CREATING NEW POSSIBILITIES IN ENVIRONMENTAL POLLUTION AFTER COVID-19 CRISIS

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ABSTRACT:

In late 2019, a novel infectious disease with human to human transmission (COVID-19) was identified in Wuhan China, which now has turned into a global pandemic. Countries all over the world have implemented some sort of lockdown to slow down its infection and mitigate it. Lockdown due to COVID-19 has drastic effects on social and economic fronts. However, this lockdown also has some positive effect on natural environment. This study compiled the environmental impact after the corona virus pandemic. **Key words:** - *COVID-19, lockdown, Environmental impact, CO_2 and NO_2 emissions, Social distancing policies.*

INTRODUCTION:

Corona virus disease 2019 (**COVID-19**) (**Fig-1**) is an infectious disease caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2).[1] It was first identified in December 2019 in Wuhan, China, and has resulted in an ongoing pandemic.[2][3] The first case may be traced back to 17 November 2019.[4]As of 7 June 2020, more than 6.89 million cases have been ,reported across 188 countries and territories, resulting in more than 399,000 deaths. More than 3.08 million people have recovered.[5](**Table -1, and Graph 1**).The outbreak of corona virus disease (COVID - 19) has been declared a Public Health Emergency of International Concern (PHEIC) and the virus has now spread to many countries and territories. While a lot is still unknown about the virus that causes COVID - 19, we do know that it is transmitted through direct contact with respiratory droplets of an infected person (generated through coughing and sneezing) Individuals can also be infected from touching surfaces contaminated with the virus and touching their face (e.g., eyes, nose, mouth). While COVID -19 continues to spread, it is important that communities take action to prevent further transmission, reduce the impacts of the outbreak and support control measures. Currently, most countries have tried to fight the spread of the virus with massive COVID-19 screening tests and establishing public policies of social distancing. It is clear that the priority revolves around people's health.

For this reason, the indirect impact of the virus on the environment has been little analyzed. This study estimated a positive indirect impact on the environment.

1) Symptoms of Covid - 19:

Common symptoms include fever, cough, fatigue, shortness of breath and loss of smell and taste.[6][7] [8] While the majority of cases result in mild symptoms, some progress to acute respiratory distress syndrome (ADRS) likely precipitated by a cytokine storm, multi-organ failure septic shock and blood clots.[9][10][11] The time from exposure to onset of symptoms is typically around five days, but may range from two to fourteen days. [6] [12]

The virus is primarily spread between people during close contact,most often via small droplets produced by coughing, sneezing, and talking.[7][13][14] The droplets usually fall to the ground or onto surfaces rather than travelling through air over long distances.[7] Less commonly, people may become infected by touching a contaminated surface and then touching their face.[7][13] It is most contagious during the first three days after the onset of symptoms, although spread is possible before symptoms appear, and from people who do not show symptoms.[7][13] The standard method of diagnosis is by real-time reverse transcription polymerase chain reaction (rRT-PCR) from a

nasopharyngeal swab. [15] Chest CT imaging may also be helpful for diagnosis in individuals where there is a high suspicion of infection based on symptoms and risk factors.

2) Prevention for Covid -19:

Preventive measures to reduce the chances of infection include-

a) Staying at home,

b) Avoiding crowded places,

c) Keeping distance from others **(Fig:2)**

d) Washing hands with soap and water often and for at least 20 seconds,

e) Practicing good respiratory hygiene,

f) And avoiding touching the eyes, nose, or mouth with unwashed hands.[16][17][18]

g) The U.S. Centers for Disease Control and Prevention (CDC) recommends covering the mouth and nose with a tissue when coughing or sneezing and recommends using the inside of the elbow if no tissue is available. [16] and dispose of used tissue Paper immediately.

h) Proper hand hygiene after any cough or sneeze is encouraged.[16]

i) The CDC has recommended cloth face covering in public settings where other social distancing measures are difficult to maintain, in part to limit transmission by asymptomatic individuals.[19]

3) Investigational Therapeutics for Patients with COVID-19:

There are no drugs or other therapeutics presently approved by the U.S. Food and Drug Administration (FDA) to prevent or treat COVID-19. Current clinical management includes infection prevention and control measures and supportive care, including supplemental oxygen and mechanical ventilatory support when indicated.

