



Man Environment Relation- A Study of COVID-19 Period

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Introduction

The term Environment has been derived from the French word “Environ” which means surrounding. Environment is composed of both biotic and abiotic components. The biotic component includes living organism such as plants, animals, human beings and microbes etc. whereas abiotic factors such as light, water, air, soil, temperature etc. After industrial revolution along with technological advancement environmental degradation started at a very fast rate. We all are aware about the various types of pollution affecting environment. Since all human activities are done to fulfil their need or greed for the name of development, have impacted environment in many ways. Human interventions causing shrinking of water Bodies, forest fires, deforestation, land transformation, construction and destruction of natural habitats, hunting and poaching. All are alarming the human being to wake up in the right time otherwise the survival for existence would be difficult for everyone.

The Agricultural chemicals Fertilizer (Phosphates and Nitrates) and run off due to rain enter in rivers, lakes, and coastal water bodies. It fertilizes algae and other plants boosting their growth, increases the Biological Oxygen Demand and makes the biotic life difficult. [1] Other source of chemicals are discharge from pharmaceutical, tannery, food processing industries. As a result, river Damodar (declared most polluted river of India by 2003- Down to Earth) According to the chairman of CPCB and Special Secretary in the Environment Ministry, Shashi Shekar the increasing pollution in rivers water are due to untreated waste water from cities (mainly from UP, Haryana and Delhi) in river Yamuna (from Delhi Okhla to Joining river Chambal – 490 km- Hindustan times, 2015) it was declared biologically dead few years back because of heavy pollution and the quality of water was bad than sewage and not fit for aquatic life. .Now there is a need to save the environment and that’s why environment day is celebrated on 5th June every year since it was started in 1974 to create awareness and action for the protection of the environment.

The nature has its own healing power and it works if the rate of degradation is slow than healing time and if it exceeds, the nature can't help itself anymore. Human often forget that he is not only the part of ecosystem, for his own survival there should be harmony and equilibrium between the nature and human being. If human being goes beyond the limit of mother earth as discussed in earlier paragraph that is, he restlessly exhausting the natural resources and influencing the flora and fauna. The consequent results are extinction of species, global warming, climate change etc. Regular contacts with wild animals have high risk of spreading of animal borne diseases. Recently one of the great challenge is being faced by human being i.e. COVID- 19 Pandemic which is not a natural calamity.

COVID-19 is a disease which is transferred from animals to human. The increasing human contact with wild animals and destruction of animal's habitats are accelerating the risk of diseases. For decades experts have been warning that due to stress in animal there is a chance of mutation of diseases from animals to human and these stress can be anything such as their loss of habitat, pollution, population and climate change etc. To understand the regulating factor of disease, outbreak based on the size of animal population and its pattern many biologists are involved in the study of disease ecology. The increasing incidence of infectious diseases such as COVID-19 and Lyme disease has been growing the opportunities in the new research area between biologist and infectious disease researcher. The leading example of this effort is Ecological Forecasting Laboratory led by Michael Dietze. [2] According to the United Nation Environmental Programme almost 75 percent new infectious disease come from animals' while being trafficked by human through air travel and cruise-ship tourism and spread rapidly across the globe. [3]

COVID-19 first started from the Wuhan city of China at the end of December 2019 and after few weeks the Chinese authority put the city on lockdown as the decision made by leaders to protect the citizens from the deadly disease because of its contagiousness nature. The virus spread across the globe within a short period of time with the movement of people. Keeping in mind its life-threatening feature nationwide lockdown announced in various countries of the world and in India it started from March 24, 2020. Till date 26 June 2020, the virus has spread over 213 countries and territories infecting 9,714, 860 people and killing more than 491,856 people[5]. Obeying government orders all the industrial and transportation activities and business closed around the world and the earth has become quite and barren as one can sees the changes from the satellite images captured during this lockdown period. [6] The satellite images before and after the outbreak shows that various busy/crowded places of the world are now deserted. Planet Labs, an American private Earth imaging company based in San Francisco, shared the series of before and after images taken by its satellites.[7]

