

# The Unseen Positive Effects of Lockdown Due to Covid-19 Pandemic: Air pollution, Sound Pollution, Water Pollution, Sanitation and Hygiene, Behavioral Change, Global Warming, Road Traffic Accidents

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## Abstract:

**Background:** This study states that, the environment became polluted even after consistent efforts by various governments and organizations. Pollution due to various factors was out of control all over the world and it was badly affecting human lives as well as the mother earth. It was very essential to control these pollutants because the environmental and health interaction was closed, but it was not possible practically. Lockdown due to Covid 19 has played a very vital role in controlling these pollutants; it has given a much needed break to our mother earth.

The outbreak of Covid -19 viruses started in Wuhan, China in the month of December 2019. After its outbreak, it's called as Covid-19 worldwide. By March 2020, World health organization declared it as a global pandemic disease. This disease has forced complete world at almost a stop these days no human movements are allowed unless and until it is really needed or is an emergency situation, the government has taken very strict steps to control the spread of this disease all over the world and various country governments have declared lockdown in their respective countries. Everybody is restricted from moving outside their houses, even all vehicles are restricted, shops and factories are compulsorily restricted from functioning. Closed factories and companies are showing considerable positive effects on health. Otherwise in developing country like India environmental pollution has serious impact on people's health it was badly affecting human respiratory and cardiac system and due to which peoples were losing their lives. Water pollution was affecting human digestive system, renal system. But now due to controlled global warming communicable diseases are reduced. Ban on vehicles reduced traffic pollution, reduced accident rates too. Peoples are at rest at their houses, they are showing many positive behavioral changes as they are spending quality time with family, they are engaged in cleaning their home regularly. Due to this lockdown unlike human being's nature too got its much needed break after many centuries. **Conclusion:** Aim of this study is to compare the situation of pollution and other related factors before and after lockdown along with its comparison and to identify unseen positive effects of the Covid-19 lockdown which we have never seen before. If all these positive effects continued for a long time, then it will definitely become beneficial for the living creatures as well as to mother earth.

**Key word:** Covid 19, Effects, Lockdown, Positive, Pandemic, Unseen.

## Introduction

The world has never experienced a lockdown situation arises due to Covid 19 before, almost all the

countries in the world are under influence of Covid 19. In India, to control spread of Covid 19 pandemic disease government has declared complete lockdown since 25<sup>th</sup> March to 14 April 2020 and it is now extended up

to July 31, 2020 to break chains of Covid 19 through maintaining social distancing.

Covid-19 pandemic lockdown has shown never seen before positive effects all over the world, which was otherwise not possible in the world through human efforts. People all over the world are at home, transportation has completely been stopped and industrial shutdown has been imposed as a precautionary measure to control the spread of Corona virus worldwide. It is showing so many positive effects on factors like air pollution, sound pollution and water pollution, global warming, other communicable diseases, sanitation, hygiene, behavioral changes in human beings too seen, controlled road traffic accidents and many others. These positive effects can be seen after lockdown during covid19 pandemic.

### 1. Air pollution

In India, the main motto behind imposing nationwide lockdown was to stop the spread of the novel corona virus, as by studies we came to know that this virus spreads through the air, droplets, touch and hence social distancing should be maintained.

Almost all factories, markets, shops, and regional places are closed all over, public transport is also suspended, construction work is halted, the government of India is forcing its citizens to stay home and practice social distancing whenever they go out for unavoidable reasons. So this closure of factories and transport, etc. are showing very good signs with respect to reduction of Air pollution.

### Sources of air pollution

**There are various sources responsible for air pollution.**

1. Vehicles are one of the major causes of air pollution as they release pollutants like Carbon dioxide, Carbon monoxide, Ozone, Sulphur dioxide, Hydrocarbons etc<sup>1</sup>.

2. Industrial wastes are also responsible for air pollution, thermal power stations produce heat which is very harmful for the environment and health<sup>1</sup>.

3. Anthropological sources are responsible for respiratory diseases and cardiovascular diseases<sup>1</sup>.

But after lockdown all sources of air pollutions and

pollutants are under control, which helped to reduce respiratory diseases and cardiovascular diseases among vulnerable population in India.