4) Impact of the COVID-19 pandemic on the environment:

The worldwide disruption caused by the COVID-19 pandemic has resulted in numerous impacts on the environment and the climate.[20] The considerable decline in planned travel [21] has caused many regions to experience a large drop in air pollution. In China, lockdowns and other measures resulted in a 25 per cent reduction in carbon emissions[22] and 50 per cent reduction in nitrogen oxides emissions,[23] which one Earth systems scientist estimated may have saved at least 77,000 lives over two months.[24][25] Other positive impacts on the environment include governance-system-controlled investments towards a sustainable energy transition and other goals related to

environmental protection such as the European Union's seven-year €1 trillion budget proposal and €750 billion recovery plan "Next Generation EU" which seeks to reserve 25% of EU spending for climate-friendly expenditure.[26][27][28][29][30]. However, the outbreak has also provided cover for illegal activities such as deforestation of the Amazon rainforest [31][32] and poaching in Africa,[33][34] hindered environmental diplomacy efforts,[35] and created economic fallout that some predict will slow investment in green energy technologies.[36]. Nitrogen dioxide (NO_2) is one of the six major air pollutants. Due to shocking Covid- 19 pandemic, the pollution level decrease globally. In India, In Delhi's metropolitan area, pollution levels have dropped most dramatically; NO_2 levels from March 25 (the day quarantine began) to May 2 have averaged 90 $\mu mol/m^2$ compared to 162 $\mu mol/m2$ from March 1 to March 24. In 2019, NO_2 levels from March 25 to May 2 were also far above this year's levels, averaging 158 $\mu mol/m^2$.In Greater Mumbai and Navi Mumbai, a similar trend has been observed as NO_2 levels from March 25 to May 2 averaged 77 $\mu mol/m^2$ compared to 117 $\mu mol/m^2$ from March 1 to March 24. In 2019, NO_2 levels from March 25 to May 2 averaged 122 $\mu mol/m^2$.

5) Creating new possibilities in environmental pollution after covid-19 crisis:

a) **Water system**: water systems from local to regional scales have seen discernible positive impacts due to the reduction of pollutant loading from industries, vehicle emission, and other sources.

b) **Air quality**: The COVID-19 crisis has forced activity freezes. Lockdowns and calls to shelter-in-place have closed schools and non-essential businesses. Minimal activity from industrial sites, factories and construction sectors has minimized the risks for toxins to escape, in turn improving air quality.

c) **Green house gas emissions**: Vehicular activity contributes more to greenhouse gas emissions. But because of strict corona virus lockdowns were issued, with substantially less vehicular movement, comes less pollutants like carbon monoxide. Also there is decrease in **Green house gas emissions like CO_2 & NO_2**. Air travel has also taken a major hit, because of the order to shelter in place, and greenhouse gases predictably decline.

d) **Healthcare waste:** Healthcare waste is all the waste generated by healthcare facilities, medical laboratories and biomedical research

facilities. Although hospitals produce the bulk of healthcare waste by volume dramatic rise. Disposable medical products such as single-use gloves, surgical and non surgical contaminated masks and empty IV bags, expired medicines, and other items .In the wake of the pandemic has created a excess of medical waste.

In Wuhan, China, the volume of medical waste is reported to have risen from 40 to 240 tons a day at the height of the pandemic. In India, Punjab State has been one of the worst-hit states in the country due to the virus outbreak. There are 269 isolation centers and wards treating the patients. From March 20 to April 26, 19,553 kg of bio-medical waste was generated -- about 550kg per day -- by the health facilities engaged in treating Covid-19 patients. So, total amount of biomedical waste in India is also so high. Open burning without adequate pollution control, exposes waste workers and the surrounding community to toxic contaminants in air emissions and ash.

