

# Assessments of COVID-19 Effects on Indian Social and Ecological Environment - A Comprehensive Review

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**Abstract:** COVID-19 has caused long-term effects on the social, economic, and ecological systems of India. As far as social implications are concerned low-income groups, middle-income groups and workers of unorganized sectors are severely affected due to unwanted pandemic situations. Lockdown affected India's entire 1.3 billion population. While the medical fraternity struggle to find its treatment, an effort has been made to assess the impact of this highly contagious virus. The virus has its impact on almost all aspects of life from the environment, economy, education, income, and many public services. It disrupted the life and health of citizens. Disruptions could be seen in markets and industries as well. The lockdown has changed the way of living. The economic activity has been disturbed. The overall balance sheet of the country has reduced due to holds on government and private sector businesses and activities. In terms of ecological balance, the pandemic has provided relief to the planet and living entities and there had been a substantial drop in the pollution levels. Many cases have been reported that endangered species are returning to their natural habitats and pollution of all kinds has come down. Mother Earth is reviving back to its life. In the present review an attempt has been made to correlate the effect of COVID-19 on every aspect of India as a whole.

**Keywords:** COVID-19, Social lockdown, Social and ecological environment, Review

## 1. Introduction

COVID-19 is the savage and irresistible illness that today the entire world is managing. The infection responsible for this sickness is called SARS-CoV-2 which is termed as Severe Acute Respiratory Syndrome, likewise called the novel coronavirus (2019-nCoV)[1]. This is one sort of group of zoonotic coronaviruses. In March 2020, WHO pronounced the coronavirus flare-up as Pandemic[2]. The first instance of COVID-19 in India was accounted on 30 January 2020 in the province of Kerala. Many have lost their lives to Coronavirus till date. The flare-up is accepted to have its source in Wuhan city in Hubei territory of China in December 2019 [3]. The WHO proclaimed the episode as a general wellbeing crisis of worldwide worry on January 30, 2020[4]. Hydroxychloroquine is used to counter COVID but so far no vaccine has been developed. The only way that can be adopted to prevent its spread is social distancing, wearing masks, washing hands regularly, health hygiene standards. Hence, the whole country had been put under lockdown by the Indian government. Millions of people were told not to come out of houses or to assemble to avoid the spread through the transmission. Economic activity has been completely shut. No transportation. No tourism. No jobs. The purpose of a lockdown is the restriction of social interaction in public spheres except for the essential services. To decelerate the spread, the Indian Prime Minister ordered the "Janta Curfew" on March 22, 2020. At midnight of March 24, 2020, Prime Minister gave the orders for the nationwide 21-day lockdown which was further extended four times more. In the mid of April, restrictions were slowed down except the deadly contaminated zones.

## 2. COVID-19 Effect on Indian social Environment

The COVID-19 affects all sections of the populace and this pandemic left people in the most defenseless conditions, it is continuously affecting the population early evidence exhibits that the prosperity and fiscal impacts of the disease are being borne out by people. If not suitably tended to through the system, the social crisis made by the COVID-19 pandemic may in like manner extend unevenness, preclusion, isolation, and overall joblessness in the medium and long stretch. Careful, general social confirmation systems, when set up, expect a much solid activity or step by the Indian government in making sure about workers and in diminishing the normality of desperation.

### 2.1 Lockdown in India

World Health Organization announced coronavirus as a pandemic on March 11, 2020. The first instance of COVID-19 in quite a while was accounted for on January 30, 2020 in the Indian state of Kerala. As the disease spreads fast through community transmission, India observed Janta Curfew This was the self-imposed curfew by the public, for the public and on the public. Fearing the rate of infections, within the two days of Janta Curfew, the Prime Minister of India addressed the nation on March 24 and imposed the country-wide lockdown for 21 days. This lockdown was extended three times more by the central government and then it was laid upon the state governments to keep the view of the situation further.

