



## IMPACT OF COVID- 19 ON GLOBAL ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

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### ABSTRACT

The COVID-19 pandemic is considered as the most crucial global calamity of the century and the greatest challenge that the humankind faced since the 2nd World War. In December 2019, a new infectious respiratory disease emerged in Wuhan, Hubei province, China and was named by the World Health Organization as COVID-19 (coronavirus disease 2019). No specific medicine or vaccine is available yet to control the disease; hence, social distancing via lockdown is widely adopted as the only preventive measure. Social distancing is observed at different level of strictness in different counties but it almost made the world to stands still. Although scientific articles on this largest social move are scanty, it resulted in benefiting the deteriorated environment to revive back. Many environmental indices such as lowering NO<sub>2</sub>, SO<sub>2</sub>, NH<sub>3</sub> and CO<sub>2</sub> emissions and reduction in particulate matters (PM) in air as a result of less human activities have led to clean air and pollution free water (level of DO, BOD, COD and heavy metals etc.) in many countries. Undoubtedly, the world was experiencing pollution in several countries due to mainly human activities including urbanization, industrialization, fossil fuel exhaustion etc. Under such situation a special (natural) protective measure was awaited to fix environmental issues. Probably, the lockdown is one of the natural effects expected by nature via introduction of COVID-19. It is because, introduction of COVID-19 to nature was an outcome of mutation from two of its pre-existing forms, although, debate on it is still continuing. Global spread of COVID-19 in a quite short time has brought a dramatic decrease in industrial activities, road traffic and tourism. Restricted human interaction with nature during this crisis time has appeared as a blessing for nature and environment. Reports from all over the world are indicating that after the outbreak of COVID-19, environmental conditions including air quality and water quality in rivers are improving and wildlife is blooming. India has always been a hub of pollution with huge population, heavy traffics and polluting industries leading to high air quality index (AQI) values in all major cities. But after declaration of lockdown due to COVID-19, quality of air has started to improve and all other environmental parameters such as water quality in rivers have started giving a positive sign towards restoring. This paper describes improvement of air, water, noise and wild life quality on environment during pre and post lockdown of this pandemic situation caused by COVID-19 on global environment and sustainable development.

**KEYWORDS:** COVID-19, Air and Water quality, Wild life and Noise quality Global environment, sustainable development.

### INTRODUCTION

Pandemics in general are not merely serious public health concern, rather these trigger disastrous socio-economic and political crises in the infected countries. COVID-19, apart from becoming the greatest threat to global public health of the century, is being considered as an indicator of inequity and deficiency of social advancement. As is implied in the name COVID-19, „CO“ stands for „corona,“ „VI“ for „virus,“ and „D“ for disease, and 19 represents the year of its occurrence. Coronavirus is a single stranded RNA virus with a diameter ranging from 80 to 120 nm. The first modern

COVID-19 pandemic was reported in December 2019, in Wuhan, Hubei province, China and most initial cases were related to source infection from a seafood wholesale market. Since then, the disease rapidly circled the globe and has eventually affected every continent except Antarctica. It has been categorized as a pandemic by the World Health Organization (WHO 2020). International Committee on Taxonomy of Viruses (ICTV) named the virus as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2. Subsequently COVID- 19, outbreak has been declared as the sixth public health emergency of international concern on 30 Jan 2020 by the WHO. These worldwide outbreaks

triggered a large number of fatalities, morbidities, and cost billions of dollars. Compared to other diseases and their respective burdens, COVID-19, is likely to cause as much or greater human suffering than other contagious diseases in the whole world( H.Q. Le, et al.,2020). In addition, other global environmental changes such as soil degradation, ozone layer depletion, pollution, and urbanization, changing environment creates an indisputable threat to our planet and human health. Global warming has its roots in industrial development, with the huge release of CO<sub>2</sub> during the industrial revolution and beyond, finally allowing the greenhouse effect to take place. To some extent COVID-19 outbreak may be considered as an indirect consequence of global environmental changes. Besides its upsetting effects on human life, the novel coronavirus disease (COVID-19) has the potential to significantly slowdown the economy not only of China, USA, or India but also of the world as a whole. Therefore, healthcare personnel, governments and the public in general need to show solidarity and fight shoulder to shoulder for prevention and containment of the pandemic.

