



Vol. 2 Issue No.2, April-June 2020

e-ISSN 2456-7701

Journal of Science and Technological Researches

A Peer Reviewed Journal

Origin of Innovation

Domain: www.jstr.org.in, Email: editor@jstr.org.in

IMPACT OF COVID19 LOCKDOWN ON ENVIRONMENT COMPONENTS

Pawan Kumar Bharti^{1*} and R. K. Singh²

^{1&2}R & D Division, Shriram Institute for Industrial Research, 19 university Road, Delhi – 110007, India.

* Corresponding Author Email: gurupawanbharti@gmail.com



Date of Received

12 June, 2020



Date of Acceptance

22 June, 2020



Date of Publication

27 June, 2020

To link to this article: <http://jstr.org.in/downloads/pub/v2/i2/3.pdf>



JSTR

“together we can and we will make a difference”

I-3 Vikas Nagar, Housing Board Colony, Berasia Road, Karond Bhopal-462038

Domain: www.jstr.org.in, Email: editor@jstr.org.in, Contact: 09713990647

© JSTR All rights reserved

IMPACT OF COVID19 LOCKDOWN ON ENVIRONMENT COMPONENTS

Pawan Kumar Bharti^{1*} and R. K. Singh²

^{1&2}R & D Division, Shriram Institute for Industrial Research, 19 university Road, Delhi – 110007, India.

Email: gurupawanbharti@gmail.com

In India, complete lockdown was declared by govt. of India to combat against COVID19 pandemic on 25th March 2020. A correlation was observed between anthropogenic activities and pollution level during lockdown period.

Recently, COVID19 has been declared a pandemic worldwide due to its infection in more than 200 countries after China, Italy, Spain, USA, India and many more. In India, total 74925 number of COVID19 cases have been reported as on 13 May 2020¹ and out of which 24887 cases were recovered and 2436 deaths occurred.

Lockdown in India:

Apart from several precautions, social distancing and standard actions², a nationwide public curfew (1 day), lockdown (21 days), lockdown 2.0 (19 days) and lockdown 3.0 (14 days) was declared by govt. of India to break the growth cycle and combat against the Corona virus. During this lockdown, almost every activity was closed except several basic needs like medical facilities and provision supply.

During this period, air pollution level in various major cities of India shows the relations of pollution and various anthropogenic activities. A significance reduction in air pollution load, improvement in river water quality, reduction in noise level/traffic volume, increment in aesthetic beauty, fearlessness of wild animals was observed during the lockdown period

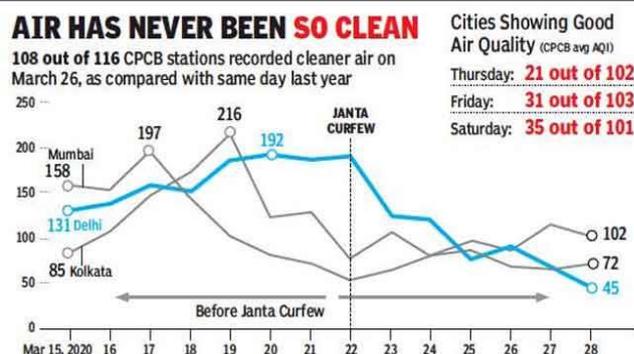
Impacts of lockdown period:

During this lockdown period, a significance impacts are being observed on various components of physical environment as well as societal, aesthetic, cultural, technological aspects also. The major changes/impacts are given herewith.

Air Environment

As on March 29, 2020, a total of 91 cities were under ‘Good/Satisfactory’ category, with 31 cities with ‘Good’ AQI values and no city is under ‘Poor’

AQI category. Substantial improvement in air quality of Delhi NCR is noted during the lockdown period, where PM10 and PM2.5 levels were reduced by about 35 to 40% in Delhi³.