#### 2.1.1 Lockdown 1.0

This accounts for a period of 21 days from March 25 to April 14, 2020. The whole nation went into lockdown which

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means all activities were banned throughout the country other than the essential commodities like medicine, food, etc [5]. Decisive measures were taken to break the transmission of COVID-19. As no vaccine had been developed so far, the only option to fight coronavirus is social distancing. The disease paced up till the end of March with India crossing 500 cases [6]. The Prime Minister office launches the PM-CARES Fund and appeals citizens of the country to contribute to help to fight coronavirus [7]

Indian council of medical research issued guidelines for the use of commercial kits to diagnose COVID. ICMR also advised pool testing for COVID that works on **RT-PCR**. On April 02, the government of India launched AAROGYA SETU App for contact tracing and to connect for essential health services of the individuals [8]. The Centre had released 17,287 crores to states as a support against the setback. Out of which 6195.08 crores is given as revenue deficit grant to 14 states and 11,902 crores allotted for providing quarantine facilities, to assemble health care requirements, etc. under the State Disaster Risk Management Fund [9]. Coronavirus Relief Package of one lakh seventy thousand rupees were issued as insurance cover for all the health workers under PM Garib Kalyan Yojna by MoHFW[10]. As on April 04, ICMR gave the warning to begin a fast immunizer-based blood test for COVID as a methodology for the control zone[8]. The major blues of this lockdown other than the economic fall was the sufferings of the migrant workers.

### 2.1.2 Lockdown 2.0

The Indian Prime Minister had a virtual meeting with all the chief ministers to discuss the extension of lockdown to tackle COVID. As the first phase ends with very little flattening of the COVID-19 curve, Prime Minister ordered to extend the lockdown till May 3, 2020[11]. Ministry of Health and Family Welfare launched the **COVID India Seva App** on Twitter to people's grievances on COVID[12] Also, the Cabinet under the chairmanship of Prime Minister sanctioned rupees 15,000 crores for emergency response and Health system awareness package [13]. There was an increase in medical help from the government of India. To meet the huge testing requirement, WHO helped in supplying kits and reagents to laboratories [13]. Most importantly it was only during this time that the movement of migrant workers was allowed. Banking operations, movement of persons, transportation of cargo and essential services, industries in rural areas, and manufacturing of essentials goods were allowed.

### 2.1.3 Lockdown 3.0

The positive cases of the disease paced up and so the days of lockdown increased. The government of India and the Ministry of Home Affairs issued the extension of lockdown by two more weeks from May 03 to May 17 under the Disaster Management Act, 2005 keeping in view the measures are taken to curb the spread of this disease[14]. Cluster containment strategy was being followed deliberately to implement the geographic quarantine. Throughout the country, districts were classified into three zones as –

**Table 1**

Green zone	Districts with Zero active cases
Red zone	Where the number of active cases was increasing
Orange zone	Those which neither falls into the green zone or red zone category

Though the stringent measures were being taken, **shramik** special trains and other trains were active for the movement of individuals. Depending upon the zone in which they fall, restrictions were made or lifted.

On May 12, a package of Rs.20 lacs crore was elaborated by the finance minister of India. Prime Minister declared this package as an economic stimulus under the **Aatam Nirbhar Bharat Abhiyaan** [11]. ICMR's, National Institute of Virology, Pune developed and validated a completely indigenous ELISA test (serological Enzyme-Linked Immunosorbent Assay) for antibody detection of Sars-Cov-2[15].

### 2.1.4 Lockdown 4.0

The central government of India further extended the lockdown in the country till May 31, 2020. On May 18, 2020, COVID cases in India crossed over one lacs [16]. The nation can't be put under quarantine for so long so this phase of lockdown brought with it some major relaxations such as almost all the economic activities were permitted, public movement were allowed with new rules. This period was a little unlock for the non-containment zones. But the restrictions remained maximum for the red zones. Now it was left under the state government to decide where to impose restrictions and where to lift depending upon the zones[17]. Foreign nationals were evacuated and stranded Indian nationals were brought back to India under the **Vande-Bharat Mission** (by **Air Force**) and **Samudra Setu** mission (by **Indian Navy**). The lockdown period was utilized utmost to ramp up the country's health system and infrastructure. By the end of May, the following were identified [18].