Observing the increasing rate of corona cases in India and subsequent looming crisis, declared a complete lockdown from 25 March to 31 may 2020 for entire country .Various restrictions posed by GOI and subsequent lockdown, anthropogenic activities like industrial projects, vehicular movement, construction projects, tourism other common transportation activities witnessed a „never before“ stagnant phase. In India, apart from taking necessary administrative measures such as restriction on social gathering events, travel restrictions, containment of corona suspects and their treatment, Government of India (GOI) has directed the citizens to maintain adequate social distancing and to use personal protective equipment like masks. However, the COVID-19 has created a catastrophic situation for all and it would have adverse effect on Indian economy too, there is positive side of the coin also which may alleviate the woeful facts of COVID-19. As many of the countries are observing self-quarantine and social distancing for a more than two months now, it has given the nature a “healing time” with reduced human interference in natural environment. Major impact of lockdown due to COVID-19 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 different cities, 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. Although the pandemic situation is out of control for human beings but the positive side of it has made us to reconsider our lives and reorganize it in a way that has less impact on our planet. The situation today is a “reset” for nature and mankind, giving us a prospect to observe and analyze in and around. Much information from several government and non- government agencies have been collected and analyzed to understand the change in quality of various environmental factors such as air,

noise, wild life and water quality due to lockdown caused by Covid-19 pandemic.

In relation to the above context, Mother Nature usually follows a natural transformation process to give checkmates to many of the environmental extremities in order to save the planet( Lal, R., 2016). Many species become extinct and many have occupied the world following such climatic events. It leads to stabilize the world as a unitary ecosystem. In this context, pollution and unhygienic level in many ecosystems under dominant activities of human (including urbanization, fossil fuel exhaustion, industrialization and discharges of its effluents to water bodies) are beyond the limit. Similarly, water pollution has been found to create tragedy in many water bodies including oceans. Under such conditions, probably Mother Nature was waiting for a break to revive her individual ecosystems. It seems that social lockdown to combat COVID-19 has given a much awaited break to her for self-regeneration. Humans are locked indoor and their dominant activities are stopped, as a result, important environmental indices such as the reduced NO<sub>2</sub>, CO<sub>2</sub> emissions, water pollution, and increasing air quality in many polluted cities have been observed. In the present paper, our main focus is to highlight the impacts of COVID-19 on global environment and sustainable development.

#### **Impact of COVID-19 on global environment**

From the very beginning of civilization, human beings gradually started manipulating the nature for its own benefit. In order to satisfy the demand of increasing population industrialization and urbanization became inevitable, and the obvious significance was proved to be detrimental on the global environment. Further, environmental concerns include air pollution, water pollution, climate change, ozone layer depletion, global warming, depletion of ground water level, change of biodiversity & ecosystem, arsenic contamination and many more. Global warming is a result of the increasing concentration of greenhouse gases (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O etc). Out of the desire to drive the nature as per their own whims and desire, human beings started destroying the nature in numerous ways. As an inevitable consequence environment pollution has become a big issue of the present day. But, due to the unusual outbreak of COVID-19, almost every big and small cities and villages in the affected countries of world and many more, is under partial of total lockdown for a long period of time ranging from a few weeks up to a few months. All local and central administrations worldwide have literally put a ban on free movement of their citizens outside their home in order to avoid community transmission (A M. Henriques BBC News 2020). The various religious, cultural, social, scientific, sport, and political mass gathering events like, Hajj, Olympics etc. are cancelled. Various types of industries are not functioning; all types of travels are cancelled. Meanwhile, efforts to restrict transmission of the SARS-CoV-2, by restricting the movement have had an outstanding environmental effect.

Due to non-functioning of industries, industrial waste emission has decreased to a large extent. Vehicles are hardly found on the roads resulting almost zero emission of green-house gases (GHC) and toxic tiny suspended particles to the environment. Due to lesser demand of power in industries, use of fossil fuels or conventional energy sources have been lowered considerably. Ecosystems are being greatly recovered. In many big cities the inhabitants are experiencing a clear sky for the first time in their lives. The pollution level in tourist spots such as forests, sea beaches, hill areas etc. is also shrinking largely. Ozone layer has been found to have revived to some extent. The pandemic has displayed its contrasting consequence on human civilization, in the sense that, on one hand it has executed worldwide destruction, but created a very positive impact on the world environment on the other hand( S. Bremer, P. Schneider, B. Glavovic., 2019). Probably, the Mother Nature is trying to bounce back when human is doing nothing for it, and that is the greatest contribution of human race ever towards nature (human has been doing a great job to revive nature by doing nothing). The world as an ecosystem belongs to every organism but was dominated by human, and, taking the advantage of their absence, wild animals are found moving across the roads, cities, and other human habitation. People are observing spontaneous changes in nature witnessing its self-revival. It seems much philosophical but makes a valid discussion that nature wanted to self-regenerate with zero contribution of human being or keeping then indoor self-locked. And, it has been happening via introduction of CoV-19 followed by the imposed social lockdown. Study must be focused to answer this evolutionary question in order to teach human society to follow such lockdown voluntarily in order to allow for the self- regeneration of nature. This may be referred as natural selection by nature, for nature to self- regenerate.

