

INTERNATIONAL JOURNAL OF LAW
MANAGEMENT & HUMANITIES

[ISSN 2581-5369]

Volume 5 | Issue 1

2022

© 2022 *International Journal of Law Management & Humanities*

Follow this and additional works at: <https://www.ijlmh.com/>

Under the aegis of VidhiAagaz – Inking Your Brain (<https://www.vidhiaagaz.com/>)

This article is brought to you for “free” and “open access” by the International Journal of Law Management & Humanities at VidhiAagaz. It has been accepted for inclusion in the International Journal of Law Management & Humanities after due review.

In case of **any suggestion or complaint**, please contact Gyan@vidhiaagaz.com.

To submit your Manuscript for Publication at the **International Journal of Law Management & Humanities**, kindly email your Manuscript at submission@ijlmh.com.

Cost of 2Cs- Covid 19 and Climate Change in India

SREELAKSHMI S NAIR¹

ABSTRACT

In this paper, we examine two global problems - the covid 19 pandemic and climate change. The study intends to explore the relationship between the two by analyzing a correlation in two ways. Further, the paper delves into the cost associated with both problems which are not restricted to economic cost but also to the impact it had on mental health and well-being. The common traits and their differences have also been discussed. The paper concludes with lessons India can learn from Covid-19 regarding climate change and what ways and means by which India can tackle the climate change situation.

Keywords: Covid-19, climate change, Global problem

I. INTRODUCTION

Increasing anthropogenic influence on the natural environment over many centuries (Goudie 2018) has led to significant global challenges at the nexus of planetary and human health, of which COVID-19 may just be the latest manifestation. The COVID-19 pandemic has wedged each facet of human life and also the international economy. The number of latest cases associate degreed deaths augmented at an alarming rate with no signs of management nonetheless, creating the estimates of its economic and different impacts unsure. counting on the extent of COVID-19 impact in every country, also as country-specific things and capability, the world's Governments are adopting completely different levels of interventions, together with travel restrictions and internment to contain the unfold of the extremely contagious virus. The most important sectors contributive to pollution are transport, industries, power plants, construction activities, biomass burning, road mud suspension, and residential activities. Many activities like the operation of decigram sets, restaurants, lowland fires, etc additionally contribute to pollution. Below the nationwide internment, all transport services – road, air, and rail were suspended with exceptions for essential services. academic establishments, industrial institutions, and welcome services were additionally suspended. As a result, air quality improvement has been noted in several cities and cities across the globe.

¹ Author is a student, India.

India has been severely wedged by COVID-19 throughout the second wave within the half of 2021, which has additionally reduced the resilience of temperature change vulnerable populations already in danger of displacement by storms, floods, droughts, and different climate disasters. The Indian government has felt the economic condition by unveiling one of the biggest input packages within the world, equalization to a share of around 11% of the country's GDP in 2019. India's overall COVID recovery input package primarily supports activities associated with industries seemingly to possess an oversized negative impact on the atmosphere by, for instance, increasing the utilization of fossil fuels, and unsustainable land use. India has already started feeling the impacts of temperature change. Heatwaves are getting additional common and severe; serious rain events have augmented threefold since 1950, and rising ocean levels are setting new risks as a 3rd of India's population live on the coast. Low-income and different marginalized teams are most susceptible to these hazards.

While COVID-19 demonstrates that, in a globalized world, infectious disease can bear striking similarities to known global commons problems, a marked difference is that climate change mitigation necessarily relies on much more anticipatory and global responses. In economic terms, both issues have been characterized as "global public bads" (Fuentes et al. 2020). One characteristic of COVID-19, and epidemics more generally, however, is that there are at least limited opportunities for exclusion, as countries or regions can shield themselves from a virus through localized mitigation. Infectious disease can therefore not be treated as a "pure public bad", but also bears some traits of a "club bad". Unlike the climate crisis, epidemiological challenges create much stronger incentives for localized mitigation and immunization and unfold over shorter timescales. climate change is more difficult to confront than the current pandemic in many ways but there is potential for lessons to be learned from new approaches in a post-COVID era.

II. CURRENT SITUATION OF CLIMATE CHANGE IN INDIA

In only three quarters of 2021, India saw a devastating climate crisis, with landslides in Himachal Pradesh and Uttarakhand, floods in West Bengal, forest fires across Uttarakhand. Late-onset of monsoon, excess rainfall, cyclone yaas, all have impacted Indian cities massively. The frequency of cyclones has increased especially in the Indian subcontinent. Due to India's immense diversity in terms of climate and geography, with the country having Glaciers in the north, deserts in the west, humid tropical forests in the southwest, and various islands in the Arabian Sea and Bay of Bengal, different regions in India are experiencing such climate change impacts.

Analyzing different climate change impact on India, we see that:

1. **Temperature Rise in India-** A recently published report suggests that the average temperature across India has increased by 0.62 degrees over the last 100 years. In 2020, various Indian cities according to temperatures of 48°C or a lot of (Golechha and Panigrahy, 2020). whereas these extremes captured international attention, there has been less scrutiny of the possibly devastating effects of the mixture of warmth and humidity (Zhang et al., 2021). Heat stress has long posed a threat to the health and productivity of urban dwellers. India will face intensive heat waves unless appropriate actions are taken. The temperature in India is expected to rise by 4.4 degrees celsius between 2070 and 2099 as per a recent report. Such a rise in temperatures can have dire consequences for Indians. Unless emissions square measure cut sharply to curb heating to 1.5 degrees from pre-industrial times, many areas of India can see increasing episodes of high heat and high humidness that transcend the boundaries of human survival, in line with new analysis.

2. **Change in Rainfall Pattern-** While India's southern dry land has received extreme downfall over the last twenty days just about, the northeast region recorded a 14 July deficit within the same amount – i.e. between July 1 and July 23. Total monsoon downfall in 2020, is the eleventh highest for this era since 1901. Monsoon downfall in India has been bit by bit declining since the 1950s. This trend has been amid rains turning into additional skewed; most of the rains go over a smaller amount of your time. Rains also are obtaining additional intensity, which means there are fewer episodes of rain, however, once it rains, it pours. In 2019, significant and extreme intensity downfall was the very best since 1901. Total monsoon downfall within the country this year, as of 8.30 am on Sunday, has been 771.1 metric linear units. Total monsoon downfall within the country this year, has been 771.1 mm, per the India meteorologic Department (IMD)'s gridded downfall knowledge set. this can be the eleventh highest monsoon downfall for the Gregorian calendar month 1-August thirty amount since 1901. that produces 2020 Associate in Nursing outlier already. Decadal averages of monsoon downfall up to August thirty recommend that total monsoon downfall in India has been declining. the amount from Gregorian calendar month one to Gregorian calendar month thirty is taken into account the monsoon season. The ever-changing weather dynamics not solely holds grave implications for the country's economy but also will build life more durable for farmers World Health Organization depend upon timely rains to cultivate their main crop throughout the summer monsoon season, he said. From long dry spells to excessive downfall, monsoon 2021 was a season of extremes, meteorologists say. In areas that sometimes receive deficit downfall, that embody western Madhya Pradesh, jap Rajasthan and therefore the

Marathwada and Vidarbha regions of Maharashtra, rains were plentiful this year, official knowledge show. In distinction, the usually rainiest areas of the country, like Odisha, Kerala, and therefore the northeast, struggled to satisfy their average downfall quota. This erratic distribution of downfall and therefore the increasing prevalence of utmost weather events in 2021's southwest monsoon purpose to the impact of global climate change, the country's top meteorologist Mrutyunjay Mohapatra, director general of meteorology, India Meteorological Department said.

