

COVID-19 SECOND WAVE: CHALLENGES FOR SUSTAINABLE DEVELOPMENT

ISBN: 978-93-559305-5-2 | pp: 102-105 | Year: 2021

COVID-19 Pandemic: New Challenges for Environmental Sustainability in Developing Countries

Sadguru Prakash¹ and *Ashok Kumar Verma²

¹Department of Zoology, M.L.K.P.G. College, Balrampur (U.P.)

²Department of Zoology, Govt. P.G. College, Saidabad, Prayagraj (U.P.)

ABSTRACT

Coronavirus disease-19 (COVID-19), produced by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has become a global pandemic, giving rise to a serious health threat globally. The global Covid-19 pandemic is a setback for sustainable development and compromise the world commitment to the 2030 Agenda for Sustainable Development. The measures taken to control the spread of the virus and the slowdown of economic activities during lockdown have significant effects on the environment. Therefore, this review discuss the indirect positive and negative impacts of Covid-19 pandemic towards sustainable environment. This study indicates that, the pandemic situation significantly improves air quality in different cities across the world, reduces the emission of greenhouse gases, and decreases water and noise pollution, which may help in the restoration of the ecosystem. In addition, there are also some negative impact of Covid-19, such as increase of medical waste, haphazard use and disposal of disinfectants, mask, and gloves; and burden of untreated wastes continuously endangering the environment. It points to the fact that the net effect has been positive; in terms of reduction in greenhouse emissions, oil exploration activities, and pollution. It is expected that the proper implementation of the proposed suggestion might be helpful for the global environmental sustainability.

Keywords: Covid-19, Environment, Sustainability.

Introduction

WHO released a pneumonia outbreak of unknown cause on January 5, 2020 (WHO, 2020). On February 11, 2020 WHO named the disease Covid-19 (formerly known as the "2019 Novel Coronavirus"), which is caused by a coronavirus. Coronaviridae Study Group (CSG) of the International Committee on Taxonomy of Viruses (ICTV) named it SARSCoV-2 on February 11, 2020 and recognized this virus as a sister clade to Severe acute respiratory syndrome coronaviruses (SARS-CoVs). Covid-19 disease has spread over 219 countries and territories, infected more than 126,852,304 people, and caused at least 2,782,183 deaths as of March 27, 2021. Covid-19 presents an unprecedented challenge to public health, food systems, economic and social disruption and also environment in diverse ways.

The pandemic has impacted in both positive and negative ways to all the four dimensions of sustainable development:

economic, social, education and environmental. Countries which have successfully navigated the crisis have generally implemented policies which will accelerate these transformations in the direction of sustainability, while countries which have failed to rise to the challenge have reinforced patterns which will make sustainable development harder to achieve in the future. The highest priority of every government must remain the suppression of the pandemic, through non-pharmaceutical interventions and global access to vaccines. There can be no sustainable development and economic recovery while the pandemic is raging.

Thus, pandemic has forced the shutdown or lockdown of many physical activities and social activities worldwide, including transportations and educational institution. The direct effects of these measures were felt in the economy, as well as in key institutions within society and educators (Kumar, 2021); however, there were also indirect results

from these changes. Thus, this review article focuses on these indirect effects, towards sustainable environment.

POSITIVE IMPACT OF COVID-19 ON ENVIRONMENT

Globally, the Covid-19 pandemic affected the environment, placing a strain on the economy and all parts of human society. It provided many positive impacts on environment (Verma and Prakash, 2020a; Roy and Chaube, 2021). The positive impact includes reduced air, water and noise pollution, better growth of vegetation, short-term disruption in wildlife trafficking and ecosystem restoration etc. due to reduction in human pressures on the natural ecosystem because of the lockdown of social and economic activities. Despite this, prevailing problems such as indiscriminate exploitation of wildlife resources, tourism revenue loss, staff absenteeism and poor performance, increased human dependence on natural resources, disruptions in field and research work, and species monitoring would persist. The Covid-19 pandemic affected the conservation program funding in most countries. Our world is changing, and the conservation community must be ready to respond appropriately.