### Impact of Air Pollution

Air pollution not only causes severe effect on the environment, but also on human beings too like it damages the lungs in ageing people, it causes allergic irritation in the sense organs. It results in reduction of life span of people. Acid rain destroys soil nutrients. But all these severe effects are somewhat under control due to lockdown as pollutants released into the air are under control<sup>1</sup>.

After lockdown, Air quality in cities like Delhi and Lucknow is improved. The most significant impact was seen in PM<sub>2.5</sub>, NO<sub>2</sub> and CO levels. During the lockdown period the SO<sub>2</sub> levels showed less significant decline<sup>1</sup>. Harmful gases like nitrogen dioxide, etc., which are released by vehicles and power plants, etc., are very harmful with respect to the health of the people. These substances are dangerous as it can reach deep into the lungs and can spread into other organs and the bloodstream, can cause serious health issues. Now, due to lockdown air pollution is under control, hence people are feeling more comfortable; their visits to the Doctor's clinic are decreased up to considerable level<sup>2,3</sup>.

### Research Facts about Air Pollution in India

It is observed that, most of companies do not follow rules with respect to the environment and safeguard the community people. A survey done in 2015 showed that, India is world's seventh environmentally unsafe country. Bangalore is declared as an asthma city as around 30 % children are suffering from asthma caused due to air pollution. The cancer patient's rate is also increasing in India. As per the survey done by the National Cancer Control Program by the year 2026 about 1.4 million people may suffer from cancer<sup>1</sup>.

Earlier, due to numerous natural and anthropogenic causes, Northern India was considered as one of the major hot spots of pollution until lockdown in 2019 due to various sources such as dust, industrial and vehicular pollution, etc, this region was always considered as most polluted area. These sources were harming air quality and people's safety. One of the key sources of pollution

was the dust storm, which occurred every year during the month of March-June<sup>4</sup>.

Now a day's air quality in India's major cities is improving by 60 % as compared to last year<sup>5, 6</sup>.

**Table: 1 Air quality according to categories**

Air Quality	
Good air quality	Below 50
Satisfactory	51-100
Moderate	101-200
Poor	201-300
Very poor	301-400
Severe	401

According to Central pollution control Board's National air quality Index data analyzed by ETEnergyworld, In Delhi during the lockdown air quality is satisfactory as compared to last year<sup>7</sup>.

**Table: 2- Air quality in Delhi Before and after lockdown**

Day	2017	2018	2019	2020
March 25	89.52	72.41	73.02	41.55
March 26	78.3	91.19	72.42	44.99
March 27	118.67	158.88	80.28	22.69
March 28	121.67	171.25	158.64	22.69
March 29	71.95	116.53	187.6	29.11
March 30	103.17	129.45	153.15	31.88*

\*Small particulate matter of 2.5 microns or less in diameter.

## 2. Sound pollution

Sound pollution too makes an adverse impact on human health and their activities. The main sources of sound pollution are vehicles sound, transportation etc.

Before lockdown sound pollution in India was horrible, noise pollution was affecting both physical health and mental health of the people. Higher or continuous sound for a long duration can damage

physiological health. Noise pollution is associated with several health conditions, including cardiovascular disorders, hypertension, high stress levels, tinnitus, hearing loss, sleep disturbances etc<sup>8</sup>.

But after lockdown from the month of March, traffic is minimized on road, factories are not allowed to function; social functions and large gatherings are banned, so due to this and other such reasons sound pollution has reduced to a considerable level.

**Table: 3 Sound pollution in Delhi in the month of April in 2019 and after lockdown sound pollution in 2020 in the same month reduced at level <sup>9</sup>.**

Sound pollution	Delhi in April 2019	Delhi in April 2020
	Average 100 dB and higher	Average 40-50decible

### 3. Water pollution

Restrictions on the sailing of ships and boats in the water are becoming very useful with respect to cleaning of water resources. This has never been happened earlier and it was never ever possible to clean water resources with such purity by human efforts for even developed countries. These changes are observed these days due to non interference of humans in all types of waters, a ban on ship transport, cruises and fishing ships, etc. In general we can say nature is having its time. Fishes are easily visible or fearlessly coming out of water in many cities of the world. Many famous rivers in the world are more clear now like the river Ganges in India is very clear from its source due to lockdown, the government is trying its level best to clear it for so many years but never succeeded but lockdown did impossible possible<sup>10</sup>.

