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Other side of the COVID-19 Pandemic: A review

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Abstract
A massive transformation of the world's COVID-19 pandemic has brought immense environmental effects. Millions of people have died due to coronavirus and millions of people worldwide now suffer from the infection. As obvious the daily lives have come to an abrupt halt, our earth has been given the opportunity to breathe and be relieved of the pollution. So if we look at the other side of the coin the pandemic has had many positive environmental impacts. The atmosphere and water bodies are getting clear of the pollution. The wildlife took the opportunity to regain their natural space and to discover their world without any interference from humans. It is quite clear that this pause in human interaction with the environment has put forward a better version of the state of Mother Nature but the old habits are still threatening to return with greater environmental effects.

Keywords: Coronavirus, environment, pandemic, pollution, wildlife

1. Introduction
Coronavirus: A Coronavirus is part of a large virus family. These viruses can lead to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Extreme Acute Respiratory Syndrome (SARS) and less severe diseases such as common cold. These viruses are found in numbers of animals, but mainly in bats and some of these have the potential to infect humans from animals and may also result in human to human transfer. A new novel coronavirus (CoV) is a new strain of this virus that has recently been detected in humans and has resulted in the current pandemic COVID-19 [1].

The coronaviruses present in human beings are divided into four subgroups: alpha, beta, gamma, and delta. Seven of these can cause illness to people. Among these seven, four are more common: 229E (alpha), NL63 (alpha), OC43 (beta), and HKU1 (beta), while 3 are less common: MERS-CoV (beta) causes MERS, SARS-CoV (beta) causing SARS, and SARS-CoV-2 causing a recent COVID-19 pandemic [2].

Such viruses contribute to complications often linked to the respiratory tract. They divide into cells inside their host and use them to replicate and interrupt the normal workings of the body. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the etiologic agent of the rapidly growing 2019 novel coronavirus disease (COVID-19) from Wuhan City, Hubei Province, China [3]. Initially the Wuhan Municipal Health Committee confirmed 41 cases of "pneumonia of uncertain etiology" to the World Health Organization at the end of December 2019 [1]. The pathogen was identified on 8 January 2020 [3], and transmission from human to human was reported soon after. By 21 January most of China's provinces had confirmed cases of COVID-19. The outbreak had led to > 170,000 confirmed cases overall and > 6,500 deaths worldwide by March 16. Within 3 months, the COVID-19 pandemic had been an epidemic of severe idiopathic pneumonia. On 30 January 2020, originating from China, the first case of the COVID-19 pandemic was identified in India. The Ministry of Health and Family Welfare confirmed a total of 46,433 cases, 11,707 recoveries (including 1 migration), and 1373 deaths in the country as of 5 May 2020. The rate of COVID-19 infection in India was stated to be 1.7, as each infected person transmitted the virus only to an average of another 1.7 people [4]. The World Health Organization had announced the novel coronavirus a pandemic, meaning a disease that has spread all over the world and infected a large number of people. lOn 15 April, India's government declared visa suspension and also demanded that incoming passengers, including Indian nationals from COVID-19 nations like China Italy, Iran, the Republic of Korea, France, Spain and Germany – be quarantined after 15 February [5]. On 22 March 2020, on the instance of Prime Minister Narendra Modi, India implemented a 14-hour voluntary public curfew, which was then extended to a 24-day national lockdown from 24 March 2020 [6]. The prime minister extended the ongoing nationwide lockdown until 3 May on 14 April

Covid 19 pandemic is a tragedy that has affected the lives of humans very badly, millions of death, overloaded hospitals with millions of patients, unemployment, inflation, stress, depression, economic disaster as many countries around the world have lockdown and quarantined its citizens, factories have been shut, cancellation of flights and airlines services has been done, people are doing their work from home cutting traffic on the roads to slow down the spread of the virus. This isolation of people in their homes to prevent coronavirus infection has resulted in a steady decrease in pollution around the world as the rivers of Venice are now clean, lions lounge on roads ordinarily frequented by South African safari-goers, and bears and coyotes roam around vacant dwellings in California's Yosemite National Park. This shows that the environment has the potential to make changes-adjustments that will help reduce negative impacts on climate. It also shows that, maybe, human beings are able to understand the threat of something that cannot be seen [8].

2. Air pollution: The coronavirus outbreak has led to a significant drop in worldwide air pollution. Satellite images released by NASA and the European Space Agency showed that since the coronavirus outbreak, air pollution over China has diminished. The photos showed higher levels of nitrogen dioxide over China from 1 to 20 January, but traces of the gas were barely visible from 10 to 25 February [9]. According to NASA, nitrogen dioxides levels across eastern and central China have been 10-30% lower than normal. China's CO2 levels fell by 25 percent during February. Particulate matter 2.5 (PM 2.5), a fine particle in the atmosphere linked to serious health issues, was also reduced [10]. In Italy, the decline in nitrogen dioxide levels demonstrates that the clearing of air pollution was largely due to diesel vehicles sitting idle. NO2 was identified by the World Health Organization as "a toxic gas that causes severe airway inflammation," at concentrations above 200 micrograms per cubic meter. Since the country locked down on 9 March, the amount of NO2 in Milan and other parts of northern Italy has dropped by around 40%. The source was not yet clear but one possibility was slowdown of activity in Italy's industrial heartland. Another factor could be the reduction in road traffic, which was the biggest source of nitrogen dioxide emissions in Europe. UK had also shown significantly reduced levels of pollution at hotspots such as Marylebone in London. NO2 levels also dropped in South Korea, which had long struggled with high emissions from its large fleet of coal-fired power stations but also from nearby Chinese industrial plants [11]. In India Capital New Delhi, after the lockdown began, particulate matter had dropped from 91 micrograms per cubic meter on March 20, to March 27The World Health Organization considers anything in excess of 25 as dangerous. In the same span, nitrogen dioxide decreased from 52 per cubic meter to 15, which was a 71 per cent drop. Mumbai, Chennai, Kolkata and Bangalore also reported a decline in these air pollutants. Gufran Beig, a scientist (SAFAR) under India's Ministry of Earth Sciences said that during the first three weeks of March, the average nitrogen dioxide levels declined by 40-50% in the cities of Mumbai, Pune and Ahmedabad, compared with the same period in 2018 and 2019 which is due to the reduced fossil fuel emissions from the transport sector and slowdown in other emissions-related activity is slowly reducing the air pollutants [12].