7. Short-term effects on climate change:

Unfortunately, this dip in carbon emissions will only last as long as the virus does. Activity will slope up once the pandemic collapses, creating a rebound effect seen in other crises.

8. Product packaging waste:

Plastic sanitary packaging and other products packaging waste is increase during the corona virus pandemic.

CONCLUSION:

COVID-19 is a global pandemic and serious threat to human health which halts the economic activities, where pollution is reducing and nature is reclaiming itself. The most environmental impacts of the corona virus pandemic, such as a decline in carbon, CO, NO_2 and CO_2 emissions, and increase in medical waste, plastic waste will be temporary and the air pollution and NO_2 levels are expected to rise to their normal unhealthy levels when quarantines are lifted, but governments and individuals should learn from this lockdown on how to reduce pollution on long term basis.

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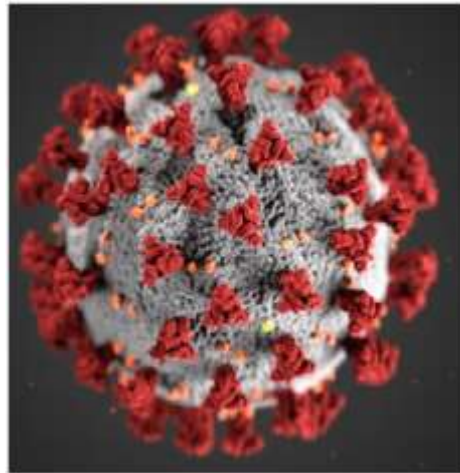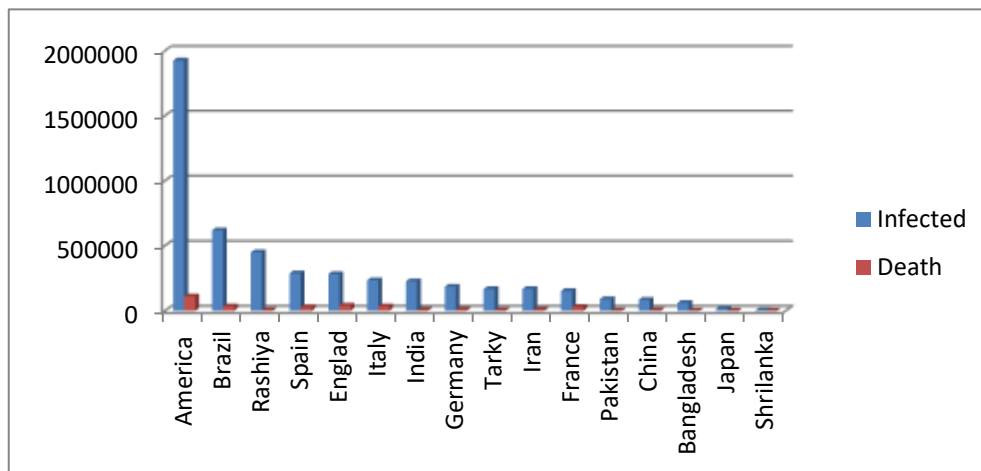
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Fig 1: Covid – 19 Virus

Fig 2: Social Distancing

1: Infected and death of patients worldwide by COVID-19

Table 1 - Pandemic of Covid -19 all over the world (Total infected Patients 67,55,000) (LOKMAT NEWS

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Country	Infected	Death	Cure
America	1925346	110218	712436
Brazil	618554	34072	274997
Rashiya	449834	5528	212680
Spain	287740	27133	not available
Englad	281661	39904	not available
Italy	234013	33689	161895
India	226770	6384	109462
Germany	184963	8736	168500
Tarky	167410	4630	131778
Iran	167156	8134	129741
France	152444	29065	69976
Pakistan	89249	1838	31198
China	83027	4634	78327
Bangladesh	60391	811	12804
Japan	17018	903	14867
Shrilanka	1800	11	858