As most of the major industries are closed, it is resulting in saving of water up to a large extent, as industries use huge amounts of water during various processes like cleaning, washing, etc.

Industries generally flow their harmful waste water into the sea or in a river and due to that drinking water became contaminated and contaminated water caused waterborne diseases among children's<sup>1</sup>. But now a day as industries are closed this waste water is not at all mixing into the regular water sources and this is directly affecting in the clear and pure water.

#### **Diseases, causes due to water pollution in children's**

##### **Diarrhea,**

This is a common waterborne disease that often affects children under the age of five. In severe cases; the symptoms include dizziness, fatigue, pale skin, and loss of consciousness<sup>11</sup>.

### **Cholera**

Cholera is caused by contamination of food or drinking water by the bacteria *Vibrio cholera*. The symptoms are like diarrhea, cramps on the abdomen. It occurs mainly in children and causes morbidity and mortality<sup>11</sup>.

### **Typhoid**

*Typhoid causes due to salmonella typhi* bacteria transmitted by contaminated water. The patients developed prolonged episodes of fever, loss of appetite, nausea, headache, constipation, and loss of body weight<sup>11</sup>.

During lockdown the government is playing very essential role in improving access to safe water and sanitation of the areas, a number of steps undertaken at the individual level are also proving very essential in cleaning of water

### **4. Sanitation and hygiene**

Sanitation and hygiene level has tremendously increased in India during this period to avoid spread of Covid 19.

Study report on challenging to Hygiene Improvement in Developing Countries in 2019 stated that hygiene is a condition or activity that should be preserved in the community in order to avoid communicable diseases and improve social outcomes. Lots of developing countries are struggling to maintain this. Most of these challenges include poverty, lack of political participation, lack of full community participation, inadequate gender equality, lack of effective interaction among community and behavioral problems. Several measures have been proposed to reduce these challenges, including community<sup>12</sup>.

During lockdown due to Covid 19 pandemic every hospital is also taking extra efforts to maintain cleanliness all over the world to prevent cross infection and contamination.

So it is observed after lockdown that, more awareness is created between community people and health care personnel towards sanitation and hygiene from various sources and they are implementing it too.

## 5. Behavioral changes during lockdown

**Physical Health:** Community peoples are more aware regarding social distancing, hand washing practices, wearing masks, cleaning and reusing masks. They are also aware about steps to be taken after continuous wearing mask if they developed mild headache, nausea vomiting etc.

1. They are paying special attention towards their health like regular exercises, diet control, etc., it helps to control blood pressure, blood sugar, free from stress and tension.

2. People these days are trying to understand their family, their needs which is resulting in a strong bond amongst themselves and it's a good chance to forget and forgive family affairs through good interpersonal relationship.

3. They are getting close to the nature, many peoples who are at their native places or villages for relaxation and are spending more time with nature by activities like cleaning of the gardens, watering plants, farming etc.

4. They are gaining knowledge as reading habit has been increased due to lockdown, as peoples are now having lots of free time they have now developed the habit of reading, which is resulting them in gaining knowledge and improving memory.

5. People have started saving resources like money, grains and vegetables, etc., they are using them as per actual need only. This lockdown has showed people's uncertainty of life and has taught them the importance of saving resources that may be money or other resources.

**Mental Health:** Human beings all over the world are continuously engaged in various activities in a generation; they were over-worked, over-burdened since generations and finally got this much needed rest. While

maximum of them are working from home, they are these days not forced to cross polluted traffic to reach the office, they are getting quality time to spend with their families. They got time after so many generations to read, to sleep peacefully and to eat to their heart's content this will indirectly effect on human health, will help in reducing human stress and in developing human body strength, reducing diseases in current and coming generations.

