

COVID-19 SECOND WAVE: CHALLENGES FOR SUSTAINABLE DEVELOPMENT

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Covid-19 Pandemic: Challenges for Education and Environment

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ABSTRACT

Coronavirus disease 2019 (COVID-19) is an infectious disease that causes respiratory illness in human and has now become a major challenge for all over the world. In spite of all their efforts to restore the nature during the last few decades, humans could only move a few steps forward. But during the last few months, consequences of the COVID-19 Pandemic have successfully recovered the environment to a large extent that should definitely set positive impact on global climate change. The COVID-19 spread around the world and severely affected the world's education, economy, social interactions and other global impacts. We have come across one of the most daunting problems of the modern times, which is, educational crisis. One of the many challenges faced by the students due to COVID-19 is loss of learning. Distance learning has been a failure throughout this period, due to the fact that the educators are unsupported and they lack the practical experience of teaching online through technology. On the other hand, not all students have the technology infrastructure at home to support their ongoing learning. Many of them are economically backward and find it difficult to support their education without internet or a learning tablet.

Keywords: COVID-19, Environment, Education, Lockdown.

Introduction

The outbreak of the new coronavirus infection, COVID-19 (coronavirus disease 2019) was initiated from the Hunan seafood market in Wuhan, Hubei Province of China in December 2019. It is a communicable viral disease and quickly spread globally. So the World Health Organization (WHO) declared it as a pandemic on 11, March, 2020. It is caused by a single stranded RNA virus known as SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2). The SARS-CoV-2 viral particles are spherical and have mushroom shaped protein called spikes protruding from their surface, giving the particle a crown like appearance (Kumari and Shukla, 2020; Roy *et al.*, 2020). The SARS-CoV-2 pandemic beginning in early 2020 has caused millions of deaths from severe COVID-19 lung injury and respiratory failure, often complicated by multi- system injury. Severe Acute Respiratory Syndrome (SARS)-CoV-2 virus belongs to the Coronaviridae family that encompasses alpha, beta, gamma and delta strains. The virus particles are spherical and have mushroom shaped protein called

spikes protruding from their surface, giving the particle a crown like appearance. The spike binds to the human cell receptor called 'Angiotensin' converting enzyme 2. Studies showed that virus takes entry to the respiratory mucosa by Angiotensin receptor 2 (ACE2) present in lower respiratory tract in abundance (Singhal, 2020) mainly in type-2 alveolar cells. The same receptor is used by SARS-CoV (Zhou *et al.*, 2020). It has 10 to 20-fold higher binding affinity than SARS. Due to high binding affinity it transmit human to human very quickly (Ankita and Sangeeta, 2020; Roy and Chaube, 2021).

Covid-19 and Environment:

Global pandemic has caused a devastation. Lives are lost and even the environment is been polluted at high rates. The Personal protective Equipment kits as face masks, gloves, goggles, gowns, and aprons are essential items to help protect individuals from exposure to pathogens and contaminants and for that reason it is been used by everyone, extensively by frontline health and sanitation communities to reduce the chances of contracting the

disease. 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. The present methods available for its disposal are landfill and Incineration. These methods may help but it is not in line with sustainability. On a long run they have depleting effect on the environment and biodiversity (Arya, 2021; Prakash, 2021). The biodiversity loss is a big problem (Verma, 2016; Kumar and Verma, 2017). There is a need for the world to move towards sustainable development and achieve sustainability (Verma, 2021). There are many scientist and environmental enthusiasts who are looking into innovative methods of disposal of these wastes created by the pandemic. It showed positive effects on environment and biodiversity. The latter is significant for ecological balance and human survival (Ashok, 2017 & 2018).

COVID -19 presents an unprecedented challenge to public health, food systems, economic and social disruption and also environment in diverse ways. The COVID -19 pandemic and resulting restrictions, imposed to fight the spread of disease, have provided some short term positive but long term negative impacts on environment. The positive impact includes reduced air, water and noise pollution, better growth of vegetation, etc. The negative impacts are difficult waste management, increased organic and non-recyclable waste. The drastically increasing amount of domestic and medical waste is one of the key negative outcomes of COVID – 19. Increased biomedical waste generation is a major threat to public health and environment. Used masks, gloves, PPE kits, face shields and tissues when discarded untreated, pose a serious negative effect on environment. 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. To achieve this, sustainable industrialization, proper waste management, waste water treatment, biomedical waste management and promoting sustainable livelihood is must.

Lockdown due to COVID-19 reduced transport activities which results in less energy consumption and lower oil demand. These changes in transport activities and oil demand exert a significant impact on the environmental

quality. NASA (National Aeronautics and Space Administration) and ESA (European Space Agency) released fresh evidence which suggests that environmental quality improved and the emission of NO₂ reduced up to 30%. NASA collect the data using OMI (Ozone Monitoring Instruments) on its AURA satellite. While, ESA collect the data through Sentinel-5P satellite using TROPOMI (TROPO spheric Monitoring Instrument). NASA and ESA release satellite images of various countries before and after lockdown. As such, aviation emissions, which accounted for 2.4% of global CO₂ emissions in 2018, according to the Environmental and Energy Study Institute (EESI) have dropped significantly (Prakash and Srivastava, 2020).