Experts and scientist have been warning us since time but ignorance of preparedness for disaster and delaying in political action have taken human lives. The world communities are being aware and demanding ban on global wet markets. [8] "In the wake of the initial outbreak in Wuhan, China introduced a ban on all farming and consumption of live wildlife, which is expected to become law later. There were growing calls for countries around the world to ban "wet markets" – which sell live and dead animals for

human consumption – to prevent future pandemics”. The New York-based Wildlife Conservation Society was urging governments to ban live animal markets, and stop illegal trafficking and poaching of wild animals”. Gabon has taken action to stop the spread of zoonotic disease and decided to ban the human consumption of Bats and Pangolin. [4] The live example of these animals’ markets and COVID-19 deadly effect will certainly raise awareness to close down these markets in china and Southeast Asia.



Source: **PHOTO:** Wuhan avenue on Oct 17, 2019 (Supplied: Maxar Technologies)



Source: **PHOTO:** Wuhan avenue on Feb 25, 2020 (Supplied: Maxar Technologies)

During lockdown, social gathering, industrial activities and transportation have been banned. It seems life across the world has come to virtual halt. Government has issued orders to stay at home or self-isolate indoors to avoid crowded and help to stop spread of virus. Outdoor venues restrictions were also applied to the beachgoers. Meanwhile Airlines of the world stopped working to contain the spread of virus. A significant reduction in particulate matter and greenhouse gas emissions in the upper atmosphere, some of which are already shown to impact to the stratospheric ozone layer through self-lofting of these pollutants emitted by airplanes showing repair in ozone hole.[7] As the air and road traffic fell both in developed and developing countries with no or less human movement the planet has calmed and seismologist report says that the vibration from cultural noise are lower as compare to pre - pandemic[2].



Source: <https://edition.cnn.com>

These pictures were taken on March 25, 2020 show deserted streets across India. The top row, from left to right, shows Ghaziabad, New Delhi, Mumbai. The middle row, left to right, is Allahabad, Chennai, Kashmir. The bottom row, left to right, depicts Siliguri, Kolkata, and Bangalore.[10]

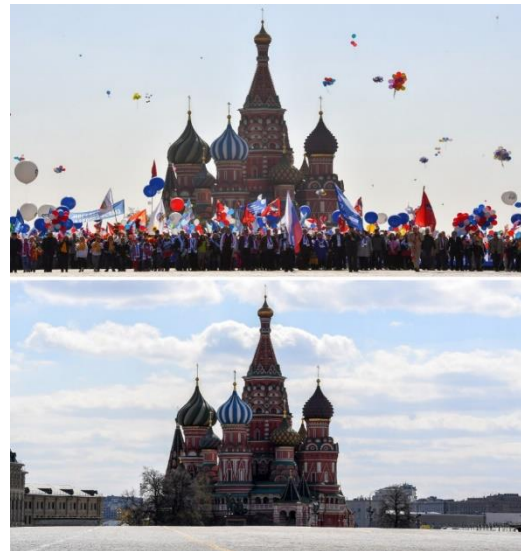
Throughout the world, various custom, festivals and religious activities of different cultures are events of great important for people where they rejoice and celebrate by coming together but how the COVID-19 pandemic has put full stop to all that[6]. We can say that, this pandemic has brought many changes both positive and negative. Positive changes are seen mainly in pollution control, biodiversity and better use of technology.



Source: <https://www.indiatimes.com> (Cultural Festival on Rome Colosseum)

This combination of pictures created on May 1, 2020, shows (top) participants shouting slogans and waving flags during a May Day rally on Red Square on May 1, 2019, and the empty Red Square during a partial lockdown in Moscow on May 1, 2020, as Labour Day celebrations were cancelled due to the COVID-19 outbreak caused by the novel corona virus .

(Photos by Yuri KADOBNOV / AFP)[11]



Objectives

- To see the man environment relationship during pandemic
- To find out the outcome of the pandemic.