Reduction in air pollution and GHGs emission: During covid-19 pandemic energy demand in business and commerce area has been reduced which ultimately reduced the air pollution in urban areas (Rume and Islam, 2020). This resulted in better air quality in areas notorious for poor air quality, as well as improved visibility in such regions. It was observed that during pandemic situation, air quality significantly improves in different cities like New Delhi, which are known to be one of the highly polluted cities with an Air Quality Index (AQI) ranging from 500-600ppb (this range is supposed to be hazardous and causes severe health emergencies) magically swooped down to 50ppb AQI. Thus, the most discernible, and arguably positive impact on the environment as a result of Covid-19, has been a reduction in greenhouse emissions from sources of transportation; most notably, air and road transport (Baldasano, 2020; Lian et al., 2020), which account for a substantial portion of pollution. Not only the air became purer but also the endangered flora and fauna started healing itself back to normal. Clear blue skies and empty roads were the rarest of sites in many cities, since vehicular disruption was halted for several hours rather days.

Reduction in water pollution: Water pollution is a common phenomenon of a developing country like India where domestic and industrial wastes are dumped into rivers without proper treatment. During the lockdown

period, the major industrial sources of pollution have shrunk or completely stopped, which helped to reduce the pollution load. For instance, the river Ganga and Yamuna have reached a significant level of purity due to the absence of industrial pollution on the days of lockdown in India. This improvement of water quality of Ganga River was due to 500% reduction of sewage and industrial effluents (Somani et al., 2020). It is also found that, the concentration of pH, electric conductivity (EC), DO, BOD and chemical oxygen demand (COD) has reduced almost 1–10%, 33–66%, 45–90%, and 33–82% respectively in different monitoring stations during the lockdown in comparison to the pre-lockdown period (UPCB, 2020).

Reduction of noise pollution: Noise pollution is the elevated levels of sound, generated from different human activities (e.g., machines, vehicles, construction work), which may lead to adverse effects in human and other living organisms (Goines and Hagler, 2007). Usually, noise negatively effects on physiological health, along with cardiovascular disorders, hypertension, and sleep shortness of human (Kerns et al., 2018). Noise pollution has adverse impacts on wildlife through the changing balance in predator and prey detection and avoidance. For instance, noise level of Delhi was reduced drastically around 40–50% during covid-19 lockdown period (Somani et al., 2020). Due to reduction of vehicle movement during the lockdown period, the noise levels of Govindpuri metro station (Delhi) is reduced 50–60 dB, from 100 dB (Gandhiok and Ibra, 2020).

According to the Central Pollution Control Board (CPCB, 2020) of India, noise level of residential area of Delhi is reduced 55 dB (daytime) and 45 dB (night) to 40 dB (daytime) and 30 dB (night) respectively. As a result, city dwellers are now enjoying the chirping of birds, which usually ranges from 40-50 dB (Gandhiok and Ibra, 2020). The wildlife also breathed a moment of relief because of the deserted roads and the near-silent ambience all around, as a result of which various wildlife animals were witnessed wandering around in the cities.

NEGATIVE IMPACT OF COVID-19 ON ENVIRONMENT

The negative impacts are difficult waste management, increased organic and non-recyclable wastes due to Covid-19. The drastically increasing amounts of domestic, electronic and medical wastes are major challenges before us (Verma and Prakash, 2020b). The segregation, processing, and disposal of increased biomedical waste generation is major threat to public health and environment and also a serious challenge for health care system in India.