In a report on the effect of working hours on sleep and mental health in 2017, indicated that longer working hours cause the poor physical and mental health of the individual. Too long working hours are having adverse effects on quality of sleep. It's a rather significant problem that has impacted both employees and the profitability of the company. The association between these symptoms and the sleep disturbances was positive<sup>13</sup>.

But now after lockdown every person got a break from their busy schedule for self realization.

**A moment of self-realization:** The great outcome of this Lockdown is we realized the need of making changes in our lifestyle and thought process. Now the condition is that youngsters are getting enough time to share their feelings, ideas and valuable thoughts with their family members and friends and colleagues. It's a very good time for younger's to keep stress free mind.

If everybody will keep themselves engaged like this in their lives there will be no pathway to come negative thoughts in a person's mind. After lockdown in the future if this situation will be continue ultimately a reduction in mental illness and suicidal cases due to stress and tension among younger's in India may be observed.

## 5. Road traffic accidents

There are almost no people or less people on the road due to lockdown resulted in less number of accidents and street crimes. Police presence in almost every vital place and closed borders has helped in low rate in burglary and vehicle thefts all around the world. Proper checking at the borders has restricted criminals from entering the borders of other districts or states.

This lockdown has shown a positive impact on road traffic accidents too, apart from its original purpose of controlling the spread of Covid-19 as only essential



vehicles are only allowed on road with permission; it has reduced accident rates too.

Decrease in drunk and drive cases are also remarkable during this period as wine shops all over have been shut down. Accidents due to youngsters rash driving have also decreased these days as they are not allowed to move outside due to strict police and traffic control arrangements by various governments.

No constructions services are allowed to function during this period also factories and industries manufacturing non-essential goods too have been shut down till further notice has created a very positive effect on related resources and decrease in pollution as with respect to different studies industrial pollution accounts for at least half of the pollution in the country, especially in populated cities like Delhi, Mumbai, Kolkata, Bengaluru and so on. Traffic movement has been reduced to almost zero in all the cities around the

country. Various photos of deserted roads have flooded on social media, with more and more people staying indoors and not daring to move out of their homes during this outbreak of Covid 19 pandemic<sup>14</sup>.

Mortality and injuries resulted from road traffic accidents are serious issues in India and are increasing general medical, social and economic issues approximately 2,650 people die annually and 9,000 get injured every year due to traffic accidents. In 2013, the most recent year that data is available for, 137,423 people died and 469,900 people were injured as a result of road accidents in India. The distribution of road traffic deaths and injuries has been found to be different according to age, month, and periodically. The people of the economically developed age group 30-59 years were the most vulnerable among people of all age groups. It was concluded that India is facing the worsening situation. There is an urgent need to consider the difficult situation of road deaths and injuries<sup>15</sup>.

**Table: 4 In Acharya Vinoba Bhave Rural Hospital, DMIMS, Sawangi, Wardha, Maharashtra, India. In causality in between March to June 2019 daily 15-16 road accident cases were registered and in 2020 in between March to June daily only 5-6 cases are registered due to road traffic accidents<sup>16</sup>.**

Acharya Vinoba Bhave Rural Hospital, Sawangi (Meghe) Wardha, Maharashtra, India.		
Road traffic accidents cases	In 2019 in the month of March to June in an average patients are registered	In 2020 in month of March to June In an average, patients are registered
	1,830	610

#### Benefits of reduction in accidents cases

1. Less Hospitalization.
2. Decrease in long term disability among younger generation and others.
3. Decrease loss of life and injury.
4. Decrease in financial burden on family.
5. Reduced stress and tension among family members.

#### 2. Global warming

This lockdown due to Covid-19 is showing a number of positive effects on earth; in fact, we can even say our planet is getting a much-deserved rest for so many years. World temperature was at its high due to global warming, various kinds of pollutions, etc., which was otherwise not possible to reduce or to adjust at a normal level but this lockdown has helped a lot in reducing this high temperature. As cities now can see blue skies and clearer water, water, animals to enjoy this phase as there is no human interference and increased purity level of water. Areal images taken from satellites

of various countries from space are clearer than ever due to this clean and clear level of air. In coming future this deduction in global warming will definitely result in avoiding thousands of deaths due to global warming as well as it will help reduce some dangerous diseases all over the world<sup>17</sup>.