**Table 2**

COVID Hospitals	3027
COVID care Centers	7013
Isolation beds	2.81 lacs
ICU beds	31,250
Oxygen supported beds	1,09,888
PPE Coveralls	65 lacs
N95 mask	101.07 lacs

### 2.2 Social distancing impact

COVID-19 is spreading at a higher pace. The development of a vaccine is underway. It will take around a year to produce an effective and approved vaccine for COVID-19 so to decrease the spread of this pandemic, the only preventive measure that could prove to be effective in slowing down the curve is social distancing. This is a preventive measure to be taken to avoid any exposure to COVID-19. In India, the lockdown came into effect from March 25, 2020, to slow down the rate of infections. Prime Minister exercised his powers under the Disaster Management Act, 2005, and issued an order prescribing lockdown for the containment of the outbreak. Frequent hand-washing, no assembly, contact tracing, and quarantines

are some interventions followed to slower the transmissions. People are confined to their houses and allowed to move only for necessities. Transportation, Flights, Historical places hotels are closed. Social distancing has led to anxiety and depression issues amongst the people. It has changed people's lifestyles. People have to struggle a lot for meeting their needs due to the loss of income. Lockdown has resulted in limited physical activity so there is a loss of mental and social order during the peak of a high impact outbreak. When there is a negative impact on people's lives because of this deadly pandemic there is some positive side comes into the picture that people got relief from their busy life and showed their participation in-home activities. According to many, social lockdown truly furnishes a chance to invest energy with relatives. However, it can be said that life after lockdown will be changed completely.

### 2.3 Movement of migrant workers

Lockdown - A preventive move to contain the pandemic had severely hit the weaker section of society, more precisely the daily wage workers and laborers who belong to rural areas but work in metro cities of India. Lockdown has left these millions of migrant workers unemployed [19] and hurt India's informal sector the most. The daily wage workers such as laborers, helpers, rickshaw pullers, street vendors, sanitation workers have been rendered vulnerable and bereft of income [20]. The way the migrant workers have been rolled out of the livelihood, they are exposed to more threat under this pandemic

India's migrant workers numbered around 139 million according to the report of World Economic Reform. 86% of the country's workforce is informal [21]. Due to Lockdown when Public transportation was under complete shutdown they were left with no resources to survive and they started walking to reach their home villages in far-off states carrying the burden of worldly things. Under which they were punished for violating the rules of lockdown and others died of heat or hunger on the roads. Dozens have been killed in road accidents. On May 8, 2020, in Aurangabad, 16 migrant workers were killed when a freight train ran over them while they were asleep on the track.

States setup relief camps along the highways, social distancing, and medical checkup drives. Under the State Disaster Response Fund, they provide food, shelter, and basic amenities to all unorganized sector workers [22]. Later in the lockdown, special **shramik** and other trains were put to use for the stranded person [23]. Government schemes like One Nation, One Ration Card ensured that the poor will get additional rations in the lockdown [24]. Due to the lack of coordination amongst the organizing bodies, amenities offered to the migrants could not reach them. As financial support, a budget of \$23 billion was offered by the central government to help the weaker section for combating COVID-19 [25]. However, Migrant workers complained of a violation of their human rights [26]. The false news of interstate bus facility brought them to active hotspots in Delhi and Mumbai gave them a bigger disappointment. They shared rooms, paid rents for crowded accommodations. Some took loans at higher interest before heading to their

native place. A short notice of a few days would have been beneficial for them to travel back to their homes.

