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Impact of Covid-19 Pandemic on environment and Society

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Abstract: ***The COVID-19 pandemic caused worldwide turmoil and resulted in many impacts on the environment and society. As a result of the Covid-19 pandemic water bodies, the atmosphere and ecosystems are all affected and have observed appreciable positive and negative effects. One of the major challenges of the 21st century is the environmental issues. In spite of various efforts to improve or restore environmental conditions during the last few decades, we could not achieve a meritorious position. But during period of the COVID-19 pandemic due to lockdown, environment have successfully recovered to a large extent that certainly put positive impact on global climate change and also changes the behavior of humans and the surrounding ecological system. Environmental systems, including water, have received positive impacts as a result of the reduction of pollutant loading from input of vehicle emission and industries. Moreover, positive impacts, including air quality improvement as a result of a reduction in the loading of particulate matter, nitrous oxide, and other gaseous pollutants.***
Keywords: Environment, covid -19, lockdown, family, education, pandemic.

I. INTRODUCTION

New infectious respiratory disease noticed in Wuhan city, in China, on December 2019. Soon it was reported to WHO (World Health Organization) The causative microorganism for this pneumatic fever was identified as a novel corona virus strain that was named COVID-19. Soon this COVID-19 infection spread to other parts of the world. Then World Health Organization has declared this as a pandemic situation. The COVID19 pandemic has affected every aspect of human life, the world Economy and global environment. The number of new cases and deaths were increasing at an alarming rate with no signs of control, making the estimates of its economic and other impacts uncertain. The novel corona virus has no religion, no boarder and cast and creed to spread. It is highly unpredictable and contagious in nature. Where for developing a vaccine against spread such virus world was never prepared for this type of pandemic. Depending on the degree of COVID-19 impact governments in each country to contain the spread of the highly contagious virus adopted different levels of interventions like restriction on travel and imposition of partial or complete lockdown. The new COVID-19 proved a very contagious and quickly proliferated globally. As of 29th November 2020 there have been over 61,800,000 confirmed case and 1,400,000 deaths reported globally. On January 01, 2021 confirmed case of this pandemic increased to 100,819,363 including 2,176,159 deaths. But in India till January 29th ,2021 10,720,048 confirmed cases including 1,54,010 deaths have been reported due to t5his corona pandemic (source WHO). As per the WHO guidelines the microorganism (virus) spread from one infected person to another uninfected person either through direct contacts like droplets or through indirect contact like surface contamination. There are a four stages of transmission (spreading) *of corona virus* stage-1 (imported cases),Stage-2 (local transmission), stage-3 (community transmission) and stage-4 (Transmission out of control). Time between catching the virus and starting of symptoms called incubation period for COVID-19 ranges from 1-14 days but most commonly it occurs around five days. The most common symptoms of COVID-19 are fever, dry cough, sore throat and tiredness. In some cases patients may experience headache, nasal congestion, runny nose and diarrhea. Most of people recover from the disease without taking any special treatment. Around 1 out of every 6 people who get COVID-19 infection becomes seriously ill and experience breathing difficulty. Particularly old aged people and co-morbid people (those with underlying medical problems) like high blood pressure, diabetes or heart problems are more likely to get serious illness. Studies about the transmission of covid-19 have been shown that it can be transmitted directly in the form of droplets produced during, coughing, speaking, sneezing and by accidental inhaling the droplets in a closed proximity of an infected person within a range of one meter. The virus is deposited on a dead surface like door handles, lift buttons, stair railings, vegetables; fruits etc become a source of indirect transmission when come in contact with healthy persons. From these routes the virus reaches to eyes, nose and mouth of a healthy person and finally creates a new corona patient. Researchers have shown that virus enter in to the respiratory mucosa by a receptor called angiotensin receptor 2 (ACE2) present in lower respiratory tract.