3. Sea level rise- A new report by the Intergovernmental Panel on global climate change (IPCC) has dire warnings for India, which is already rummaging hit or miss upheaval in weather patterns and environmental factors. the foremost dangerous risk issue is the rising water level that threatens to submerge twelve coastal cities within the country by the top of the century. The cities may well be nearly 3 feet underwater by the century's finish, the global climate change report has warned. The cities embrace the urban centers, Chennai, Kochi, and Visakhapatnam, among others. The analysis comes from NASA, which has used the IPCC report back to assess changes in ocean levels across the globe. The area agency has known twelve Indian cities that square measure probably to expertise the forcefulness of global climate change and rising ocean levels if things aren't contained. By 2100, around 12 coastal cities in India will submerge in 3 feet of water. As the temperature rises, the ice on Earth is melting, so the sea level is going to rise, as a result of which cities Chennai, Kochi, Bhavnagar will be smaller in size.

4. Droughts- Over a fifth of India's expanse (21.06 percent) is facing drought-like conditions, in line with recent information free by Drought Early Warning System (DEWS), a period drought-monitoring platform. This is sixty-two percent quite the world beneath drought throughout a similar amount last year, that was seven.86 percent. The 21.06 percent space is beneath totally different degrees of drought — starting from abnormally dry to exceptionally dry. While 1.63 percent space and 1.73 percent of land are beneath 'extreme dry' and 'exceptional dry' conditions, 2.17 percent is beneath 'severe' dry conditions. the maximum amount as 8.15 percent is beneath 'moderate' dry conditions. Around 7.38 percent of land is 'abnormally' dry, in line with the most recent information free August 16th, 2021. Several north, central and jap states are witnessing dry conditions these days. Rajasthan, Gujarat, Odisha, and a few north-eastern states like Nagaland square measure beneath severe to exceptional drought-like conditions, in line with estimates, supported the last 2 months' downfall patterns.

Uneven distribution and failing monsoon square measure are among the most important drivers

behind this scenario. Most of those states recorded deficient downfall, in line with Republic of India meteoric Department information. Gujarat had a downfall deficit of forty-eight percent until August 19; Odisha twenty-nine percent; Nagaland and geographical region twenty-two percent each; Chhattisgarh eleven percent; and Rajasthan four percent. Odisha is watching a drought in many districts, in line with the estimates supported soil wetness index within the last one month. The government has already directed the Department of Agriculture to arrange a contingency conceive to save the Kharif crop, in line with media reports.

III. CORRELATION BETWEEN COVID 19 AND CLIMATE CHANGE

When the COVID-19 outbreak was declared as a global pandemic, climate change was at the forefront of political agendas and conversations. It was considered to be a crucial time to take decisive action to protect the future of the planet. However, as the impact of the pandemic wore on, the world's spotlight diverted away from climate change. (Moore, n.d.). We analyze the relationship between COVID-19 and climate change from both perspectives, i.e., the impact of climate change on COVID-19 and vice versa.

(A) Impact of climate change on COVID-19

The novel coronavirus has been declared a pandemic by the World Health Organization after spreading to most parts of the globe. Whereas the influenza virus shows some alteration with seasons, it is unknown if COVID-19 has any seasonal influence (Bukhari et al. 2020). According to the World Health Organization, the pandemic could even affect tropical countries that have scorching temperatures (Acosta et al. 2020). Alternatively, several other theories have also been presented regarding the effects that will cause a change in the widespread COVID-19. Some other viruses of the same family (respiratory syndrome viruses) are unlikely to survive in hot, humid, and warm climates. Therefore, scientists had believed that the virus (COVID-19) would not last until June-July or August (Khan et al. 2020).

In January 2021, a paper published in the journal *Science of the Total Environment* emphasized that climate change may have played a direct causal role in the emergence of the virus responsible for the global pandemic (SARS-CoV-2). Experts say that the number of bat species present is linked with the number of coronaviruses in a particular environment. (Moore, n.d.)

Due to climate change over time, factors such as temperature, atmospheric carbon dioxide, and cloud cover are evolving. These factors have a direct impact on the growth of trees. Therefore, climate change is affecting natural habitats and ecosystems through changing environmental factors. Even small adjustments can have a great impact on the species living within an ecosystem. A recent paper revealed that climate changes directly fostered an environment

favorable for many bat species to thrive, allowing for the emergence of novel coronaviruses - including the SARS-CoV-2 strain. (Moore, n.d.)

Many studies establish the fact that SARS-CoV-2 is highly sensitive to regional warming- and emission-induced climate change. Therefore, the higher the emission, the higher is the warming and the higher is the probability of COVID-19 transmission at its initial phase (Morawska & Cao, 2020).

A recent study on *Effects of Weather on Coronavirus Pandemic* stated that the growing rate of COVID-19 around the world is negatively related to warm and humid seasons. Transmission of the virus from one person to another is affected by temperature. Moreover, Pakistan, a tropical country, found fewer COVID-19-positive cases than the cold and dry regions (Bukhari et al. 2020). It is also under consideration that high temperature kills most viruses, but many studies claim that there is no effect or, in relation to warm and humid temperatures, to the multiplication of the virus (Khan et al. 2020). While the spread of the virus may be slowed down because of warm weather, it is not sufficient to depend on climate change alone (Brassey et al. 2020).

In contrast, it was found that the activity and development of the MERS virus (virus from the same family) were greatly induced by climate change. During the study period, it was found that multiple peaks of MERS occurred during the hot season (April-August). This conclusion opposes the Gardner et al. (2016) study, where they stated that lower temperature is linked with elevated hazards in primary MERS-COV infections (Altamimi and Ahmed 2020). Therefore, the studies also verified that climate change or seasonality may not affect or correlate with the change in widespread COVID-19. Now, it is not considered that warm weather could cure or put an end to the spread of COVID-19 (Acosta et al. 2020).

According to WHO, There is currently no conclusive evidence that either weather (short-term variations in meteorological conditions) or climate (long-term averages) have a strong influence on transmission. The SARS-CoV-2 virus which causes COVID-19 disease has been transmitted in all regions of the world, from cold and dry, to hot and humid climates.

(B) Impact of COVID-19 on climate change

The COVID-19 pandemic has a direct impact on climate change. There are many climate changes as a result of the pandemic. The air we breathe has become more cleaner as there are fewer emissions of pollutants in the air because of lockdowns. Climate could modulate the spread of the pandemic, and climate change could have led to the emergence of the novel coronavirus (Usman et al., 2021).

Although COVID-19 has caused many difficulties in the lives of people while performing their daily activities, it has also caused a number of changes in the air that we breathe and live in. Nitrogen dioxide is a dangerous gas that is emitted from the burning of gasoline, coal, diesel in vehicles, power plants, and industrial facilities. Near ground (NO₂) can turn into ozone and make air hazy and unable to be breathed (NASA 2020). Nitrogen dioxide is known to cause several diseases that are fatal to humans. It is known to cause troubled breathing in people. It makes it difficult for people to breathe and is likely to cause lung cancer (Al-Ahmadi and Al-Zahrani 2013). However, a lockdown seems to impact the climate positively to the emission of NO₂. In China, due to the lockdown of major cities' transportation and industrial units, the nitrogen emission rate has fallen rapidly.

