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Impact of covid-19 pandemic on environment and education

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Abstract

The ongoing pandemic caused by COVID-19 virus has paralyzed everyday life across the globe. To limit spread of infection, the Government of various countries issued a Nation-wide lockdown. With increase in COVID cases, more and more biomedical wastes were also produced. With a halt in manufacturing industries and automobiles plying, air pollution levels drops drastically and rare animal sightings were recorded by the media. Water Pollution levels were also recorded to be on the down trend. When schools are closed, children and youths miss out on social contact that is essential

to learning and development. Schooling provides essential learning and when schools close, children and youth are deprived of opportunities for growth and development. Due to sudden shift to online learning without any planning especially in countries like India, students seem to be losing interest due to low levels of attention span. New ways of delivery and assessments of learning outcomes will have to be adopted which opens immense opportunities for a major transformation in the area of curriculum development and pedagogy.

Keywords: Covid-19, Environment, Education

Introduction

The threat of a public health crisis in the form of a pandemic with the advent of the 2019 novel Corona Virus (2019-nCoV) also dubbed as SARS-CoV-2 has spread fast from its provenance in Wuhan City of Hubei Province of China to the entire world in a matter of weeks (Roy *et al.*, 2020; Roy and Chaube, 2021) [6, 7]. 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) [5]. The spikes bind to the human cells and allowing virus to gain entry. The spike protein of novel corona virus shares 98% sequence identity with the spike protein of bat coronavirus. The researchers found that spike protein of SARS-CoV-2 binds to the cellular receptor called angiotensin converting enzyme 2, which is entry point into human cells (Verma and Prakash, 2020a) [17]. COVID19 and following lockdown have a big challenge for us to dispose the, more and more biomedical and e- wastes (Verma and Prakash, 2020b) [18].

COVID-19 and Environment

From the beginning of civilization, human beings gradually started manipulating the nature for its own benefit. In order to satisfy the demand of increasing population industrialization and urbanization became inevitable, and the obvious significance was proved to be detrimental on the global climate changes. The desire to drive the nature as per their own whims and desire, human beings started destroying the nature in numerous ways that caused unsustainable development in various fields including agriculture (Ashok, 2017 & 2018) [2, 3]. As an inevitable consequence environment pollution has become a big issue of the present day. It is obvious that environmental pollution will change the distribution and burden of various vector borne infectious diseases including bacterial and viral diseases (Prakash, 2020) [11].

But, due to the unusual outbreak of COVID-19, all local and central administrations restricted the free movement of their citizens outside their home. Various industries are not functioning and all types of travels like airplanes, rails, bus and private vehicle are restricted or cancelled. Due to non-functioning of industries, industrial waste emission has decreased to a large extent. Vehicles are hardly found on the roads resulting almost zero emission of green-house gases and toxic tiny suspended particles to the environment. Minimal activity from industrial sites, factories and construction sectors has minimized the risks for toxins to escape, in turn improving air quality. 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) [11]. Even NASA satellites from outer-space show the significant reductions in air pollutants, which supports Eco Watch's observation that the novel coronavirus pandemic has delivered the silver lining of decreased air pollution.

Significant falls in carbon emission in China (18%) and in US (nearly 40%) has been reported during lock down period. China has witnessed a drastic reduction in emission of NO_x, CO₂ and various hydrocarbons during the coronavirus lockdown (2020) as compared to the values last year (2019). Eastern and central China areas showed a significant reduction (10-30%) in NO₂ levels (Kulshrestha, 2020) [20]. According to Plumer and Popovich (2020), lockdown due to COVID-19, caused a significant reduction in the air pollution in major cities of USA. The lockdown is a highly sustainable approach to reduce the noise and injection of tropospheric and stratospheric pollutants.

Due to lesser demand of power in industries, use of fossil fuels or conventional energy sources have been lowered considerably. Ecosystems are being greatly recovered. In many big cities the inhabitants are experiencing a clear sky and clear river water for the first time in their lives. After the lockdown, a variety of birds are seen in the localities. The pollution level in tourist spots such as forests, sea beaches, hill areas etc. is also shrinking largely. Ozone layer is also reported to be healing. The pandemic has displayed its contrasting consequence on human civilization, in the sense that, on one hand it has executed worldwide destruction, but created a very positive impact on the world environment on the other hand. Thus, the lockdown act as a healing dose for climate changes, ozone depletion, human health, brown haze etc.

COVID-19 and Biodiversity

Biodiversity refers to the existence of a wide variety of plant and animal species in their natural environments or the diversity of plant and animal life in a particular habitat (Ashok, 2016; Prakash and Srivastava, 2019) [1, 10]. Nature always favours and promotes the diversity and coexistence among all the organisms by providing suitable environment to all. Human always try to control the environment and its own society in order to get conducive ambience. But due to overexploitation of natural resources, increased anthropogenic activities and human centric environmental approach, we are facing global warming and COVID-19 like unprecedented threats. So, we have to develop environment centric approach to utilize the natural resources in such a manner so that we can achieve the inclusive and sustainable development with environmental ethics (Verma, 2017a and 2019) [13]. The lockdown therefore provided us an opportunity to shift our ideology from anthropocentric or human centric worldview to eco-centric worldview. In all circumstances, we have to maintain clean environment and ecological balance because both are needed for the survival of all plants and animals including humans (Verma, 2017b and 2018) [14, 15].

Due to lockdown, a large number of birds including vultures are clearly started to appear. Insect pollinators have appeared in abundance on crops and other plants. All these are good indication for ecological balance and biodiversity. Almost total lockdown due to COVID-19 outbreak has minimized the anthropogenic activities including overexploitation of natural resources. The major human population is bound to live in their homes, automatically prevented to cause various types of pollution. The surrounding environment is reflecting clean and green. We all are observing a clean environment where almost all animals including birds etc. have started to flourish. Almost all humans are feeling healthy without any major clinical problems.

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. 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) [12].

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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