### **Air quality**

#### **Nitrogen dioxide emissions (NO<sub>2</sub>) level**

Effect of COVID-19 on air quality which is one of the important measures the level of pollution due to major air pollutants. Social lockdowns in many countries have some surprising side effects as evidenced by the reduced Nitrogen dioxide (NO<sub>2</sub>) emissions. Nitrogen dioxide emissions are one of the major air pollutants emitted from industrial and vehicular operation. As both the above operations have come to a substantial halt for >100 days in many counties during this pandemic, NO<sub>2</sub> emissions are diminished, as visible from space. As per the image issued by the Centre for Research on Energy and Clean Air (CREA), from the satellite footage from NASA and also the European Space Agency (ESA), a radical drop in NO<sub>2</sub> emissions over recent months is indicated, particularly across Italy, China and also in India. Due to the decrease in consumption of diesel, petrol and other petroleum combustions in all over the World ,such as USA, Italy and China, India particularly in Wuhan city of China, NO<sub>2</sub> emission is magnificently reduced due to lockdown caused by COVID-19,

pandemic(FDA). The rate of NO<sub>2</sub> emissions in China is more noticeable. China is the world's greatest central manufacturing centre and acts as a substantial contributor to greenhouse gases in the entire world. Satellite images have put forth a different story. Under COVID-19 infection, factories were shut down leading to the reduced NO<sub>2</sub> emission is observed in many cities of China. As a result, pollution is decreased and air quality is substantially increased. Images from NASA Earth Observatory indicate that NO<sub>2</sub> emission everywhere in the Hubei province, the original epicenter of the virus, was sharply dropped as factories were forced to shutter their doors for the time being. At the same time, use of coal fuel was also drastically dropped in China. As a result of lockdown and complete shutdown in India (where the disease hit to make it hotspots), air pollution is seen to be prevented to rise rather it is decreased to multi-folds. The reason was attributed to the reduction in emissions from fossil fuels from different sectors mainly industry and vehicular operation on road. The average NO<sub>2</sub> level in major cities such as Mumbai, Pune and Ahmedabad is reduced at least by 40–50% by March 2020 than March 2019 The sky of New Delhi is clearly visible than four months ago. People are now feeling safe to breathe pollution free air. However, effects lockdown on the reduction of pollution in New Delhi is seen to be accurate.

#### **CO<sub>2</sub> emission level**

Under mild or severe lockdown in COVID-19 affected 210 countries, motorways are cleared and factories are also closed. It is resulted the dirty brown pollution belts to shrink over multiple cities and industrial areas in country that follow lockdown. The gradual lockdown imposed in countries such as China, then Italy, UK, Germany, France, India and dozens of other countries are experiencing temporary falls in CO<sub>2</sub> and NO<sub>2</sub> emissions of as much as >40%. As a consequence, it is improving air quality magnificently and the risk of respiratory diseases such as asthma, bronchitis, other lung diseases are found to be reduced substantially along with alleviated heart attacks risk. In China, responsible for the world's biggest carbon emissions, is noted to experience a temporary fall of ~18% CO<sub>2</sub> emissions during February and March 2020. Around a reduction of 250 m tonnes of carbon sources are used in China which is equivalent to > half annual output values in the entire UK. Similarly, Europe is predicted to experience a reduction of around 390 m tonnes of carbon sources as a result of lockdown. In USA, the main source of CO<sub>2</sub> emissions is passenger vehicle traffic. It is magnificently reduced to ~40%. A reduction of ~44% car sells and huge reduction in fossil fuel consumption in London add a glimpse note to the reduction of emission factor. Since consumption of fossil fuel is the main source of CO<sub>2</sub> emissions in industrial sectors and by vehicular traffic, both were shut down contributing to the observed (A. Coutts, J. Beringer, N. Tapper, 2010). So, we need systemic change in our energy infrastructure, or emissions will roar back later". This is potentially good

news for the weather as oil is the principal source of the carbon emissions that are heating the earth and upsetting weather cycles. It is believed that it could mark the start of a prolonged downward trend in emissions and the beginning of the end for huge fossil oils. However, such changes in CO<sub>2</sub> emissions are expected to bounce back after lockdown is lifted but Mother Nature has experienced the first fall in global emissions since the last 12 years.