Global carbon dioxide (CO₂) emissions from fossil fuels decreased by 7% in 2020 during the lockdown. All the world's major emitters have reported a decline in the emission of fossil CO₂. Many argue that a fall in emissions in 2020 may not slow the pace of global warming. Compared with 2019, a decline of 2.4 GtCO₂ was recorded and the latest estimates suggest that emissions will be controlled at 34 bn tons of CO₂ GtCO₂ (Friedlingstein et al. 2020). This annual decline is the largest drop in emissions ever recorded according to researchers.

IV. IMPACT ON MENTAL HEALTH OF PEOPLE DUE TO CHANGES IN CLIMATE POST COVID 19

(A) Impact of covid-19 on the mental health of people in India

Anxiety, stress, depression, these common mental health problems rose significantly during the Covid-19 pandemic in India. People who contracted the virus, too suffered from mental health problems like Post Traumatic Stress Disorder as many were hospitalized and fought for their lives. The pandemic increased the conversation around mental health in India, but unfortunately not many talks about their mental health problems openly fearing judgment from society. Different groups mental health has been impacted in the lockdown like:

- 1) Many women reported suffering from anxiety and depression because of the increased burden of household responsibilities and also the increase in cases of domestic violence.
- 2) Children experienced agitation and anxiety because no physical interaction with their peers increased worry to access online classes and not being able to go to play with their peers.
- 3) Frontline workers have also reported feeling stressed and anxious due to overwork and fear of contracting the virus.

- 4) People with pre-existing mental health conditions reported having their condition becoming worse because of disruption in mental health services and difficulty to travel, which led to people reducing their prescribed doses of medication.

(B) Impact of climate change on the mental health of people in India

- 1) Climate change leads to extreme events that negatively impact the mental health of people. Increase in temperature, increase in sea level, droughts, flood, cyclone, all these climate changes lead to people suffering from both personal and financial losses, directly affecting their mental health, with increased cases of PTSD known as post-traumatic stress disorder, major depressive disorder (MDD), anxiety, depression, complicated grief, survivor guilt, stress, vicarious trauma, recovery fatigue, substance abuse, and suicidal ideation.
- 2) In the past three decades, global annual surface temperatures have increased by approximately 0.2°C per decade, giving rise to concerns for planetary and environmental human health. Ongoing climate change could directly result in the degradation of the physical environment, negatively impact food yields and freshwater supplies, leading to the displacement of populations, and eventual loss of livelihoods.⁷ Therefore, climate change and its ensuing negative impact on the physical environment could exacerbate poverty, malnutrition, and disease. Each of these factors could, in turn, serve as independent risks for the development of youth depression. (Majeed & Lee, 2017)

(C) Impact of both Covid-19 and Climate Change on the mental health of people in India

- 1) The impact of Covid-19 was not just a physical one but also one full of pain, death, and isolation. From risk of contracting the virus, no physical interaction with others, seeing someone or the other suffer from the virus, and living in a country whose climate change impacts thousands of lives every year, mental health of people took a big toll. To protect themselves from the adversities of the virus and also some people living in constant fear of changes due to climate like floods, droughts, increase in air temperature, many people reported being depressed, anxious, and stressed.
- 2) Extreme heat because of rising temperatures has been directly correlated with sleep loss, increased aggression, and violence. In severe cases, heat strokes will result in delirium following a successive pattern of agitation and confusion, that might even be fatal in uncontrolled surroundings. Often, people stricken by climate-related disasters

lose their homes, jobs, or perhaps the lives of their friends, family, and pets. this can be amid profound and generally semipermanent psychological effects as well as trauma, chronic stress, anxiety, and depression, additionally to and partially because of the money prices incurred in damages.

- 3) Changing weather patterns are having a sway on agriculture. Prolonged droughts amid extreme heat and precipitation cause vital harm to crop yields. In our country, where over half the population is utilized in agriculture, farmers are increasingly facing consecutive years of crop losses, worsening their debt burden. Droughts area unit slow disasters which will disparage antecedently stable farming communities, exploit farmers in deep monetary crises. this is often more and more contributive to rising unsafe tendencies among farmers.

V. SCALING THE EXTERNALITY

(A) Positive Aspects

While the socio-economic devastation due to COVID-19 has been colossal around the world, which required "a wartime" plan from every corner of the world⁷ it has also come as the silver lining for the environment. Covid 19 has come as a respite to the environment. The following positive impact of Covid-19 was noticed on climate in Indian cities:

1. Air Quality and Climate

Many studies have reported an improvement in air quality during the lockdown.

Climate scientists have pointed out that greenhouse gaseous (GHGs) concentrations could go down to levels not seen since World War II. Highly industrialized cities located in cold climate zones observed a higher reduction in air pollution⁹. (Nigam et al., 2021)

The nationwide lockdown has led to the shutting down of power plants, transportation, and other industries which resulted in a drastic decrease in concentration levels of GHGs, NO₂, PM_{2.5}, PM₁₀, and CO but spikes in ozone concentration simultaneously, Significant improvement in air quality, as evidenced from the reduction in Particulate Matter, NO_x, SO₂ and CO, during the pandemic lockdown period was observed in many parts of India. (Nigam et al., 2021).

Gujarat, which is the industrial state in western India, observed a significant deduction in major air pollutants between the lockdown period (March 25 to April 20, 2020) substantially due to checks on business and slowdown of production at factories³². According to the CPCB-AQI database, air pollution reduction occurred merely in four days since the lockdown³³. In Vapi,

PM10, PM2.5, NO₂, SO₂ are the major air pollutants significantly emitted by transport vehicles and industrial³⁴. (Nigam et al., 2021). Metropolises like Delhi, Bengaluru, Kolkata, and Lucknow saw their Average Quality Index (AQI) staying within 2 digits because of the 'Janata Curfew' assessed on March 22, 2020.

Carbon dioxide (CO₂) outflow is responsible for climate change. The transportation sector, industries, and electricity have a huge role to carbon dioxide emissions. Due to coronavirus lockdown the emission of CO₂ has dropped worldwide (Fig. 6) (NASA 2020). The experts are prognosticating this to be the biggest fall in anthropogenic CO₂ emissions after World War II. During the period of lockdown, global air traffic reduced by 60 which has showed a temporary dip in CO₂ emissions from their pre-crisis levels.

2. Water Quality

It has been very intriguing to note that the behavioral changes in nature are largely positive and the atmosphere, hydrosphere, and biosphere are rejuvenating and it gives an appearance that the earth is under lockdown for its repairing work. The water is appearing cleaner and brighter as the level of BOD has come down to below 2.0. Further, the data of the Pollution Control Board (PCB), reveals that the average quality of water in the Ganga river is found to be 27 points because there's no breaking off of industrial effluents into the river, and this and made it capable for drinking, bathing and also for wildlife propagation. (Kiran & Kumar, n.d.).

The discontinuance of discharging industrial effluents and other wastes into water led to an apparent positive effect on water quality. According to the real-time water monitoring data of the Central Pollution Control Board (CPCB), the average water quality of 27 points of the Ganga was seen, suitable for bathing and propagation of wildlife and fisheries. (CPCB 2020). Data from the Central Pollution Control Board (CPCB) and Uttar Pradesh Pollution Control Board (UPPCB) of India reveals that the natural oxygen demand (BOD) of the rivers Ganga and Yamuna has dropped in their most contaminated stretches (CPCB 2020; UPPCB 2020). (Khan et al., 2020)

3. Environmental Noise and Disturbance

Environmental noise is described as an unpleasant sound that could be created by anthropogenic high-volume operation (e.g., commercial or industrial operations), vehicle machine movement, and melodies. It's one of the main causes of irritation for the population and the surroundings, causing health problems and altering the natural environmental conditions.