### 2.4 Making Quarantine center in Hospital, Colleges, Mosques

India, being the second biggest crowded nation where the social insurance framework is seriously enduring because of the absence of foundation (0.7 emergency clinic beds per 1000 individuals) medical equipment. In the wake of coronavirus, the quarantine centers have been set up keeping in mind the need of social distancing. The central government has issued guidelines for setting up the quarantine facilities. Throughout India, schools, colleges, hospitals, mosques, have been turned into quarantine centers. These centers are deployed with doctors who provide medical facilities. These centers have been set up not only for treating the patients but also for the evacuated nationals or those who have travel history to put them under quarantine so as not to spread the virus through community transmission. Quarantine centers provide laboratory facilities and medical care to assist at COVID-19 hotspots.

### 3. COVID-19 Effect on Indian Ecological Environment

The only positive aspect of this outbreak is the unprecedented fall in the pollution levels. There's a reason to celebrate that the pollution levels have shrunk and wildlife is free. During this lockdown when everything comes to a halt, many places witnessed clear blue skies and people can breathe in pollution-free air. The comparison and analysis of data before and after the enforcement of restrictions have revealed that the country had witnessed a significant improvement in the air quality [27]. Ambient air quality has risen with the fall in levels of major air pollutants like particulate matter (PM 2.5 & PM 10), nitrogen dioxide, sulfur dioxide, carbon monoxide, etc. A drastic drop in the high levels of PM 2.5 could be seen in major big cities of India. World Air Quality Report stated that a reduction of 60% in the fine particulate matter could be seen in Delhi and 34% in Mumbai with 49.8ug/m<sup>3</sup> and 34.5ug/m<sup>3</sup> respectively. Also during this period in Delhi, the unhealthy hours plunged from 68% to 17%. Also, according to the report issued by the Central Pollution Control Board, India there has been following a reduction in the levels of pollutants as compared to the pre-lockdown period [27].

**Table 3**

Pollutant	Reduction Percent
PM 2.5	46%
PM 10	50%
Nitrogen dioxide	56%
Carbon dioxide	37%
Sulphur dioxide	19%
Benzene	47%

PM 2.5 is the fine particulate matter that includes pollutants such as sulphates, nitrates, and black carbon. These microscopic particles are very harmful to the lungs and cardiovascular system [28]. The pieces of evidence say that the COVID-19 virus is primarily transmitted through respiratory droplets and contact routes [29]. Therefore, the



risk of contagion through airborne virus-laden aerosols is higher. These virus-laden particles are so small in diameter that they could remain in the air and be transported contributing to the contagion. Also, many researchers have hypothesized that the drop in air pollution levels may currently be saving a significant amount of lives by reducing individuals' susceptibility to COVID-19. This way COVID induced social lockdown has helped in lowering the morbidity and mortality rate of disease.

Not only air and water pollution have been minimized but also many people got a chance to live in a noise-free environment. The noise pollution got replaced by the sound of birds. Since the lockdown was clamped, there's been no clanking of machines, no honking, and no echo of loud-speakers. With the operations coming to a substantial halt, there's no doubt that the lockdown has benefited the flora and fauna[30]. The gradual lockdown imposed shrieked the pollution belts over multiple cities. However, it is expected that the damages in these emissions of vehicular and industrial operations are expected to bounce back post lockdown.

#### 4. Conclusion

With each successive period of lockdown, the average number of new cases are adding every day. The timing of the outbreak of COVID at Lunar New Year is unfortunate. A common man got to witness many changes. There is complete uncertainty about how the pandemic will evolve which makes it difficult to predict what policy should be adopted. Throughout India even when at some places restrictions have been slowed down, schools and other educational institutes remain closed. Distance learning has been encouraged. Lockdown has disrupted many tiny businesses. The experience from the previous infectious diseases for which there was no vaccine can provide valuable information that how to think about the implications of COVID-19. Also, India can use this time as an opportunity to promote the Make in India campaign to flourish and expand its exports. Lockdown has made our loopholes vulnerable and proved that there is a big room to do much more.

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