#### **River water quality**

Environment change is one of the biggest and most vital challenges of the 21st century. In spite of all their efforts to restore the nature during the last few decades, humans could only move a few steps forward. But during the last few months, consequences of the pandemic have successfully recovered the environment to a large extent that should definitely set positive impact on global climate change. The reduction of human dominancy in environment is resulted in a drastic climate change. Mostly due to shutdown of industries and restriction of vehicular traffic, as a result, use of fossil fuels is reduced substantially. Therefore, river water qualities are radically improved in many metropolitan cities across world. Articles and reports in dailies and other electronic media reveal the improvement in the quality of rivers water all over the world and in India including Ganga, Cauvery, Sutlej and Yamuna etc. The primary cause is lack of industrial effluents entering the rivers due to lockdown situation under this pandemic situation. The DO levels of river Ganga as per reports has gone above 8 ppm and BOD levels down below 3 ppm at Kanpur and Varanasi which ranged around 6.5 ppm and 4 ppm in 2019 respectively (B. Paital, S.K. Panda. et al., 2016). Many other factors have also contributed in enhancing the quality of the rivers water like high snowfall now melting with summer, reduction of irrigation water demand, above average rainfall and also human born factors including reduction of religious and cultural activities like puja, bathing, and cremations on the banks of the rivers. Researchers believe that the self-cleansing property of river Ganga has improved which has enhanced the water quality by 40–50% during this lockdown. Scientists have claimed that water quality has remarkably improved at Haridwar Ghats which is up to drinking (Pathak S.S., Mishra P. A, 2020). The Ghats are also closed for people taking holy bath in the water or dumping flowers and other waste in it has stopped. This has resulted in water looking visibly cleaner with aquatic life moving around the clean waters of Ganga at Haridwar. River Yamuna also in most parts of Delhi is appearing clearer, blue and pristine after years. The toxic foam caused due to mix of detergents, chemicals from industries and sewage has vanished clearly in southeast Delhi's Kalindi Kunj. As per Karnataka State Pollution Control Board, the quality of water in Cauvery and tributaries like Kabini, Hemavati, Shimsha and Lakshamanathirtha is also back to what it used to be before decades. The pollution discharge has drastically fallen sharply in Buddha nullah which carries effluents

from industrial units into Sutlej River in Punjab during this lockdown.

#### **Wild life and biodiversity**

COVID-19 quarantine has locked humans at their home; it gives wild life a never seen freedom to leave an earmarked live. It is explored that in human-dominated areas or „rewilding“ urban areas, free movements of wildlife are observed. Wildlife Institute of India issued a real time data using an app “Lockdown Wildlife Tracker” to share comfortable wildlife movement in human restricted zones. This free app makes it convenient to keep track on wildlife movements (captured and shared by any one in world) due to lockdown. In the short-term of lockdowns as compared to million years human dominant behaviour in the planet although resulted in dangerous to downturn in economic activity, it is considered as a benefit to fauna and flora of nature. Such temporary social move by human potentially demands the reduced call for the exploitation of many natural resources put fewer loads on natural habitats in one hand and allows self-regeneration of nature on the other hand. Therefore, a temporary “post-human” era continuing for wildlife that makes a sarcastic comeback to the idea that wild lives are living in anthropogenic, but without human domination to reshape the planet by them. So, in anthropogenic era, human dominancy declines, where nature is the beneficiary. However, in poorer countries in southern hemisphere are predicted to be in fear because of an increased threat to wildlife. Potential reasons attributed to the decreased economic capacity in pandemic areas of such countries will be less money, and personnel that will make difficult to conserve endangered species and habitats. It indicates that how the world can re-generate her faster without human interference. Therefore, stricter rules need to be adapted in post-COVID-19 period to implement social lockdown at regular intervals to nurture the nature.