Database and Methodology

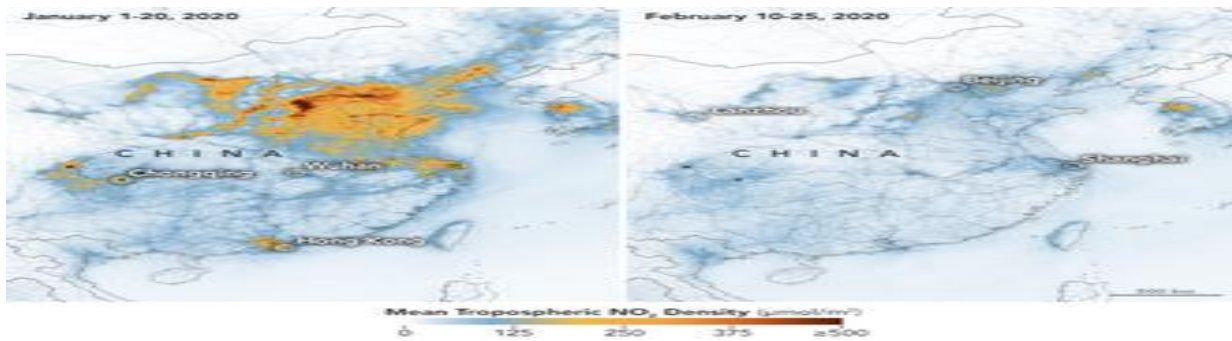
The present work is based on the secondary source of date which is collected from the net. Various sites were visited to collect the data on man environment relation and related articles and pictures were downloaded. Many social network sites were also used to see the peoples comment about the positive impacts on environment like twitter, Facebook and Instagram. Then the comparative method is used to explain the phenomena.

Air Pollution

This pandemic has reduced the air pollution level globally. S. K. Sathees, IISC, Bangalore, while saying to The Hindu news the major cause of air pollution is vehicular emission in Indian major cities and due to reduce human and industrial activities in lockdown the level of noise, water pollution and bio diversity improved. Such kind of measure may be used in future to combat the pollution as the level has come down from alarming or poor to good or satisfactory specially in urban areas. Further added by him that lockdown may have also impact on monsoon. [7]

Many countries like China, United Kingdom and Italy have temporarily showing 40 percent fall of Carbon dioxide and Nitrogen dioxide resulting improved air quality and minimising the risk of lungs diseases, asthma and heart attack. It is expected that the earth has seen first down fall in the global emission of CO₂ since 2008 financial crises [2]. The lockdown of China showed the drop of 200 million metric tons of

carbon dioxide then the same period in 2019 because of the reduction of air traffic, coal consumption and oil refining. And the reduction may have saved at least 77,000 lives as estimated by one of the scientists of Earth systems. Similar kind of changes has seen in Italy Po Valley region. [12]



Source: <https://en.wikipedia.org>



source:<https://www.news18.com/photogallery/world/pics-the-world-before-after-the-spread-of-coronavirus-2540811.html>

source:<https://edition.cnn.com/2020/03/31/asia/coronavirus-lockdown-impact-pollution-india-intl-hnk/index.html>

In Delhi the air quality of busy transport areas and industrial location have improved 60% due to lockdown. The PM₁₀, NO₂ and PM_{2.5} concentration in the air has reduced half. The 34 stations data in Delhi on SO₂, O₃, NO₂, CO and NH₃ Ammonia) has also shown improvement. The positive changes in environment were high there only where the lockdown guidelines followed strictly [13].