Used masks, gloves, PPE kits, face shields, single-use surgical face masks, nitrile gloves and tissues when discarded untreated, pose a serious negative effect on environment. The used PPE kits are highly infectious and becomes a threat to human health, as well as terrestrial, and marine ecosystems, if they are not scientifically handled and disposed. Proper disposal of PPE kits is important to promote environmentally sound management of waste. As the new SARS coronavirus 2 with fomite-borne dissemination, their disposal is often being carried on along with the non-infectious household or other waste from residential areas where color-coded bins are difficult to be found.

Central Pollution Control Board (CPCB), Ministry of Environment, Forest and Climate have published regulations for the management of waste generated during treatment, diagnosis and quarantine of Covid-19 patients in India. In these guidelines use of double layered bags, compulsory labelling of bags and containers as “Covid-19 waste,” regular disinfection of dedicated trolleys, maintaining of separate records of waste generated from COVID-19 centers. Hospitals and related institutions should increase their capacities to mobilize and store the bio medical waste. The use of chemical disinfectant spray, microwave disinfectant technique, incineration methods (for solid waste) may be used to disinfect the PPE kits, clothes and larger areas i.e. shopping malls, hospital premises/wards, and isolation centres etc. Yellow colour bags are used for solids, chemicals, beddings, blood and body fluid, red bags are used for gloves and bottles, blue bags are used for broken glassware and metallics waste. The strategy of identify, isolate, disinfect, and safe treatment practices is the effective for safer management of Covid-19 waste management. The role of community and community medicines becomes significant (Balwan *et al.*, 2021). Besides, it has negative impacts on education (Srivastava *et al.*, 2020; Srivastava and Reddy, 2020).

Increased online shopping for home delivery, ultimately increase the amount of household waste from shipped package materials. Huge amount of disinfectants applied on roads, commercial and residential areas affects the quality of environment. We don't know when we will get rid from Covid-19, so this is the right time to make collective efforts and strategies for environmental sustainability because it is must for sustainable and inclusive development (Verma, 2019). To achieve this, sustainable industrialization, proper waste management, waste water treatment, biomedical waste management and promoting sustainable livelihood is must. Chaos and the negative effects of the Covid-19 pandemic may have made a

catastrophic future seem less remote and action to prevent it more necessary and reasonable. However, it may also have the opposite effect by having minds focus on more immediate issues of the pandemic rather than ecosystem issues such as deforestation.

Currently, there are many relevant questions that remain unanswered due to the limited understanding of the interactions between Covid-19 and the global environment, such as the role of environmental change on disease transmission, the impact of human activity and lifestyle change on the environment, and environmental concerns during a long-term battle against Covid-19. Thus, the environmental response to the Covid-19 pandemic can help us to better understand the interplay between human and nature, and has drawn great attention from the academic community and from policy makers.

SUGGESTIONS AND CONCLUSIONS

It is assumed that, all the above impact on environment is short-term. So, it is high time to make a proper strategy for long-term benefit, as well as sustainable environmental management. Therefore, some possible suggestions are proposed for global environmental sustainability.

- For Sustainable industrialization, it is essential to shift the industries in some specific zones, keeping in mind that waste from one industry can be used as raw materials of the other.
- To reduce emissions, it is necessary to encourage people to use public transport, rather private vehicles. It is not only environment friendly but also beneficial for health.
- Use of renewable energy like solar, wind, hydropower, geothermal heat and biomass can reduce the energy demand and also reduces the GHGs emission that can lower the demand of fossil fuels like coal, oil, and natural gas, which can play an important role in reducing the GHGs emissions.
- To control the challenges of water pollution, both industrial and municipal wastewater should be properly treated before discharge.
- To reduce the burden of wastes and environmental pollution, both industrial and municipal wastes should be recycled and reused.
- To reduce the carbon emission, it is necessary to change the behavior in our daily life

The Covid-19 pandemic has unintentionally caused effects on sustainable environment. The restrictions in social, educational and economic movement have had a positive

effect, with reductions in transportation and commerce, which contribute the significant reduction in emission of greenhouse gases. At the same time, ecological hotspots, where human activity is usually common, have enjoyed an improved environmental quality, enabling wildlife and other life forms to thrive efficiently. Thus the reduction of GHGs emission, lessens water pollution and noise, and reduces the pressure on the tourist destinations, which may assist with the restoration or healing of the ecosystem. For this reason, we can conclude that the Covid-19 outbreak and ensuing pandemic have been beneficial to the environment management.