#### **Noise quality**

According to the WHO, noise pollution affects >100 million people across Europe. Remarkable health issues that can be arrived under noise pollution include internal stress at cell and organ level, overall stress, weakened mental acuity, elevated blood pressure and heart rates. These issues act as precursor to initiate several other physiological disorders and diseases. In extreme cases, noise pollution can also lead to dementia, stroke, and heart attack. All sources of noise pollution are due to human activities. Residential noise (i.e. neighbors), noise from commercial premises (markets), building site, burglar alarm, loud speakers, noise in the street (vehicular traffic) and noise in air (aircraft) are few main types. Surprisingly, road traffic accounts for premature deaths equivalent to the loss of roughly “1.6 million healthy years of life” in Western Europe alone. Noise remains a big source of pollution for the other inhabitants of the planet as well, namely, animals and most importantly bird, the most noticeable and vocal animals observed everywhere. Chronic traffic noises are

hazardous to birds and impose huge negative effect on their embryo mortality and growth in zebra finches. Noise pollution affects many other creatures ranging from frogs, to shrimp, to fish, mammals, mussels and snakes and they have different ranges of sensitivity to noise. And, most of the sources of noise such as air conditioner, air craft and wind turbine, city traffic (Car etc.), road traffic, loud television, railway, standing siren are found to be above the sensitivity level. International flights are almost standing still due to COVID-19 pandemic lockdowns. So, most of the noise in every sector is created by human activities are stopped for the time being. Last month, road and air traffic fell substantially in many counties. In Indian major cities such as New Delhi, Mumbai, Bengaluru and Chennai, the foot print (as measured by daily average changeover of foot prints (%) in terms of walk-ins from home to bank, groceries, petrol pumps, and diagnostic centers) to the respective sectors are reduced during lockdown. Similarly, the foot print has been drastically reduced in the UK by >70% when the Beatles were in shorts as compared to before lockdown. With less human movement, the planet has literally calmed: seismologists report lower vibrations from “cultural noise” than before the pandemic. Nevertheless, it a good sign for self-regeneration of nature.

### **Sustainable development**

Creation and destruction is a continuous natural process of evolution. Sustainable development is an inbuilt phenomenon of the nature. These natural development processes are so perfect that in such course of action the nature does not yield any waste and every component of the product is recyclable and usable. These phenomena are so designed that they do not cause any depletion of natural resource and thus maintaining all ecological balances. Modern technological advancement in every field of our life as brought out by our scientist and technologist is also indebted and inspired by the nature. But the science and technology which we are doing now- a- days for development of our industrial growth to benefit society is in true sense any way close to the biotechnology and sustainable or not? We should certainly pay attention to it so that it should not be too late to cause imbalance in nature or global climate change. In fact, most of the problem, which every one of us facing today, like health hazards due to environmental, soil and water pollution, natural disasters viz., earth quake, flood, drought, landslides and greenhouse effect etc., are our own creation due to our life style and imbalanced industrial development (Marco, M. Di et al. ,2020). The irony is that we have even spoiled the two most essential gifts i.e., water and air, given by nature free of cost with inbuilt sustainable mechanism, on the name of development. We are crying for the energy, which has also been gifted abundantly in the form of sun by the nature. But the fact is that it is only the human being who is responsible for these problems. No other living being on earth has ever created natural imbalance and is living with natural cycle yet they are also sufferer because of

our deeds. So, we have to use our knowledge in a proper scientific manner with all in built element of technology to make sure that neither presents generation nor future generation should face any problem for their survival and livelihood.

In 2015, the UN declared 17 sustainable development goals (SDGs) to be achieved by 2030. The declaration of SDGs is a universal call to end poverty and to protect the fragile environment. The SDGS also promote peace and harmony within the nations. SDGs aim for improvement upon many aspects of life, not just for the human being, but also for other living things in the world. Life on earth is not just about daily struggles of personal and professional life including. Surely, having a productive job with rewarding career prospects is an essential target. However, SDGs also emphasize the social environment, culture environment, the innovations, social justice promoting policies ( Cernev, T. and Fenner, R. ,2020). In this study, we explore these SDGs in relationship to how they will be affected from the ongoing COVID-19 pandemic. There have already been significant achievements in SDG targets since 2015. Many countries were steadily implementing these goals in their national development agendas. Surely, there were many hurdles for the smooth and strategic implementation of all the goals. However, nothing came as shocking and disruptive as the COVID-19 pandemic. While SDGs were suggesting international collaboration in contagious diseases, nobody was expecting a newly mutating virus to become a global pandemic. The super- fast spread and presence of this novel corona virus in almost all nations as prompted many governments to take unprecedented actions such as nationwide curfews. The resulting economic recession are having devastating effects on many households. The lockdowns have particularly affected the poor and the unhealthy. Whether this will be a temporary shock or will be a long- term trend is still unanswered.