The noise pollution from shipping and important blasts from the seismic air gun tests used to

determine the deposits of gas and oil in the deep abysses must be traumatizing for marine life. Noise levels from shipping industries are generally 20 – 200 Hz and disturb the submarine life which is dropped by six decibels with a significant deduction below 150 Hz (GeoNoise 2020). The study states that the ambient noise from navigational traffic increases stress-hormone levels in marine animals, which in turn can affect their reproductive success. (Khan et al., 2020). In addition, this lockdown is also handing an indefectible condition for olive ridley turtles on the beaches. Turtles are less disturbed by travelers during this lockdown. The decreased human interruption this time would give these turtles enough time to incubate and hatch in peace. Since the beaches are people-free that resulted in no accidental crushing of eggs, lower scrap, and plastic disposal to the marine terrain. Indigestion and trap due to the plastic and marine debris which are the leading causes of injuries to ocean creatures will be wiped out during this lockdown. Not just the abysses but indeed the rivers and other water bodies are clearing out indicating lesser poisonous and dangerous materials entrance to the water bodies. (Khan et al., 2020).

(B) Negative Aspects

India with a mass population of more than 1.353 billion is struggling against COVID-19. New Delhi is the second of the most polluted cities in the world which has PM_{2.5} 32.8 µg/m³ (World Health Organization). The effect of air pollution has a severe impact on health. It is vital to study the current air pollution situation of such a country whose economy is dependent on power, transport, construction, agriculture, and rural development. A major impact of COVID-19 lockdown can be observed on air quality, which is being experienced by everyone and recorded in various official reports. Smog has given way to blue skies in cities like Delhi, marine life is seeing increased activity, pollution levels have dropped in almost all the metro cities and animals, as well as birds, are moving around on their own accord. It was also observed that in metro cities like Delhi, as the energy footprint was high, the lockdown has improved the air quality at a higher scale. (Bhat et al., 2021)

1. Medical Wastes

Anecdotal evidence indicates that quarantine policies have increased the demands for home delivery, thereby increasing the organic waste production generated by households. Similarly, the increased consumption of medical stuff such as diagnostic supplies, disinfectants, ventilators, N95, and PPE kits, has significantly increased putting the medical waste on the rise; for example, during the coronavirus outbreak, the hospitals in Wuhan China were found to generate an average of 240 metric tons of medical waste per day compared with their

previous average of fewer than 50 tons (42). Similarly, in the USA, an increase in garbage production from personal protective equipment has been recorded. The problem got worse, after many countries particularly the USA and the European nations have stopped waste recycling programs in some of their cities, concerning the risk of Covid-19 spreading in the recycling centers. (2021)

The safe disposal of PPEs is also a matter of concern (Klemes et al. 2020; Vanapalli et al. 2020). It is important to note that SARS-CoV-2 is more stable on plastic and stainless steel than on copper and cardboard, and the viable virus particles can be detected up to 72 h after application to these surfaces (Doremalen et al. 2020). Although gloves made of latex rubber are natural products, there are apprehensions of them being not always eco-friendly. Chemicals used in their manufacturing are not environmentally safe and the disposal of such wastewater is another problem (2021)

Masks

The plastic-based masks are resistant to liquids and long life but end up in the ocean after they are discarded. In addition to these plastic-based masks, surgical masks, empty sanitizer bottles along with solid tissue papers when discarded also account for a substantial amount of environmental medical waste. A large number of such clinical trashes are being generated every day. (Bhat et al., 2021)

The sudden amount of trash created by the daily use of masks, gloves, and hand sanitizers by 7 million people around the globe is going to be a very big issue. The conflicting effects of various medicinal wastes are certain in the coming days. When such trash is dumped in the natural environment of a species on land and the seas, it may cause animals to consume these mistakenly which could be lethal to them (Hellewell et al., 2020). (Bhat et al., 2021)

Masks are scattered across roads, sidewalks, and parks as people are striving hard to protect themselves from the virus. These can easily be found on streets, in wild habitats, and the seas (DW 2020). If it reaches the oceans, it can pose a serious threat to marine life. But for animals like sea birds – it's the straps of the masks that are causing the most immediate harm. Many of these birds get their feet caught up in disposable masks. making it difficult for them to move or fly. (Wockner, n.d.)

Disinfectants- Soaps and Sanitisers

Mass disinfection and worldwide usage of hand sanitizers containing alcohol and isopropanol are on the rise (Mahmood et al. 2020). Disinfectants like sodium hypochlorite, hypochlorous acids, and chlorine are used in large quantities in almost all places where there are human

habitations. They are rapidly degraded in the presence of organic matter and therefore, do not bioaccumulate and persist in the environment. Sodium hypochlorite is used for mopping floors, lobbies, elevators, corridors, offices, rooms, hospitals, etc. for killing the virus (Geller et al. 2012). Sodium hypochlorite is very toxic to the environment and microorganisms. (2021)

Antibacterial soaps contain triclocarban and triclosan. These chemicals are responsible for causing endocrine disruption, liver cancer, and several other neurological effects (Gee et al. 2008). Both chemicals are detrimental to the health of the environment as they are difficult to degrade and they form 60% of the mass of all drugs that are found in the sludge of wastewater treatment plants and sewage. These chemical contaminants harm aquatic fauna. (2021).

2. Plastics

Many grocery stores are not allowing customers to bring their reusable bags and are instead delivering products in single-use plastic bags. In restaurants, there is an increase in the frequency of online ordering of food which resulted in a per capita increase in plastic usage. Plastic demand in terms of packaging (40%) and other applications (17%) including medical uses has significantly increased (2021)

3. Chlorine

To prevent the transmission of coronavirus through wastewater, China has directed the wastewater treatment plants to strengthen the disinfection routines. In contrast, the excessive use of chlorine to treat the water could generate harmful effects on human health. (2021)

Drinking water that contains chlorine will not hurt you immediately, but it may have long-term health effects. Asthma symptoms, Food allergies Congenital abnormalities, Bladder and rectal cancer, etc are some of the health consequences one is going to face. The respiratory symptoms that can worsen with too much exposure to chlorine include chest pain, wheezing, difficulties with sleeping, and shortness of breath. (Health Effects of Chlorine in Water, n.d.).

4. Impact on Soil and Water

The components of the ecosystem are intertwined with each other. With every person washing hands more regularly with soap, mass disinfection by government and local bodies, and production of single-use plastics containing bisphenol A (BPA) are destined to have negative impacts on soil and water quality (2021).