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II. EFFECTS ON ENVIRONMENT

Almost each and every big and small city and Village in the affected countries like China, USA Taiwan, Italy, France, Spain, U.K, Iran, Germany, India, South Korea, Australia etc. is under partial or total lockdown due to outbreak of covid -19 pandemic for a long period of time ranging from a few weeks up to a few months. The major factors responsible for air pollution are transport, industries, power plants, construction activities; biomass burning and residential activities remained suspended. All transport services like road, air and rail were suspended with exceptions for essential services, educational institutions, industrial establishments and hospitality services also remained suspended. Consequently the improvement in air quality has been noted in many towns and cities throughout the world. Industrial waste emission has decreased to a significant extent due to non functioning of industries. Also due to non plying of vehicles on the roads resulting in reduction of emission of green house gases and toxic tiny suspended particles to the environment almost to the extent of zero level. Use of fossil fuels or conventional energy sources has been reduced considerably because of lesser demand of power in industries. Ecosystems were also greatly recovered during lockdown period. For the first time in their lives in many big cities, the inhabitants were experienced a clear sky. The pollution level in tourist spots such as forests, sea beaches, hill areas, etc. were also reduced largely during lockdown period imposed due to outbreak of covid -19 pandemic. The pandemic has showed its duel results on human civilization, in the sense that, on one side, it has caused worldwide panic situation, but on the other side it created a very positive impact on the world environment.

A. Covid-19 and Global Warming

The exploitation of nature by human being for its own benefit in order to fulfill the demand of increasing industrialization, urbanization and increasing population became unpreventable and proved to be harmful for the global climatic changes. Therefore without caring for sustainable development human beings started to destroy the nature in various ways by anthropogenic activities only to fulfill their desire. Consequently, environmental pollution has become a burning issue of the present day. This leads to change in the distribution and burden of various vector borne infectious diseases including bacterial and viral diseases. But, due to the sudden outbreak of COVID-19, in the affected countries almost every big and small cities and villages were put under partial or total lockdown for a long period of time ranging from a few weeks up to a few months. All the academic institutions were strictly instructed by the administration to close and the free movement of their citizens outside their home and non-essential businesses were also banned in order to keep away community transmission of corona virus infection. The religious, cultural, social, sport and political mass gathering events were also cancelled and banned .the functioning of industries and all modes of transportation such as airplanes, rails, buses and private vehicles were also cancelled and restricted. These restrictions resulted in a significant positive impact on environment. Emission of industrial waste has decreased to a large extent due non-functioning and closure of industries. Due to restrictions imposed to ply the vehicles, vehicles are hardly found on the roads consequently emission of green-house gases and toxic suspended particles to the environment reduced almost to zero. Reduction of activities in industries, factories and construction sectors improved the air quality to the significant level. 2.4% of global CO2 emissions reported from aviation sector in 2018, according to the Environmental and Energy Study Institute (EESI) had also been reduced to the significant level. Due to strict corona virus lockdown and considerable less vehicular movement air quality has improved to an appreciable extent. This significant reduction in air pollutants was also observed by NASA satellites from outer-space.

China is the world's biggest source of carbon emissions here also due to corona virus lockdown a significant reduction in carbon emission of about 18% reported between February and March 2020. An appreciable decline in carbon emission has also reported in US where vehicular traffic are the major source of CO_2 emission has declined by about 40%. China drastic decline in emission of particulate matter and CO_2 during the corona virus lockdown reported in China as compared to the values in the preceding years. A significant 10 to 30 percent decline in NO_2 level has reported in Eastern and Central China. According to researchers in US during the lockdown period there is an significant reduction in air pollutants in major cities and they considered lockdown a sustainable approach to reduce the noise pollution and pollutants in troposphere and stratosphere. The use of conventional energy or fossil fuels sources have been lowered to the greatest extent due to less demand of power in industries due lockdown caused by corona pandemic. This leads to recovery of Ecosystems greatly. Due to Covid-19 lockdown the inhabitants in many big cities, for the first time in their lives, had experienced a clear sky and clear river water and variety of birds were seen in the localities. A huge decline in the pollution level was observed in tourist spots such as sea beaches, hill areas, forests etc. Thus the corona pandemic had created its contrasting results on human civilization, on one side it has carried out worldwide destruction and other side it created a very positive impact on the world environment. Therefore the lockdown due to corona pandemic proved as a healing dose for climate change, human health, ozone depletion etc. Ozone layer healing recorded during lockdown period due to corona virus pandemic and a substantial recovery of ozone cover above Antarctica was observed.