Coronavirus COVID-19 has become an uncontrollable pandemic around the globe. It has affected almost all the countries across the world. The sustainable development goals play an important role in fighting against this epidemic. Achievement of SDGs can still prevent such outbreaks. Since its outbreak, the coronavirus COVID-19 have affected the many countries across the world. It is increasing rapidly, there are many cases recorded and many deaths are confirmed due to this epidemic. Countries are working together in order to get reduce the spread of this dreadful disease. Nowadays, the Sustainable Development Goals (SDGs) are playing important role to face this epidemic (Gulseven, O., 2012). The SDGs offer a strong platform for support and monitor the health and welfare status of the people around the globe. The main idea of SDGs is to generate a set of mutual goals that could help the world in getting rid of the all environmental, political and economic challenges. In this article, we discuss the relationship between sustainable development goals/indicators and

how the SDGs are helping the countries in fighting against the COVID-19 epidemic.

#### **Sustainable development goals (SDG)**

The Sustainable Development Goals (SDGs) aim to achieve sustainable development for the service of all humanity. These 17 goals are adopted in 2015 (UN) by all member states to cover many aspects of human development while addressing environmental issues. The SDGs rely on the partnerships of all member countries for the success of these goals. However, the recent COVID-19 pandemic has radically transformed the current state of global development. Thus, we analyze how the current pandemic is affecting the achievements of SDGs. We argue that while the deteriorating economic conditions will negatively affect most aspects of development, we might also observe some positive developments in the long term. There are 17 sustainable development goals from UN. We found that the following 10 goals are highly relevant in prevention of contagious diseases. We discuss them in relationship with the COVID-19 pandemic as follows:

**SDG-1(No Poverty):** It means to ensure economic growth around the globe by providing Sustainable jobs and promoting equality. It is very necessary for every country to have economic strength in order to face any type of problem. Now in this situation of COVID-19 we need many resources to fight against this epidemic. Nowadays every country is locked down, so in this situation it is hard for labors to survive because they depend on their daily income. In this case only through strong economy a country can facilitate its people by making availability of daily usage things to them.

**SDG- 2 (Zero Hunger):** The food and agriculture sector offers key solutions for development, and is central for hunger and poverty eradication. Through proper food one can make his immune system strong and only the people with strong immune system can fight this epidemic effectively.

**SDG -3 (Good Health and Well-Being):** Ensuring healthy lives and promoting the well-being for all at all ages is essential to sustainable development. Research has proved that the people having good health can survive from COVID-19. The people having weakness, blood pressure or heart problems are found as victims of this disease.

**SDG- 4 (Quality Education):** Obtaining a quality education is the foundation to improving people's lives and sustainable development. For the better treatment of these types of pandemic the country needs quality doctors. Through quality education the rules and regulations can be followed effectively for the prevention of these diseases.

**SDG- 6 (Clean Water and Sanitation):** Clean, accessible water for all is an essential part of the world

we want to live in. Households need to have access to essential services such as running water and soap. Washing your hands with soap and water is the best prevention method against all kinds of germs, bacteria, and viruses. The relevant authorities are also suggesting that keeping hands clean and keeping them away from your face is the best way to prevent the Covid-19 virus.

**SDG- 9 (Industry, Innovation, and Infrastructure):** Investments in infrastructure are crucial to achieving sustainable development. Nowadays the cases of COVID-19 are increasing exponentially. So in order to facilitate the patient the country need strong infrastructure. It must have enough hospitals which can admit them properly, It should have innovative technology for treatment and the industrial system should be strong enough to support the country in these situations.

**SAG-10(Reduced Inequalities):** To reduce inequalities, policies should be universal in principle, paying attention to the needs of disadvantaged and marginalized populations. We can face the COVID-19 with unity and equality. It is spreading from people to people. So in order to get rid of this we have to treat all the people equally, beyond the differences of caste, class or culture. For example if we care only upper class people then the disease will spread through the lower class people and after some time it will become uncontrollable and at that time we will not be able to save the upper class people also.

