking and cycling have priority over cars, and deep cleaning of vehicles so that there are no such types of toxic gases emission surrounding us. Now, it's time to get dirty vehicles off the road. For this, our Government, Research bodies, and common people will look forward with optimism that our country will emerge with a new hope post-COVID-19. Finally, environmental pollution is one of the positive outcomes of this social move but it's for the short term.

5. Suggestions

It is suggested zero-emission vehicles with innovation services that are electric vehicles must be available on-demand among us, to pollution could be controlled. There should be awareness programs run through the local administrator, disciplined, and on the ground level, it should be monitored in this direction. This paper suggests CNG equipped vehicles along with petrol vehicles should be allowed and there should be lockdown for a week, to pollution can be controlled even after lockdown up to some extent.

References

- 1) Ali, I., Ali, I., & Alharbi, O. M. L. (August 01, 2020). COVID-19: Disease, management, treatment, and social impact. *Science of the Total Environment*, 728.
- 2) Arya, S. P. (1999). *Air pollution meteorology and dispersion*. S.I.: Oxford University Press.
- 3) Dai, Ruochen; Hu, Junpeng; Zhang, Xiaobo, & <http://orcid.org/0000-0002-4981-9565> Zhang, Xiaobo. (2020). The impact of Corona virus on China's SMEs: Finding from the enterprise survey for innovation and entrepreneurship in China. *Entrepreneurship Research and Education Network of Central European Universities*.
- 4) Jin, Y.-H., Cai, L., Cheng, Z.-S., Cheng, H., Deng, T., Fan, Y.-P., Fang, C., Wang, X.-H. (February 06, 2020). A rapid advice guideline for the diagnosis and treatment of 2019 novel corona virus (2019-nCoV) infected pneumonia (standard version). *Military Medical Research*, 7, 1.)
- 5) Lal, P., Kumar, A., Kumar, S., Kumari, S., Saikia, P., Dayanandan, A., Adhikari, D., Khan, M. L. (January 01, 2020). The dark cloud with a silver lining: Assessing the impact of the SARS COVID-19 pandemic on the global environment. *The Science of the Total Environment*, 732.
- 6) Mahato, S., Pal, S., & Ghosh, K. G. (August 01, 2020). Effect of lockdown amid COVID-19 pandemic on air quality of the megacity Delhi, India. *Science of the Total Environment*, 730, 139086.
- 7) Mandal, I., & Pal, S. (August 25, 2020). COVID-19 pandemic persuaded lockdown effects on environment over stone quarrying and crushing areas. *Science of the Total Environment*, 732.
- 8) Nakada, L. Y. K., & Urban, R. C. (August 15, 2020). COVID-19 pandemic: Impacts on the air quality during the partial lockdown in São Paulo state, Brazil. *Science of the Total Environment*, 730.

- 9) Paital, B. (August 01, 2020). Nurture to nature via COVID-19, a self-regenerating environmental strategy of environment in global context. *Science of the Total Environment*, 729, 139088.

- 10) Paital, B., Das, K., & Parida, S. K. (January 01, 2020). Inter nation social lockdown versus medical care against COVID-19, a mild environmental insight with special reference to India. *The Science of the Total Environment*, 728.

- 11) Paudel, J. (January 01, 2020). Short-Run Environmental Effects of COVID-19: Evidence from Forest Fires. *Ssm Electronic Journal*.

- 12) Saadat, S., Rawtani, D., & Hussain, C. M. (August 01, 2020). Environmental perspective of COVID-19. *Science of the Total Environment*, 728.

- 13) Sharma, S., Zhang, M., Anshika, Gao, J., Zhang, H., & Kota, S. H. (January 01, 2020). Effect of restricted emissions during COVID-19 on air quality in India. *The Science of the Total Environment*, 728.

- 14) Sun, P., Lu, X., Xu, C., Sun, W., & Pan, B. (June 01, 2020). Understanding of COVID-19 based on current evidence. *Journal of Medical Virology*, 92, 6, 548-551.