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B. Covid-19 and Biodiversity

Biodiversity describes the enormous variety of life on Earth. It refers to all of the species in one region or ecosystem. It refers to every living thing, including plants, bacteria, animals, and humans. Biodiversity is the most complex feature of our planet and it is the most vital. "Without biodiversity, there is no future for humanity," says Prof David Macdonald, at Oxford University. An ecosystem needs three kinds of diversity *named as biological*, genetic and functional that an ecosystem requires. The richness of species in a particular area is called biological diversity; way for a particular species to adapt itself to changing environments is genetic diversity and functional diversity relates biophysical processes that happen within the area. The genetic diversity acts as a guard for biodiversity. For the greater benefit of the universe humans must understand the values and levels of biodiversity. Genetic diversity, species diversity and ecosystem diversity are the three levels in which the biodiversity is usually described. For a widespread biodiversity it is very necessary to have the ecological balance. For human survival ecological balance is very important. Ecological balance is generally disturbed and gets multiple effects from anthropogenic activities and unsustainable agriculture practices. The conservation of the biodiversity and reduction in the anthropogenic activities, are very necessary to achieve the sustainable development. The environmental ethics and sustainable development are directly related to each other, therefore it looks necessary to rethink and redefine the environmental ethics in modern context. Biodiversity is greatly dependent on the climate and therefore, the climate change has a huge impact on biodiversity. By providing suitable environment nature always favors and promotes the diversity and coexistence among all the organisms. We are now getting covid -19 like threats and global warming due to increased human centric activities and overexploitation of natural resources by human that is considered as highly evolve product of evolution. Due to the worldwide use of Information and Communication Technology the whole world is therefore, considered as a global village and by living there we are continuously using all the benefits from nature. Therefore, while using the benefits from the nature, we must have to bear some responsibilities to develop environment centric approach to use the natural resources in a way so that we can get the comprehensive and sustainable development with coexistence of all other organisms of the universe. Therefore nature provided us an opportunity in the form of lockdown due to corona pandemic to change our ideology from anthropocentric or human centric worldview to eco-centric worldview. The human centric worldview considers human being a most capable for managing the planet earth and considers human a most important species of the planet earth and giving human the highest status considers it as the in-charge of the nature. It considers that planet earth contains unlimited resources only for human use for getting healthy economy without bothering environmental health. The eco-centric worldview considers that the planet earth has limited resources for the use of all the species that exist in the nature. Thus we can say that humans have all right to fulfill their needs from the nature but surely not to the extent that deteriorates the environment and harms other species. Thus the eco-centric worldview is therefore based on the wisdom of earth and persuades us to live sustainably on this earth like any other species of nature. It also conveys us an important massage that healthy economy always depends upon a healthy environment but healthy environment not always dependent upon a healthy economy. During the lockdown period due to corona pandemic some good indications for the biodiversity and ecological balance had appeared like appearance of a large number of birds including vultures, appearance of insect pollinators in large numbers on crops and other plants. Due to COVID-19 outbreak almost a complete lockdown had imposed worldwide those results huge decline anthropogenic activities including over exploitation of natural resources. The major human population was confined in their homes, vehicular movement were restricted these actions automatically lead to minimize various types of pollution. The result of lockdown restrictions reflected in the form of clean and green surrounding environment. We all were observing a neat and clean environment where almost all living species of nature stated to flourish, humans are feeling healthy without any major clinical problems. During the lockdown period it was observed that the water of all the major holly rivers like Ganga, Yamuna, Saryu also appeared clear and transparent due less deposition of domestic and industrial wastes. Although during lockdown it was not possible to analyse the water quality but the transparent and clear look of water of these rivers proved clearly that pollution level certainly reduced to a significant level. All these reduction in the pollution level and improvement of environmental health during lockdown period had really provided a healing effect on ecology and biodiversity.

C. Covid-19 and Society

The COVID-19 outbreak affects All segments of the population were affected due to the outbreak of covid–19 and lockdown imposed thereof. Members of social groups in the most vulnerable situations including people living in poverty conditions were particularly impacted by this corona pandemic. People those who were unable to have the safe shelter that is homeless people were highly exposed to the danger of the virus.