**SDG-11(Sustainable Cities and Communities):** There needs to be a future in which cities provide opportunities for all, with access to basic services, energy, housing, transportation and more. Now the COVID-19 is an international epidemic. We can face it through resting at houses, for this we need good house,energy and other basic things to survive at home. In case of symptoms we need proper transportation system to reach the hospitals.

**SDG -16 (Peace, Justice and Strong Institutions):** Through strong system of institutions at all levels, peace and access to justice for all a country can be stable and face the problems easily. Currently in order to get rid of COVID-19 a country must have the quality hospitals and doctors for the treatment. The defense system must be able to ensure the peace in the country during lock down situation. There should be justice for all and it is necessary to make sure that each class of people have enough things to survive.

**SDG -17 (Partnerships):** Partnerships play an important role for the countries and organization in their difficult time. They can help each other for getting rid of these types of pandemics. In this disease COVID-19 they can help each other by sharing the medical materials like testing kits and masks and the doctors. In this case they can also help by sharing the funds to the needy ones.

Nowadays the coronavirus COVID-19 became an uncontrollable disease. At first it was started from Wuhan, the city of China and now it has affected almost all countries across the world. There are many cases recorded and many deaths are confirmed due to this epidemic. Nowadays it has put all the health organizations under an immense pressure. The whole world is looking at each other for help in order to get rid of this disease. In order to work together and help the needy ones the UN has declared some goals known as Sustainable Development Goals (SDGs). The main idea of SDGs is to generate a set of mutual goals that could help the world in getting rid of the all ecological, political and economic challenges. The SDGs are helping the affected countries in fighting against the coronavirus COVID-19. These goals ensure the no poverty and hunger, quality education and infrastructure, sustainable cities and communities, strong institutions and so on. The countries who have achieved these goals are fighting against this disease more effectively. SDGs are helping countries by removing poverty. They are facilitating people with all equipment and things for survival during quarantined period. Through quality education SDGs have produced well educated doctors and experts in medical field, who are fighting against this pandemic in an efficient way. They have ensured the advanced technology and hospitals for the treatment.

## CONCLUSION

Environment change is one of the biggest and most vital challenges of the 21st century. In spite of all their efforts to restore the nature during the last few decades, humans could only move a few steps forward. But during the last few months, consequences of the pandemic have successfully recovered the environment to a large extent that should definitely set positive impact on global climate change. Whatever is the cause or origin, the occurrence of COVID-19 has emphasized to improve the mutually-affective connection between humans and nature. CoV infection has emerged as a deadly infectious disease causing the greatest pandemic in the planet. The entire world nations are following lockdown with a different level of stringency to combat COVID-19. Countries of world had been following a very stricter and early lockdown for which they are controllable infection and death rate from COVID-19. On the other hand, reduction of human dominancy in environment is resulted in a drastic climate change. Mostly due to shutdown of industries and restriction of vehicular traffic, as a result, use of fossil fuels is reduced substantially. Therefore, NO<sub>2</sub> and CO<sub>2</sub> emissions are radically reduced in many metropolitan cities across world. Such favorable natural changes have made wildlife to move with full freedom in one hand, and the biodiversity is elevated in any areas on the other hand. Due to the reduction in air particulate matter and fall in water pollution in many places of world, people are experiencing the never seen elevated environmental revival due to cleaner air, and sparkling water bodies and beautiful wild animals roaming around human habitats.

Due to shutdown of bus, train and flights, wild animals especially birds are enjoying a noise free environment. It is nothing but the Mother Nature is trying to bouncing back. After the end of lockdown in some of the countries, it has been felt that life is possible without so much modernized life style especially those acts associated with fossil fuels. Solar energy, wind meals etc. can be used instead. It is a glimpse of what the world might look like without fossil fuels but hopes that humanity could emerge from this horror into a healthier, cleaner world, and, will depend not on the short-term impact of the virus, but on the long-term political, institutional, social, communal and individual mind-set and collective decisions to give a checkmate to climate deterioration. Because, there is a chance that post-COVID-19 period would bring the pace of human dominancy and environmental pollution back. Therefore, the self-regenerated nature without human effort can be everlasting with human interference during post-COVID-19 periods and regular interval lockdowns in entire planet coupled with long term holidays are suggested as one of the measures.

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