Alcohol-containing products spilled in the water are toxic to aquatic fauna and spills in soil may also pollute the groundwater (Mahmood et al. 2020). Soaps are the oldest known detergents. Discharged detergents cause foam in water bodies. Foam is produced due to

lowered surface tension of water by soaps and other detergents (Bowers 1952). Soaps can reduce re-aeration by 40% (Gameson and Barrett 1958). These substances form a protective surface film which acts as an obstacle at the air-water interface (Baars 1995). According to Van Beneden (1952), 120 mg/l of soap can prevent the growth and development of algae. Aquatic plants can be adversely affected by soaps. Species like *Ranunculus aquatilis*, *Potamogeton* cannot grow in 2.5 ppm of detergent. Accumulation of harmful pollutants in the soil as a result of extensive use of soaps may deteriorate the quality of the soil. (2021)

The acute increase in soapy discharge over a short period from every household may increase the number of pollutants and alter the chemistry of greywater. Such domestic effluent will pollute the river water, and ultimately, the lakes and oceans. This unwelcoming chain of events is going to be a serious issue soon. It must be noted that this discharge is over and above the normal discharge which was already occurring. (2021)

VI. ECONOMIC COST OF COVID 19 AND CLIMATE CHANGE

The economies of rich countries will shrink by twice as much as they did in the Covid-19 crisis if they fail to tackle rising greenhouse gas emissions, according to research.

The G7 countries – the world’s biggest industrialized economies – will lose 8.5% of GDP a year, or nearly \$5tn wiped off their economies, within 30 years if temperatures rise by 2.6C, as they are likely to be based on government pledges and policies around the world, according to research from Oxfam and the Swiss Re Institute. (Harvey, 2021) .India’s economy is likely to shrink by a quarter owing to a 2.6C temperature increase. (Global Business Policy Council, n.d.)

(A) Climate change

According to the Intergovernmental Panel on Climate Change (IPCC), the body of the United Nations tasked with studying the risk of human-induced climate change, the “warming of the climate system is unequivocal.” Rising temperature can cause serious repercussions to the environment. At the same time, economic costs due to these human-induced disasters are increasing. These rising economic costs of climate change and extreme weather are striking—especially for emerging markets. A 1°C increase in temperature can reduce GDP by 1 percent (approximately), says the International Monetary Fund. In India during 2014-15, the economic loss was 2.5 percent of GDP which is primarily due to land degradation. In the worst-case climate scenario, the cumulative loss in global GDP per capita can exceed 7.2% with high losses in India, Russia, and the USA. (Global Business Policy Council, n.d.)

High temperatures can lead to damage to infrastructure and global supply chains in several ways. For instance, India faces ‘melting roads’ during summertime. Such occurrences not only disrupt the supply chain but also impose repair costs for these infrastructures. Higher temperatures are linked to higher sea levels and flooding. It can further cause spillover effects on infrastructure., compounding the initial disruption. These events impose significant costs to governments, businesses, and citizens alike, and they routinely affect every sector.

(B) Covid 19

The economic cost of the covid-19 pandemic is incalculable. According to the Global Economic Prospects report released by the World Bank, the world economy shrank by 4.3% in 2020, a setback matched only by the Depression and the two world wars. But this figure understates the cost. The pandemic could amount to \$10trn in forgone GDP over 2020-21. (*What Is the Economic Cost of Covid-19?* 2021)

In the IMF's World Economic Outlook for April 2021, the pandemic recession is the deepest since World War II, with a 3.5% output contraction in 2020, down from a 3.4% growth forecast back in October. Moreover, the shock's consequences will likely last for a long time. Developing economies will suffer most, even though the long-term costs are still unclear and vary widely across countries. The IMF estimates that world GDP will be 3% lower in 2024 compared with no-Covid scenarios, but this number doubles to 6% for the developing countries, even though Covid-related deaths were less severe in lower-income countries. (Yeyati & Filippini, 2021)

Fields like MSMEs, Electronics, Tourism, Air travel, Gems and Jewelry, Entertainment, banking, and automotive are affected long term, there is going to be a severe effect on logistics, retail and wholesale in the short term. Some companies might disappear from the trading, the strong companies would post huge losses. Sectors like Fast Moving Consumer Goods (FMCG), Travel, Hospitality, Restaurants, and Shopping Malls will be hit the most. With the reverse movement of migrant labor to their native places, sectors like real estate will be badly hit. There could be a huge shift in the way the world perceives discretionary spending and there could be huge cuts in budgets. Some companies would choose to cut down the salaries or the workforce and realign their product line to a conservative mode.

VII. COMPARATIVE STUDY- SIMILARITIES AND DIFFERENCES

The main reason for putting climate change next to COVID-19 is because the two problems are, from an economic standpoint, conceptually similar, as both can be characterized as global public bad and as negative externalities—climate change is a global externality and so is

COVID-19, as contagion is a transboundary phenomenon. COVID-19 is akin to a transboundary pollution problem, originating in one country but able to cause damage in another country's environment (population), by crossing borders through pathways like water or air (people's movements). Pollution can be carried away from a heavy emitter and deposit onto a nation whose emissions are relatively low. Since "all things connect", the heavy pollution that is evident in the developed world also becomes evident in remote areas.

VIII. DIFFERENCES

1. The cost of both the COVID19 pandemic and climate change is high. The cost of COVID 19 involves a high mortality rate, mental health issues, economic shock, etc. In the case of climate change, the story is entirely different. Climate change could thus threaten our very existence as human beings.
2. The climate threat is intangible and can be obscured by natural variability. The risks from climate change are gradual, cumulative, unevenly distributed across time and over space. In contrast, the consequences of COVID19 are tangible and near. The degree of damage increases with delayed response.
3. Climate change and covid 19 are problems for the entire planet. Climate change arises from greenhouse gas emissions generated in all parts of the world. COVID19 , first recognized as a pandemic but now considered endemic by many scientists. These are considered a global problem as their impact is felt all over. Climate alterations and global warming are induced by increasing atmospheric concentrations of Greenhouse Gases (GHGs), regardless of the geographical location of the emissions. The impact of COVID19 is more a transboundary problem than climate change.

IX. SIMILARITIES

1. COVID 19 pandemic will transition from epidemic to endemic, meaning that it would be an irreversible problem. The same is the case with climate change. It is near too impossible to reengineer climate to where it was before.
2. Lack of awareness among specific sections of the society regarding the intensity of climate change and COVID19 in the environment and economy. (Fuentes et al., 2020)
3. The global problems- Climate change and COVID 19 are highly contagious in an economy. The impact of climate change on a specific country depends on the extent to which the country releases its emission. But in the case of COVID 19 pandemic, the

country which is affected the worst poses a risk for other countries as well. It affects trade, migration, etc, and hampers the world economies.

4. Both climate change and the COVID-19 pandemic are stock externalities with negative consequences on human life and well-being. These externalities do not exhaust within a short period. In the case of climate change, carbon dioxide stays in the atmosphere for around 50 to 200 years. When GHG emission flows are larger than the absorption rate of the environment, it increases the likelihood of various health problems leading to exponential problems. During COVID-19, the number of infected people increases the chance of others being infected. Both these problems have an adverse impact on the current and future generations. The degree of both problems is huge, with potentially catastrophic consequences and high death tolls.
5. These global problems will dwindle the economy and overall growth of the nation and impact stock markets as well as global, national, and local trade. It can hamper the economic growth and employment rate. Worldwide lockdown encourages a slow down into recession leading to increased unemployment and poverty levels. (Fuentes et al., 2020)

X. LESSONS LEARNED SO FAR

Ecological restoration may be enclosed in Republic of India's huge construction programs: India will use the spiritual leader National Employment Guarantee theme (MGNREGS) and therefore the Pradhan Mantri Garib Kalyan Rojgar Abhyaan - that have a combined annual outlay of \$20 billion - to create the country's inexperienced infrastructure. These programs will facilitate restoring forests at scale, improve the standard of pastures, forests, and wetlands, manage erosion and forest fires, moreover as sequester carbon, and conserve diverseness.