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During the tough time of these pandemic youths played an important role to protect themselves and the overall population especially by helping the most vulnerable population and put their effort to social awareness campaigns among their communities to remove social stigmas about corona virus disease. Thus youths played their important role to limiting the spread of virus and its impact on society, public health, and at large to the economy. Stay away from people to avoid spreading of corona virus infection introduced a new terminology called social distancing meaning thereby to avoid crowd or social gathering. This forced people to work from home instead of going to their work place, avoid social gathering and contacting even their near and dears. As man is a social animal and therefore social interaction and social relation are the integral part of human civilization. This network of relationship was gravely impacted due to rapid spread of corona pandemic worldwide. New habits of survival and new approach of interaction with nears and dears were really developed as a result of social distancing during ongoing corona pandemic. The gaps were really created between friends and relatives due to obligations of social distancing. However, modes of communications like mobile phones and internet kept people close to their society and near and dear ones. In this manner people were adapted themselves to live at home and evolved new habit to keep themselves engaged in domestic or professional works. During lock down period, there was a limited consumption of resources which fulfilled the needs of people comfortably. This observation made the people to realize that their survival needs are very less but only for status ego in the society they used to waste resources. Thus lockdown due to corona pandemic taught us an important lessons how to achieve the Sustainable Development Goals. Such type of global lockdown has become a necessary step to heal and rejuvenate planet earth against the anthropogenic activities.

D. Covid-19 and Family life

Due to stay home and work from home obligations during lockdown period brought the family members together. This put a positive impact on many children they benefited by getting more time with their parents regular daily pattern of meals and bedtime, which was not possible for most of the families prior to lockdown period due to various responsibilities. Prior to lockdown period it was heard that some of the children were not able to meet their parents over the week due over business of their parents. Hence, the lockdown proved good for family life. People remained at home every time during work from home period, they got sufficient to do their professional work and also got proper time to refresh their body by taking sufficient rest which was the basic need for good health and to give the productive result of work they do. Studies have shown that some families had also got negative impacts particularly when additional pressure occurred in terms of health, living conditions and resources. In many countries it has been reported that during the lockdown period domestic violence and intimate partner violence has increased many fold. Also financial insecurity, stress and uncertainty increased in large segment of families.

E. Covid-19 and Education

The COVID-19 pandemic affected the education system worldwide. The United Nations Education, Scientific, and Cultural Organization (UNESCO) has reported that the covid –19 pandemic outbreak has impacted the education system in the world. Outbreak of corona pandemic lead to total closures of schools, colleges, universities and other educational institutions. According to reports of UNESCO 87% of the world's student population is affected by closure of educational institutions due to corona pandemic. Closures of educational institutions not only impacted students, teachers and families but also put a far reaching impact on the economic and societal consequences. As per the UNESCO reports over 1.5 billion students in 195 countries are out of school in the world due to the closure of schools due to outbreak of corona pandemic. Covid-19 pandemic impacted all the education system like examination pattern, evaluation, starting of new semester or term and it may extend the school year. The impact was more severe for underprivileged children and their families, causing interrupted learning, childcare problems and consequent economic cost to families who could not work. After the closure of education institutions due to lockdown more than one billion youth were no longer physically in their institutions. Most of the students remained cut off from the academic interactions with their teachers during covid lockdown period particularly the students of primary and secondary classes. Various efforts made by school administrations, teachers, local and national governments to cope with the unprecedented circumstances with the introduction of e-learning or online classes, even then Corona pandemic put a long-term impact on the quality of education by disrupting the education and learning process. However to restrict the disruption of education and to reach the students remotely during corona pandemic UNESCO recommended the use of distance learning solutions containing plateforms, educational applications and resources which help students , teachers and parents. But, distance learning was difficult for teachers, students and families in developing countries due to lack of internet connectivity, information technology, educational materials and lack of knowledge about the digital technology. Some developing countries used to teach by delivering classes through radio, television and online platforms.

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But it was not easy for the poorest families and students to access these resources as such families or students have not radio, television, and other devices to access the resources and to learn at their home. So, in some developing countries these resources like textbooks, radios, smart phones and study materials were provided to the poor students who cannot afford these resources.

Several educational institutions used email and other modes of communication like whatsapp, facebook, telegram etc to supply reading material to their students. Most of institutions through out the world used online mode of classes like google meet, skyp etc. In this manner during corona period the traditional class room system of education was converted into e-class room system of education. Thus work from Home' culture and e class room system of education was a endorsed by the institution and individuals globally during the corona pandemic lockdown period. The e-education certainly impacted research and its procedures since during e-education learners were deprived of practical experience of real laboratory work like apparatus and instruments handling etc. As a result, quality of research centers may be reduced which may lead to reduction in quantity and quality of research.