Earlier as per study the effects of global warming on South Asia were very thinkable like steady sea level rise, increased cyclonic activity, and changes in ambient temperature and precipitation patterns. Increased landslides and flooding were projected to have an impact upon states such as Assam. Rise in sea level had a submerged several low-lying island in the Sundarbans, displacing thousands of people. The first among the countries to be affected by severe climate change was Bangladesh. There was a reduction in fresh water availability, disturbance of morphological processes and a higher intensity of flooding. Regarding local temperature rises, it was 3.3 °C with the min-max range as 2.7 – 4.7 °C. For Tibet it was 3.8 °C and min-max figures of 2.6 and 6.1 °C<sup>18</sup>.

In 2019, India witnessed high temperature second – longest period in the last 31 years between March 7 and

June 2. Long heat waves swept through 23 states which killed almost 300 people in India<sup>19</sup>.

#### Impact of excess heat on the human body

After over heating the human body requires evaporative cooling even in low activity movement. If the heat level exceeds, humidity in human body shows the adverse effect as it can convert into Dehydration, Hyperthermia and Heat stroke. Heat illness effects on many organs and system, including brain, heart, kidney, liver, etc<sup>20</sup>.

Recent research has mentioned that prolonged exposure to heat causes physical exertion and dehydration; these factors can lead to chronic kidney disease in India<sup>21</sup>.

But due to lockdown in the year 2020, temperature, level in-between the months of March to June is low as compared to last year 2019. In future also if the earth gets a similar pollution free and heat waves free break, then ultimately heat exposure, illness and diseases will be reduced.

In Mumbai and Delhi temperature is decreased as compared to last year<sup>22</sup>.

**Table: 5 Average temperatures in Delhi and Mumbai, Maharashtra, in month of March to June in 2019 and 2020 during lockdown period.**

In India climate Temperature	March to June in Delhi 2019	March to June in Delhi 2020
	Average Temperature March Max 360c Min 400c June Max 450C Min 390C	Average Temperature March Max 310c Min 330c June Max 430C Min 390C
	March to June 2019 in Mumbai, Maharashtra	March to June 2020 in Mumbai, Maharashtra.
	Average Temperature March Max 350c Min 320c June Min 340C Max 350C	Average Temperature March Max 320c Min 300c June Max 360C Min 330C

\*Overall this Covid 19 lockdown has increased so much positive and good signs in people all over the India, if people continue these good practices, even after Lockdown, then it will definitely help in decreasing communicable diseases in India in coming future.

### Discussion

It was not possible ever to control all types of pollution or remove pollutants from air, water, etc. Due to this mandatory lockdown nature got a break after so many centuries where there is no human interference, no pollution and hence automatic nature got its time to clear it all and health positive effects are also seen.

After lockdown if Government takes strict steps to control various types of pollution, the rate of related diseases will ultimately reduce.

If sanitation and hygiene maintenance will continue communicable disease prevalence will reduce in adult and children.

Road traffic accident reduction can prevent long term disability and mortality among people especially in younger's.

If younger's will get adequate time for themselves, then ultimately a reduction in mental illness and suicidal cases in younger's can be maintained.

### Conclusion

This compulsory lockdown has shown many positive effects all over the world, in the most important is air pollution has decreased to almost zero, which has shown improvement in the Ozone layer. Global warming has also reduced to a considerable level. People all around the world are more serious about sanitation and hygiene. Lockdown has also shown positive effects on both human animal behaviors, both are in their respective places without any interference and are enjoying their time. Accident rates have increased to a considerable low. Overall, this lockdown has many never seen effects on human life, the environment and animals.

Even after this Covid 19 lockdown, if we succeed in maintaining same sanitation and hygiene, limited use of resources, etc. then it will become definitely beneficial to coming generations.

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