References

1. **Baldasano, J.M.** (2020). COVID-19 lockdown effects on air quality by NO₂ in the cities of Barcelona and Madrid (Spain). *Sci. Total Environ.*, 741: 140353-140363.
2. **Balwan W.K., Balwan W.K. and Saba N.** (2021). Decoding the role of community and social medicine during Covid-19 pandemic. *International Journal of Biological Innovations*. 3(2):360-366.
3. **CPCB** (2020). Central Pollution Control Board, Ministry of Environment, Forest and Climate Change, Government of India; Daily River Water Quality Monitoring Data.
4. **Gandhiok J., Ibra M.** (2020). Covid-19: Noise Pollution Falls as Lockdown Rings in Sound of Silence. <https://timesofindia.indiatimes.com/india/covid-19-noise-pollution-falls-as-lockdown-rings-in-sound-of-silence/articleshow/75309318.cms> Apr 23, 20.
5. **Goines L., Hagler L.** (2007). Noise pollution: a modern plague. *South. Med. J.* 100 (3):287–294.
6. **Kerns E., Masterson E.A., Themann C.L., Calvert G.M.** (2018). Cardiovascular conditions, hearing difficulty, and occupational noise exposure within US industries and occupations. *Am. J. Ind. Med.* 61(6):477-491.
7. **Kumar S.** (2021). Psychosocial impact of Covid-19 Pandemic on school educators' mental health and role of cognitive competence in coping such adversities. *International Journal of Biological Innovations*. 3(2):323-330.
8. **Lian, J. Huang, R. Huang, C. Liu, L. Wang, T. Zhang.** (2020). Impact of city lockdown on the air quality of COVID-19-hit of Wuhan city. *Sci. Total Environ.*, 742, Article 140556.
9. **Roy N. and Chaube R.** (2021). Environmental Impact of COVID-19 Pandemic in India. *International Journal of Biological Innovations*. 3(1): 48-57.
10. **Rume, T. and. Islam, S.D.U.** (2020). Environmental effects of COVID-19 pandemic and potential strategies of sustainability. *Heliyon*, 6 (9): Article e04965
11. **Somani, M., Srivastava A.N., Gummadivalli, S.K.** (2020). Sharma A. Indirect implications of COVID-19 towards sustainable environment: an investigation in Indian context. *Biores. Technol. Rep.* 11:100491.
12. **Srivastava B. and Reddy P.B.** (2020). Assessment of KAP (Knowledge, Attitude and Practice) of University students towards Prevention of Covid-19. *International Journal of Biological Innovations*. 2 (2): 117-125.
13. **Srivastava S., Singh, P. and Singh, V.P.** (2020). Impact of COVID-19 on Education System in India: A Review. *IRE Journals*. 4(1):1-7.
14. **UPCB** (2020). Uttarakhand Pollution Control Board, Government of Uttarakhand; India. Water Quality during Lockdown Period. <https://ueppcb.uk.gov.in/pages/display/96-water-quality-data>
15. **Verma A.K.** (2019). Sustainable Development and Environmental Ethics. *International Journal on Environmental Sciences*. 10 (1): 1-5.
16. **Verma, A.K. and Prakash, S.** (2020a). Impact of Covid-19 on Environment and Society. *Journal of Global Biosciences*. 9(5):7352-7363.
17. **Verma A.K. and Prakash S.** (2020b). E-wastes and their impact on environment and public health. *International Journal of Applied Research*. 6(9): 164-168.
18. **WHO.** (2020). Coronavirus disease (COVID-19) pandemic. World Health Organization. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>