On the other hand, environmental pollution across the world has been greatly mitigated after the outbreak of COVID-19 due to the implementation of lockdown, travel bans, and stay-at-home advice, which has had a positive impact on the global environment despite the economic and social disruptions caused. Based on current knowledge on COVID-19, a second wave may be followed by third, especially when our society is gradually getting back to normal after the primary attempt to gain control of COVID-19. Nonetheless, the consequence of the long-term battle against COVID has barely been elaborated. 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. During growth and development, environmental ethics should be followed (Verma, 2019).

COVID-19 and Education:

The Covid-19 pandemic has affected educational systems worldwide, leading to the near-total closures of schools, colleges, universities and other educational institutes. School closures impact not only students, teachers, and families, but have far-reaching economic and societal consequences. The impact was more severe for disadvantaged children and their families, causing interrupted learning, compromised nutrition, childcare problems, and consequent economic cost to families who could not work.

School closures negatively impact student learning outcomes and When schools are closed, many children and youth miss out on social contact that is essential to

learning and development. The disadvantages are disproportionate for underprivileged learners who tend to have fewer educational opportunities beyond school. Student dropout rates tend to increase as an effect of school closures due to the challenge of ensuring all students return to school once school closures end. Schools are hubs of social activity and human interaction. When schools close parents are often asked to facilitate the learning of children at home and can struggle to perform this task. This is especially true for parents with limited education and resources.

In response to school closures caused by COVID-19, UNESCO recommends the use of distance learning programs and open educational applications and platforms that schools and teachers can use to reach learners remotely and limit the disruption of education. But due to lack of access to technology or fast, reliable internet access can prevent students in rural areas and from disadvantaged families. Lack of access to technology or good internet connectivity is an obstacle to continued learning, especially for the students belonging to poor families background. The disruption in education and learning could have long-term consequences on the quality of education, though the efforts made by teachers, school administrations, local and national governments to cope with the unprecedented circumstances by e-learning.

Several universities have asked their faculties to keep giving online classes and supplying reading material through emails and other media. In a nutshell, for more mature students, the traditional class room education is turned into e-class room education system. This is a global turning point for adopting this new 'e-education system and 'Work from Home' culture. It showed psychosocial impact on educators and students suffered drastically (Srivastava and Reddy, 2020; Kumar, 2021).

The e-education will have impact on research and its procedures. During e-education, one cannot accumulate practical experience of real laboratory work like handling of apparatus and instruments etc. Hence, the degree holder of science by e-education will be useful only for teaching, online demonstrations, model creation, online material designing and modeling etc. Most colleges and universities will be deprived of good students and funds, which may result in abandoned physical campuses. As a result, the number of excellent research centers may be reduced, leading to reduced quality and quantity of formal research. Funding patterns for research as well as the priorities for future research areas will be affected and changed.

The sudden shift to online learning without any planning especially in countries like India where the backbone for

online learning was not ready and the curriculum was not designed for such a format has created the risk of most of our students becoming passive learners and they seem to be losing interest due to low levels of attention span. Added to this is that we may be leaving a large proportion of the student population untouched due to the digital divide that is part of many developing nations including India (Srivastava *et al.*, 2020).

Online learning is a special kind of methodology and not all teachers are trained for imparting online classes. So, most of the teachers are just conducting lectures on video platforms such as Zoom which may not be real online learning in the absence of a dedicated online platform specifically designed for the purpose. There is a risk that in such a situation, learning outcomes may not be achieved and it may be only resulting in engaging the students.

During the present pandemic situation, most of the universities and colleges will shift to a model of blended learning where both face to face delivery along with an online model will become a norm. A great opportunity will open up for those companies that have been developing and strengthening learning management systems for use by universities and colleges.

There is a great opportunity for universities and colleges to start improving the quality of the learning material that is used in the teaching and learning process. Since blended learning will be the new format of learning there will be a push to find new ways to design and deliver quality content especially due to the fact that the use of learning management systems will bring about more openness and transparency in academics.

There is a new opportunity where collaborative teaching and learning can take on new forms and can even be monetized. Faculty members/ teachers can deliver online courses to even students from competing institutions. Collaborations can also happen among faculty/teachers across the nation to benefit from each other. Finally, it is expected that there will be a massive rise in teleconferencing opportunities which can also have a negative impact on the travel.

A large number of academic meetings, seminars, conferences and webinars will move online and there is a possibility that some new form of an online conferencing platform will emerge as a business model.

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