3. Water pollution: Often polluted by emissions from diesel-powered commuter boats and water busses, in Italy, Venice canals are normally clouded and turbid, but a decrease in emissions was observed for the first time in years due to the lock-up in town to avoid the spread of coronavirus. This resulted in wildlife returning to previously traveled waters as swans came back, dolphins on coasts and more birds around with fewer cars [13]. At the end of March, the Ministry of Defense police started stopping boats on the Solent in order to impose social distancing during the coronavirus lockdown that transformed the dark waters of the coastline of Britain. During the coronavirus lockdown, a drone in Portsmouth captured the sea, which is mostly turbid and opaque shifting to a brighter, clearer hue [14]. The river's water is blue, and its bottom is actually already clear. The rivulet of black water had been used as a drain from far away before the lockdown [15]. Visuals of a cleaner River Ganga have emerged from both Kanpur and Varanasi at Uttar Pradesh. The clean water is a result of most industries shutdown. In a rare sighting you can see fish near the steps of the Varanasi ghaat. It seems to have been attributed to absence or crowds and clean water [16].

4. Drop in Greenhouse gases: Quarantining and lockdowns forced shutdowns of industries and factories in many countries. As per images from the Center for Energy and Clean Air Research (CREA), as well as NASA and the European Space Agency (ESA) satellite imagery, there has been a significant decline in NO2 emissions in recent months, especially across Italy and China. Emissions of nitrogen dioxide are a significant air pollutant, and are closely related to on-road factory output and vehicles. In Italy the emergency measures to lockdown the whole country all from schools and stores to restaurants and even some churches, had contributed to a major decline in NO2 emissions. Seen economic activity has declined considerably, with many Italians encouraged to work from home. This decrease in nitrogen dioxide emissions across Europe clearly demonstrates how the decline in economic activity in Italy has influenced the environment. Likewise, China is the most important manufacturing hub in the world, and a major contributor to global greenhouse gases. But in the month following Lunar New Year (an early February week-long festival), NO2 emissions across Hubei Province, the original epicenter of the virus, fell steeply as factories were forced to shut their doors for the time being [17]. According to researchers at Columbia University, carbon monoxide emissions, mainly from cars and trucks, have fallen by about 50% for a few days this week in New York. Planet-heating gas CO2 emissions have also plunged significantly. It was noted that there was a 5-10% drop in CO2 over New York, as well as a strong drop in methane [18]. China's carbon emissions dropped by about 25% over a four-week period from February to March, equivalent to about 200 million tons of CO2 (MtCO2) as a result of coal and crude oil reductions [19]. Based on a country-level review of both the latest IMF GDP forecast and longer-term decarbonization patterns, it has been estimated that global CO2 emissions will fall by about 4.8% in 2020 (2.1% to 7.4%) if the pandemic disappears over the summer, and by 7.6% (5% to 10.1%) if it continues or re-emerges later in the year [20].

6. Thriving wildlife: Lockdowns attract animals into many open areas, from wild boars wandering through the Israeli city of Haifa to deer venturing through London suburbs. Baby leatherback sea turtles do better than they have in years, now that the COVID-19 pandemic has forced many humans to

keep off the beaches. In two decades, Thailand has found the largest number of nests of rare leatherback sea turtles on beaches deprived of visitors due to the coronavirus pandemic, environmentalists say [21]. By day, boars had been spotted roaming on the streets in Barcelona, SpainLions, who usually sleep in the bushes, were caught snoozing on a street by one of the lodges in the Kruger National Park in South Africa, enjoying freedom in park without humans as the park has been shut down since 25 March. California Black bears in particular have made more appearances than normal in Yosemite National Park, because they were just simply walking down the road to get to where they had to go [22]. Elsewhere, a wild puma was caught in Chile 's capital Santiago, after being found roaming around the abandoned center of the city during a night curfew. The spotting of the majestic whales in parts of a Vancouver fjord in Northern America was witnessed for the first time in decades. Meanwhile, the deer in Nara, Japan, had been on the move since the park they occupy had become deprived of tourists-and as a result, the food that visitors offered them had become accustomed to rely on. Small herds nibbling at flowers and plants had been spotted venturing into the town. The lockdowns around the world can simply show us how quickly the natural world around us will adapt and flourish in our absence when given some space [23].

7. Conclusion

While we do not see any significant effect on human health from changing environmental factors, it is possible to see large-scale effects on the health of Earth. But our old habits are still threatening to return with greater environmental effect if we do not take this opportunity to reduce harmful pollution, reduce food waste, use sufficient amount of water etc. Even if our new habits are not going to continue when life returns to normal, we can carry a fraction of these habits in order to make the world a lot better to live in.

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