Thriving forests will profit agriculture by serving to manage erosion, increasing the standard of soil, water, and air, preventing landslides, renewing pastures, recharging aquifers, and providing food, fodder, and medicines.

Restoring forests and terrestrial landscapes can facilitate Republic of India to meet its international commitments towards temperature change and land degradation. below IUCN's city challenge, Republic of India has the very best world commitment for impressive temperature change, going to restore over twenty million hectares of degraded land by 2030. Achieving this might build Republic of India the worldwide leader in inexperienced recovery. Adopt a 'no-climate regrets' approach-With each rupee wired into the recovery method, the

central and state governments got to take into account whether or not they do additional long hurt than short-run smart. If a commercial enterprise stimulation is required in heavily polluting industries, the scope of mitigation measures and therefore the use of unpolluted technology should be evaluated. Policymakers got to thought climate selections in their monetary selections and interrogate past selections through a climate lens.

Institutionalize behavior change-The lockdown has enabled new behaviors and habits, particularly among the company hands, with remote work changing into normalized. Consumption patterns also are ever-changing, with additional target shopping for what's domestically and simply accessible. Institutionalizing these changes once the imprisonment is relieved or upraised will go an extended means in lowering conveyance emissions, reducing travel, and reducing the carbon footprints of individuals and merchandise. However, for these micro-changes and habits to transition into norms, governments and policy consultants got to perceive a way to nudge people and companies towards them. The imprisonment could be a smart chance to assist individuals to get away from their inertia once it involves reducing their carbon footprints.

Lesson 1: Mitigation should be a priority

Delays in containment measures during global crises are all the more tragic as earlier action reduces costs and damages dramatically. In the case of COVID-19, acting early has made the difference between a prolonged full-scale lockdown and a high number of casualties, and much less dramatic measures such as increased health screening at borders, contact tracing, public information campaigns.

Delay on the decisions on climate policy also involves cost. The report of the Intergovernmental Panel on Climate Change (IPCC 2018) stresses the importance of limiting global warming to 1.5 °C instead of 2 °C by the end of this century to avoid tipping points and irreversible changes in our environment. It highlights, in particular, that delayed climate action implies significantly higher costs, as it locks economies into carbon-intensive infrastructure, reduces flexibility in future response options, and increases uneven distributional impacts between countries. delaying climate policy compatible with 2 degrees warming by the end of this century until 2020 would increase mitigation costs by around 50% (Jakob et al. 2012).

The effects of climate change that are currently experienced, such as climate change-related extreme weather events, wildfires, and sea-level rise, are only mild harbingers of projected future climate damages (IPCC 2014a). The political reaction to the COVID-19 pandemic suggests that societies tend to take action too late in the face of a looming crisis, despite

witnessing signs of escalation. Moreover, they take too long to implement policies. Ideally, the current crisis would make decision-makers and institutions aware of the immense costs of delaying climate actions and increase their responsiveness to climate change, similar to how countries with recent experience with viral outbreaks had better responsiveness to COVID-19.

Lesson 2: People's Behaviour

There are several effects at play that influence how people perceive and respond to different threats. First, the human brain has difficulties understanding non-linear dynamics (de Langhe et al. 2017), in particular exponential growth (Levy and Tasoff 2017). The spread of pandemics like COVID-19 is governed by exponential growth processes.

Society is willing to pay relatively more to avoid such “bad deaths” in general (Sunstein 1997).

In the case of climate change, similar mechanisms are at work that makes its danger to human well-being difficult to grasp. Climate change gives the illusion that it could be controlled to some extent, and that it does not immediately impact one's life. Judging from respective societal responses, dying from SARS-CoV-2 is worse than dying from consequences of environmental pollution: an outcome that can hardly be justified from moral principles (Sunstein 1997).

Lesson 3: Poor remain vulnerable

The pandemic has the potential to disproportionately burden the poor (von Braun et al. 2020): low-income countries (LICs) and lower-middle-income (LMICs) countries might be more vulnerable to COVID-19 as population density is higher, a greater proportion of the population suffer from pre-existing health conditions, and healthcare systems are often less prepared for a pandemic (Stiglitz 2020; Bruckner and Mollerus 2020). Further, many developing and emerging economies are export-oriented, meaning that a global reduction in demand could be economically devastating (Stiglitz 2020; Bruckner and Mollerus 2020). Within countries, it appears that the economic consequences, from the virus itself and the measures to contain it, deepen existing inequalities even further, as already disadvantaged groups are most affected (Adams-Prassl et al. 2020; Fana et al. 2020; OECD 2020).

Regarding climate change, there is evidence that the poor will also be disproportionately affected by the related damages (IPCC 2018; Leichenko and Silva 2014; Letta et al. 2018) while having fewer resources to adapt to a changing climate. This implies that climate change damages are likely to deepen existing inequalities even further (Ahmed et al. 2009).

Whatever shape climate policy takes in the end, it needs to take inequality into account. Survey

studies demonstrate that appropriate compensation for households that are especially affected by climate policies, for example through targeted transfers, cuts in regressive taxes, or even uniform lump-sum transfers, mitigates inequalities and greatly enhances support for climate policy (Carattini et al. 2017, 2019). This is particularly true for carbon pricing and compensatory mechanisms employed in existing pricing schemes, which in the large majority of cases include either transfers to especially affected (e.g. rural) households, uniform lump-sum transfers, or cuts in regressive taxes (Carl and Fedor 2016; Klenert et al. 2018a).

Lesson 4: Dealing global problem by global collaboration

Responses to the virus have required a global perspective. While each nation implemented its containment measures in isolation, international collaboration on vaccine development (WHO 2020b), supply line controls (Krohs et al. 2020), and knowledge sharing have been vital to supporting health and economic outcomes. First, COVID-19, like climate change, is a crisis that impacts all nations. High-Income Countries (HICs) including the United States and the United Kingdom, have seen significant deaths (Roser et al. 2020; Lambert 2020), unemployment spikes (Kretchmer 2020), and economic contractions (IMF 2020a). For some Low- and Middle-Income Countries (LMICs) consequences also include critical food shortages (GRFC 2020) and increases in poverty (Sumner et al. 2020; Akiwumi and Valensisi 2020).

4 phases of international collaboration -

- First, in the early stages of the pandemic, denialism led to inadequate international responses. The World Health Organisation (WHO) was mobilized to provide international guidance in early January (WHO 2020a), but the severity of the virus was masked for several weeks, and nations largely ignored the threat until consequences were felt on home soil (see Hale et al. 2020).
- isolationist action, in the form of border shutdowns, sudden buildout of domestic manufacturing capabilities, and rhetoric prioritizing internal objectives ahead of cooperation
- knowledge and resource sharing. In some nations, notably the US and EU member states, management of medical supplies, including masks and ventilators, shifted from hoarding to sharing
- full global cooperation. Once a vaccine has been developed, global supply infrastructure will need to be coordinated to ensure rapid production and dissemination (Corey et al. 2020; Peters and Greening 2020).

Climate change is a similarly global problem—the impacts of warmer climates and increased natural disaster prevalence will be felt by all countries. Clear emissions reductions targets and/or industry-specific emissions standards can be incentivized through the forums of existing regional institutions. Every positive international agreement is important, yet to maximize impact, the focus should be directed to the large emitters that do not already take the threats of climate change seriously since domestic action in these nations could have especially large spillover effects (Golombek and Hoel 2004). . In the lead up to COP26, multilateral institutions should guide constituents towards a collaborative green recovery, serving as a channel for information sharing and a platform for mutual edification.