(Data: CPCB, Source: Nav Bharat Times)

Fig.1: Showing difference in pollution load before and after Janata Curfew and Lockdown

Table-1: Seven days AQI of different cities before and after Janata Curfew and Lockdown

S.N.	City	AQI (Before Janata Curfew)	AQI (After Janata Curfew)
1	Delhi	163	103
2	Mumbai	130	70
3	Kolkata	140	95
4	Chennai	69	57
5	Bengaluru	82	70
6	Pune	102	65
7	Hyderabad	76	69
8	Kanpur	128	100

(Data: CPCB, Source: Nav Bharat Times)

CPCB⁴ and Quartz India⁵ reported some ambient air quality parameters based air quality index (AQI) of various cities, which show the significant drop in concentrations of the variables (Tab.1). These data indicates that the above said anthropogenic activities are the major culprit for environmental degradation. Strict norms and other suitable measures must be followed by these production units and/or activities once the lockdown period is over.

*Author for correspondence

This lockdown period can be serve as a real control/reference conditions for various pollution assessment studies in different parts of India.

Water Environment

Appearance of surface water of Yamuna river at Delhi is having tremendous changes and it seems very transparent with nice aesthetic value, as reported some researchers/reporters⁶. Although the observations are not scientific and based on their visual assessment only. But physical parameters like colour, odour, turbidity, transparency, detergent foams can be easily noticed by anyone. Even clear blue sky was also the point of concern as per these reporters. Similar patterns showing drastic falls in pollution levels were seen in parts of Europe and China since their lockdowns, as industry and transport networks grind to a virtual halt.

As per recent reports of TOI and Uttarakhand pollution control board, the water quality of river ganga at Har Ki Pauri Haridwar is in Class A due to its pH, dissolved oxygen and certain parameters and it has been observed suitable for drinking purpose. BOD load and pathogen level has been reduce upto 35% at this site. Similar results of water quality improvement are being reported from Varanasi. A very healthy scale of pH and dissolved oxygen level in river water was reported. Even significant reduction in BOD level and faecal coliform load have been reported in Ganga water at Varanasi.

Anthropogenic activities like vehicular movement on roads, transportation, construction activities, manufacturing sectors, super markets, shops, and various production unites are closed due to lockdown in the entire country.

Noise and Vibration Level

Ambient noise level is also suddenly changed and feels extraordinary. It seems the whisper noise level frequencies on road and sometimes feels like standard prescribed for library (i.e. Leq 35-40 dBA). Some observations were taken by author too (Fig.-2). Although several observatories are also collecting data and showing the drastic changes during

lockdown period. A number of graphs are available online to explain the difference between before and after lockdown for noise level and vibration too.



Fig.2: showing ambient noise level during lockdown day time

Wildlife

During this lockdown period, behavior of wild animals (Carnivorous, animals of deer family, elephants), birds and street animals has been reported slightly different at several places. Many of these are trying to enter into human settlement/colonies. Dears and Elephants are travelling in market, posh colonies of several places. A number of wild animals are being reported at several places in India as well as abroad. These animal seem fearless of encroaching back, as suffered from human encroachment since last many decades. Birds are making nests in home's balconies, monkeys are entering into kitchens. Even street dogs and wandering cows are also feeling slightly different and sad. Recently, one of the endangered species of Gangetic plain, dolphins are observed in Ganges river in Bihar.

Aesthetic Value

Local roads are looking very beautiful, as these never seen before. One can feel it from his/her balcony or while going out for essential commodities. Sky is looking very clear, filthy rivers are looking nice, everywhere is peace in all directions.



Fig.3: Showing aesthetic beauty/clear sky after Lockdown (Pic. taken by author on 4 April 2020)

Societal/Cultural Changes

Nowadays, a significant and positive change is emerging, people have started social works in mass. People are donate money to government as well as NGOs. Several groups are engaged in providing food or ration to the needy people. No road accident, no road rage, case, no theft, robbery, no rape case is being observed. Smooth socialism is developing in city's balconies. People are maintaining hygiene and cleanliness in their premises. Maximum are sharing memes, jokes and living with a high peace level.