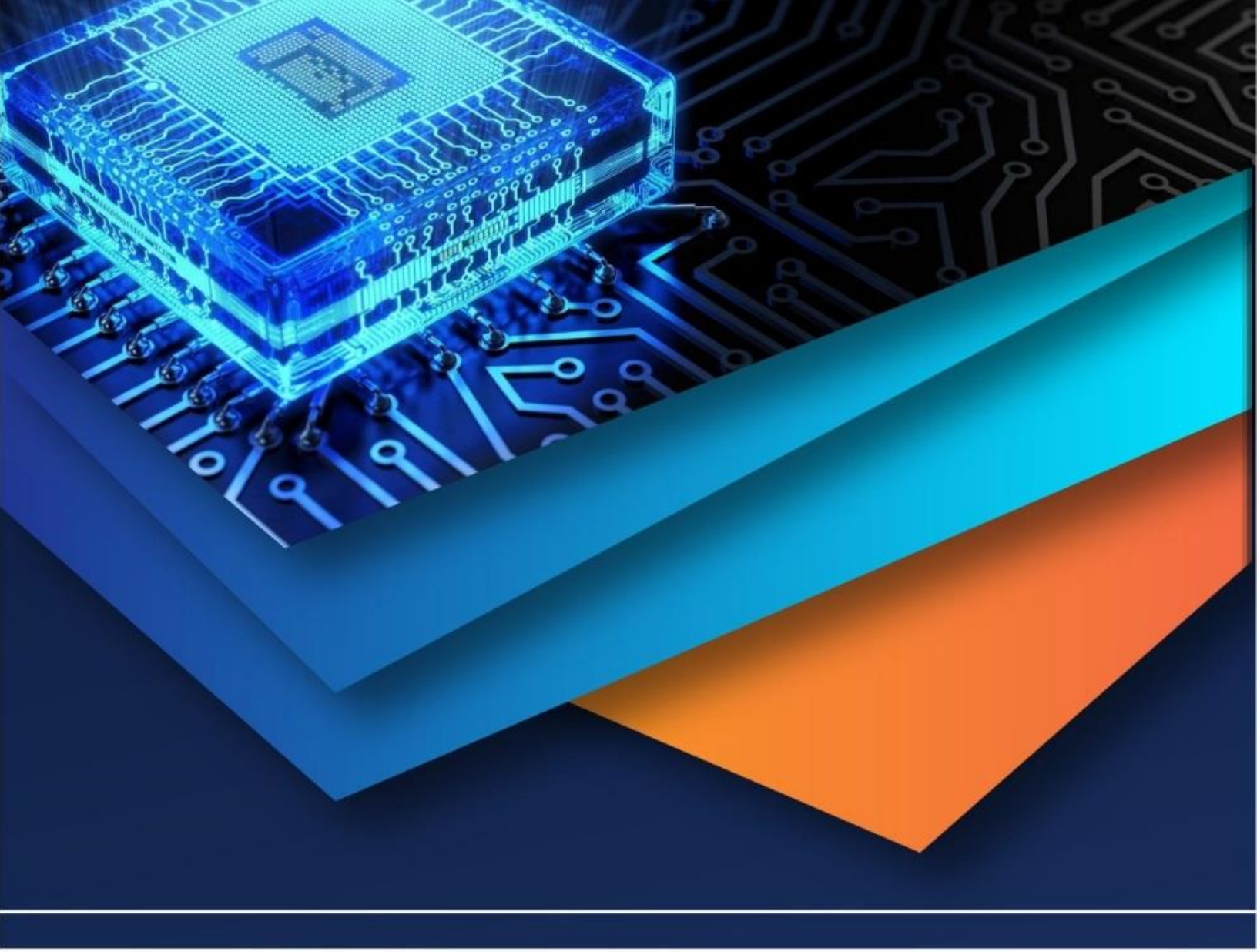
III. CONCLUSION

The COVID-19 is a pandemic disease caused by a virus that impacted all aspects of life globally like the education system, environment, social life, economic condition and what not. The corona has proved that although humans are considered as the most power full among the living beings that have weapons capable to destroy the whole world, but this corona pandemic conveyed us a important message lesson that if humans are creating chaos with the nature in the reverse nature itself powerful to destroy humans even with invisible virus. Therefore we must avoid overexploitation of natural resources and must nurture the nature that provided us with all resources for leading a very comfortable and beautiful life. To confine spread of corona virus infection all of us must follow the entire SOP and guide lines issued by governments and WHO.

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