XI. POLICIES, ACTIONS AND STRATEGIES

The structure of policy responses to climate change and to COVID-19 noting that both appear to have the same conceptual structure.- mitigation and adaptation. While the latter is likely to be of more relevance for climate change given the much longer time scale, all broad policy responses are shaped by the available time frame and by the degree of international cooperation that results in more coordinated policy implementation. (Saran, 2019)

The following section discusses the policies and actions to mitigate each global problem:

(A) Climate Change

All these efforts need to be implemented well to mitigate the effects of climate change. (Byjus, n.d.)

- National Action Plan on Climate Change (NAPCC): outlines existing and future policies and programs to mitigate and adapt to climate change. Key themes include solar energy; enhancing energy efficiency; sustainable habitat; Water; Sustaining the Himalayan Ecosystem; Green India; Sustainable Agriculture; and Strategic Knowledge for Climate Change.
- National Clean Energy Fund (NCEF): This was established by the Government of India in 2010 to fund clean energy initiatives and research in that field. It is funded by levying a cess of INR 50 (subsequently increased to INR 100 in 2014) per tonne of coal produced domestically or imported.
- Paris Agreement: India has committed to achieving three goals. India's greenhouse gas emission intensity will be reduced by 33-35% below 2005 levels by 2030. Additionally, 40% of India's power capacity will be non-fossil fuel sources. India will also create a 'carbon sink' of 2.5 to 3 billion tonnes of CO₂ through forest and tree cover by 2030.

- International Solar Alliance: This was launched at the United Nations Climate Change Conference in Paris on 30 November 2015 by India and France, in the presence of Mr. Ban Ki Moon, former Secretary-General of the United Nations.
- Bharat Stage (BS) Emission Norms: Emissions from vehicles are one of the top contributors to air pollution, which led the government at the time to introduce the BS 2000 (Bharat Stage 1) vehicle emission norms from April 2000, followed by BS-II in 2005. BS-III was implemented nationwide in 2010. However, in 2016, the government decided to meet the global best practices and leapfrog to BS-VI norms by skipping BS V altogether. (Byjus, n.d.)

XII. COVID 19

The Five-Fold Strategy: There is an emphasis on the five-fold strategy of Testing Tracing, Treatment, Covid-Appropriate Behaviour, and Vaccination.

- Testing: Significantly increase testing in all districts with a minimum of 70% RT-PCR tests and use of rapid antigen tests as screening tests in densely populated areas as well as areas where fresh clusters are emerging.
- Tracing: In a bid to break the chain of transmission, it is emphasized to ramp up effective and timely tracing, containment, and surveillance activities.
- Treatment: Effectively follow the protocol of clinical care, treatment, and supported home/facility care.
- Covid-Appropriate Behaviour: Strict enforcement of Covid-appropriate behavior of wearing a mask properly, hand sanitizing, and social distancing.
- Vaccination: “Time-bound plan of 100% vaccination of eligible population groups, especially in the high focus districts.

India followed a strict national lockdown with gradual reopening of the economy. On January 3, 2021, India's Central Drugs Standard Control Organization (CDSCO) provided emergency use authorization (EUA) to the AstraZeneca vaccine and the Covaxin (developed by local firm Bharat Biotech) In Maharashtra, the state has adopted an ‘ATM policy’ which means Access the cases(A), Triage or transfer the patients (T), Managing them properly(M). (Drishti IAS, 2021)

XIII. COP 26 AND INDIA’S PLEDGE

Pollution and greenhouse gas emissions have fallen across continents as countries try to contain

the spread of the new coronavirus. Prime minister Shri Narendra Modi on November delivered a speech that reflected India's determination to act decisively to mitigate the climate crisis. India's task is doubly difficult because it must balance its fast-growing development needs with an even faster-depleting global carbon budget.

Modi addressed the five commitments at the global conference, which he called five 'Amrit tattva' (nectar elements):

1. By 2030, India will raise the non-fossil fuel-based energy capacity of the country to 500 GW.
2. 50% of the country's energy requirements would be met using renewable energy sources., by 2030.
3. The country will reduce the total projected carbon emission by one billion tonnes between now and the year 2030.
4. The carbon intensity of the economy would be reduced to less than 45% by 2030, Modi said as the fourth point.
5. As the final agenda, he said the country would become carbon neutral and achieve Net Zero Emissions (the point at which anthropogenic carbon emissions of a country is balanced by removing the equivalent amount of greenhouse gases (GHG) from the atmosphere so that the net emission is 'zero') by the year 2070.

Further, India has demanded a trillion dollars as "climate Finance" over the next decade from developed countries to adapt to, and mitigate, the challenges arising from global warming, and has kept this as a condition for delivering on climate commitments.

(COP26: India PM Narendra Modi Pledges Net-Zero by 2070, 2021)

XIV. CONCLUSION

The purpose of this paper has been to study the relationship between COVID-19 and climate change by examining a variety of factors. COVID-19 offers unprecedented insight into how a global crisis, such as climate change, maybe managed. Lockdown in a way has helped to reduce carbon emission. However, it has unlimited long-term consequences for the environment. In response to a crisis, a change in behavior and social norms is possible. COVID-19 and climate change could have long-lasting changes in our lives. It can alter the decisions we make and the way we rebalance daily activities. This can further affect the pattern of energy consumption.

Multilateral efforts and international cooperation are needed to solve global problems. However, in times of crisis, international solidarity erodes. The best practice one can follow is Prevention. But if the current situation is out of control, suitable policy action and strategies must advance.

As climate change and the health care system face a significant challenge, this paper would be useful for policymakers and professionals in defining a clear path forward regarding future climate change and its impact on behavioral decisions.

The study also has some limitations. No empirical modeling or methods were used to estimate the relationship between COVID-19 and climate change nor were any primary data used. Future studies can fill this gap. While the lessons are by no means exhaustive, they are sufficiently broad to apply to a variety of common global issues that fit certain criteria.