Apart from these, several old epics/grand serials are being telecast on television on public demand. People are taking advantage and learning something missing and great things of our culture. Husbands are building their capacity in kitchens and learning different recipes and spending quality time with their kids. Mental stability and quality is being enhanced by the residents, as they are now sleeping well and taking proper rest. Maximum office going persons are now able to spare time for jogging, exercise, yoga to improve their health. Ultimately people are returning towards simple life of villages by reducing their needs in this crucial time.

Technological aspects

In maximum schools, colleges, and universities, classes are being conducted on internet using various

conference/meetings apps. A number of organizations, academic and research societies are conducting webinars and online workshop on different subjects. Maximum companies are giving assignments to their employees and they are doing work from home (WFH). Almost every bid administrative meeting is being conducted online using videoconferencing. All these are major technological changes during the lockdown period. These technological tools are able to compensate loss of office to a great extent. People are avoid dealing in cash while purchasing essential things using payment apps and through UPI only. Veteran employees are forced to use gadgets to prepare their reports and attending webinars/conferences and upgrading their knowledge. This is once again very progressing aspect of the information technology.

CONCLUSION AND RECOMMENDATION

Road traffic load, transportation, industrial production units and construction activities are chiefly generating gaseous pollutants, particulate matters, wastewater, noise and vibrations to the environment. Hence, these are the major culprit of degradation of earth ecosystem quality. But during the lockdown period, AQI is very good now. No fog, smog, dust, smells...nothing is there. Yamuna water is very clear, ambient noise level is very low, aesthetic scenery or ordinary places are looking very nice. Wild animals are fearless now and wandering freely and approaching to human colonies as reported at different places of country and even in many other countries too. In the present context, Earth is healing itself, without any human effort. So, it is much clear that anthropogenic activities are chiefly responsible for the pollution load in earth ecosystem.

It's our moral duty to minimize the harm to nature by minimizing exploitation of natural resources, Limit your needs and Avoid show off.

It's time to rethink about our activities and find out an innovative approach for sustainable development. Researchers may submit relevant research proposal to suitable funding agencies. Environmental monitoring of selected pollution hotspots should be carried out after lockdown period to assess the pollution variation, as human ecosystem on earth is quite slow during lockdown period. It may act as reference or control to compare the pollution related results. Risk assessment

of biomedical waste/PPEs must be carried out and a suitable strategy must be framed out to dispose of these in proper manner. Researchers must develop some models to predict the impacts and find out the interrelationships among various variables. This is the need of hour to formulate a strategy to find out some solutions and suggestions to policy makers or administrators to apply in appropriate and strict manner.

REFERENCES

- [1]. <https://www.coronatracker.com/country/india/> as accessed on 9 April 2020.
- [2]. Arni S. R. Srinivasa Rao, Steven G. Krantz, Thomas Kurien, Ramesh Bhat, Sudhakar Kurapati. Model-based retrospective estimates for COVID-19 or coronavirus in India: continued efforts required to contain the virus spread. *Current Science*, 2020, 118(7), 1023-1025.
- [3]. https://economictimes.indiatimes.com/news/politics-and-nation/lockdown-clears-up-indias-air/articleshow/74942627.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst (The Economic Times, 2 April, 2020 as accessed on 5 April 2020).
- [4]. www.cpcb.nic.in as accessed on 5 April 2020
- [5]. <https://qz.com/india/1827993/coronavirus-lockdown-means-better-air-quality-for-delhi-mumbai/> (Manavi Kapur, 30 march, 2020, as accessed on 5 April 2020).
- [6]. <https://edition.cnn.com/2020/03/31/asia/coronavirus-lockdown-impact-pollution-india-intl-hnk/index.html> (Rebecca Wright, 1 April, 2020, as accessed on 5 April 2020).