XV. REFERENCES

- Nigam, R., Pandya, K., Luis, A., Sengupta, R., & Kotha, M. (2021, February 19). *Positive effects of COVID-19 lockdown on air quality of industrial cities (Ankleshwar and Vapi) of Western India*. Nature. <https://www.nature.com/articles/s41598-021-83393-9#Sec1>
- Kiran, R., & Kumar, R. (n.d.). *MOTHER EARTH IS TAKING A DEEP BREATH AND NATURE IS RECUPERATING – A POSITIVE IMPACT OF LOCKDOWN ON ENVIRONMENT IN INDIA*. Researchgate. https://www.researchgate.net/profile/Degala-Pushpa-Sri/publication/352938297_Chapter_published_IEEE_Book_ISBN_978-93-89817-31-7_July_26th_2020/links/60e07a49458515d6fbf9ff5b/Chapter-published-IEEE-Book-ISBN-978-93-89817-31-7-July-26th-2020.pdf#page=257
- Khan, I., Shah, D., & Shah, S. (2020, November 16). *COVID-19 pandemic and its positive impacts on environment: an updated review*. Springer. <https://link.springer.com/article/10.1007/s13762-020-03021-3>
- Coronavirus and climate change. (n.d.). Harvard.Edu. <https://www.hsph.harvard.edu/c-change/subtopics/coronavirus-and-climate-change/>
- Joshi, M. (2020, October 24). Why does air pollution rise in October every year. Indian Express. <https://indianexpress.com/article/explained/explained-why-does-air-pollution-rise-in-october-each-year-6759030/>
- Kunal, K. (2021, June 3). Delhi breathes easy as covid 19 lockdowns lowers pollution level. India Today. <https://www.indiatoday.in/cities/delhi/story/delhi-breathes-easy-as-covid-19-lockdown-lowers-pollution-levels-again-1810546-2021-06-03>
- Pandey, V. (2020, October 20). Covid19 and pollution: Delhi staring a coronavirus disaster. Bbc.Com. <https://www.bbc.com/news/world-asia-india-54596245>
- Pathi, K. (2020, November 12). Delhi's covid case rise as temperature drops and pollution rise. Bbc.Com. <https://www.bbc.com/news/world-asia-india-54912871>
- Majeed, H., & Lee, J. (2017, June 1). *The impact of climate change on youth depression and mental health*. Lancet. [https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196\(17\)30045-1/fulltext](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(17)30045-1/fulltext)
- Usman, M., Hussain, M., Raiz, A., Raiz, A., & Ali, Y. (2021, May 2). *Climate change during the COVID-19 outbreak: scoping future perspectives*. Springer.Com. <https://link.springer.com/article/10.1007/s11356-021-14088-x>
- *In Just 8 Months of 2021, Multiple Climate Change-Spurred Events Have Devastated India* | The Quint. (2021, August 3). [Video]. Youtube. <https://youtu.be/u59xPYnquHM>

- *What is climate change doing to India? | Floods | Landslides | Climate Crisis | Latest English News.* (2021, July 31). [Video]. YouTube. <https://www.youtube.com/watch?v=LtP61zMBM2s>
- *COVID-19 And Climate Change: India's Poor In Deep Water.* (2020, October 6). [Video]. YouTube. <https://www.youtube.com/watch?v=5yEKIOmc2-c>
- *Did the Coronavirus lockdown stop climate change? | Footnotes.* (2020, September 2). [Video]. YouTube. https://www.youtube.com/watch?v=p_9L8UKpgpM
- *What's the toll of India's coronavirus crisis on mental health? | DW News.* (2021, May 4). [Video]. YouTube. https://www.youtube.com/watch?v=xH_HWv6BZ-g
- *Fossil Fuels, Climate Change and India's COVID-19 Crisis.* (2021, May 6). Time. Retrieved November 25, 2021, from <https://time.com/6046334/india-covid-19-climate-change/>
- *3 Things Governments Will Have to Focus on To Fight Climate Change Post COVID-19.* (2020, July 17). The Better India. <https://www.thebetterindia.com/233039/environment-impact-climate-change-covid-19-post-coronavirus-india-experts/>
- *5 Lessons for India's Green Recovery.* (2020, September 14). The World Bank. <https://www.worldbank.org/en/news/feature/2020/09/11/5-lessons-for-india-s-green-recovery>
- *Anxiety, depression, PTSD — how climate change is affecting mental health.* (2019, October 10). The Print. <https://theprint.in/health/anxiety-depression-ptsd-climate-change-affecting-mental-health/303656/>
- *Are Extreme Rainfall Conditions Around You a Cause of Climate Change? | The Wire Science.* (2021, August 4). [Video]. Youtube. <https://www.youtube.com/watch?v=5R7v1FHjF3w&t=2s>
- *Brace for hotter summers as temperatures rise across India.* (2021, March 12). India Climate Dialogue. <https://indiaclimatedialogue.net/2021/03/12/brace-for-hotter-summer-as-temperatures-rise-across-india/>
- *Climate Action Tracker.* (2021). Climate Action Tracker. <https://climateactiontracker.org/countries/india/>
- Climate change, environment pollution, COVID-19 pandemic and mental health. (2021). *Climate Change, Environment Pollution, COVID-19 Pandemic and Mental Health.*
- The costs of climate change in India: a review of the climate-related risks facing India, and their economic and social costs. (2021). *The Costs of Climate Change in India: A Review of the Climate-Related Risks Facing India, and Their Economic and Social Costs.*

- *COVID-19 AND IT'S IMPACT ON ENVIRONMENT.* (2020, May). http://164.100.47.193/Refinput/New_Reference_Notes/English/06072020_130300_1021205239.pdf
- *Covid-19 and its impact on environment.* (2021, June 22). Times Of India. <https://timesofindia.indiatimes.com/readersblog/world-of-words/covid-19-and-its-impact-on-environment-34088/>
- *Drought scare looms large over a fifth of India.* (2021, August 24). DownToEarth. <https://www.downtoearth.org.in/news/climate-change/drought-scary-looks-large-over-a-fifth-of-india-78606>
- *Drought-like situation in 30 per cent of India; thanks to inadequate rainfall.* (2021, September 7). The New India Express. <https://www.newindianexpress.com/nation/2021/sep/07/drought-like-situation-in-30-per-cent-of-india-thanks-to-inadequate-rainfall-2355334.html>
- *Extreme weather becomes the new normal in India's main monsoon season.* (2021, October 19). Mongabay India. <https://india.mongabay.com/2021/10/extreme-weather-becomes-the-new-normal-in-indias-main-monsoon-season/>
- *How is COVID-19 impacting the environment around us?* (2020, April 6). Invest India. <https://www.investindia.gov.in/team-india-blogs/how-covid-19-impacting-environment-around-us>
- *In Post-Covid19 recovery, India must make its development 'Climate Resilient.'* (2020, April 17). Observer Research Foundation. <https://www.orfonline.org/expert-speak/in-post-covid-19-recovery-india-must-make-its-development-climate-resilient-64758/>
- *Mental health and COVID-19 in India.* (2020, July 29). Idronline. https://idronline.org/mental-health-and-covid-19-in-india/?gclid=Cj0KCQiAIMCOBhCZARIsANLid6ahqUBINpFGm7hEuYfxxtQw4AUKShycmKUObXSirkjwVADj7IN5GAaArCjEALw_wcB
- *Number Theory: How rainfall pattern is changing significantly.* (2020, August 31). Hindustan Times. <https://www.hindustantimes.com/india-news/number-theory-how-rainfall-pattern-is-changing-significantly/story-up9eTfw4P3G8Na9r2gk2zH.html>
- *Rediscovering sustainable development through a Covid-19 lockdown lens.* (2020, May 8). The Indian Express. <https://indianexpress.com/article/opinion/web-edits/rediscovering-sustainable-development-through-a-covid-19-lockdown-lens-6399986/>

- *Sea level rise to cause danger to 12 Indian cities, world IPCC report.* (2021, August 10). Lokmat Times. <https://www.lokmatimes.com/photos/national/sea-level-rise-to-cause-danger-to-12-indian-cities-world-ipcc-report/>
- *These Indian cities likely to go three feet underwater by century-end, IPCC report rings warning bell.* (2021, August 10). India Today. <https://www.indiatoday.in/science/story/ipcc-climate-report-coastal-cities-in-india-sea-level-rise-environment-global-warming-indian-ocean-1839061-2021-08-10>
- *World Environment Day 2020: Positive Impact of COVID-19 Lockdown on Environment.* (2020, June 3). India.Com. <https://www.india.com/festivals-events/world-environment-day-2020-positive-impact-of-covid-19-lockdown-on-environment-4047703/>.