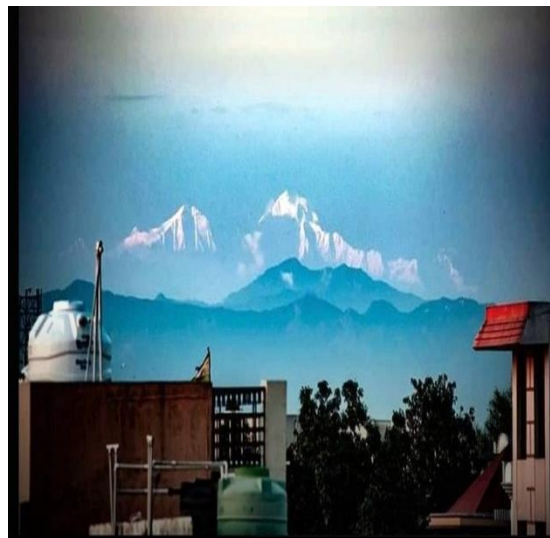
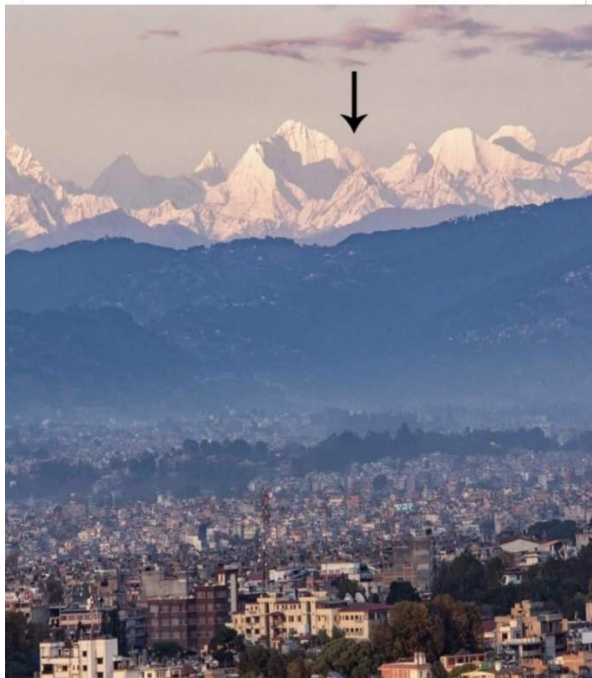
This file combination of pictures taken on March 29, 2020, shows views of Attaba square in the centre of the Egyptian capital Cairo, packed with pedestrians on December 12, 2017 (R) and almost empty on March 25, 2020 (L) before Egyptian authorities imposed a two-week night-time curfew as a measure against the COVID-19 coronavirus pandemic. (Photos by Khaled DESOUKI and MOHAMED EL-SHAHED / AFP) [11]



In India during lockdown 130 crore people were asked to stay at home in view of the Corona Pandemic[14] and millions of registered cars were taken off the road. Over 90 cities including Delhi it has become possible in short period of time the pollution level has come to satisfactory level (1). In 2014 New Delhi was ranked as most polluted city in the world by WHO. The Air Quality Index (AQI) of the capital used to be 200 and sometime beyond the measurable scale when the pollution level hit the peak. [8] The air quality index of Delhi and Mumbai, Chennai, Kolkata, Hyderabad and Bangalore has fallen drastically. AQI fall below 20 and suddenly the sky is blue and the birdsongs seems louder as noise level are also minimum as no honking, no whirr of vehicular engine, no eco of loudspeakers and no clanking of machine in factories. [8] Due to improvement in air quality in India Dhauladhar range had now become visible from Jalandhar in Punjab which is a part of Himalayan Mountain chain in Himachal Pradesh. [9]

Sunil Dahiya an analyst based in Delhi for Centre for Research on Energy and Clean Air (CREA) said that although “pollution is going down but we cannot let the suffering of so many human beings be the way to clean the air” we should take the lesson from corona outbreak because it has really put us in grave situation where the whole world is grappling. There virus has presented opportunity to move in the investment of clean and green energy for future. [10]

For the first time in decades, Mount Everest was visible from Kathmandu due to improved air quality.



इसके पहले जब सहारनपुर से धौलाधार रेंज के पहाड़ दिख रहे थे. तब आईएफएस अधिकारी प्रवीण कासवान ने ट्वीट में लिखा था कि ऐसा बहुत मुश्किल से देखने को मिलता है जब आपको सहारनपुर से बर्फीली चोटियों नजर आने लगे. बता दें कि सहारनपुर से हिमालय के इन चोटियों की दूरी 150-200 किलोमीटर है. (फोटो: ट्विटर/प्रवीण कासवान)

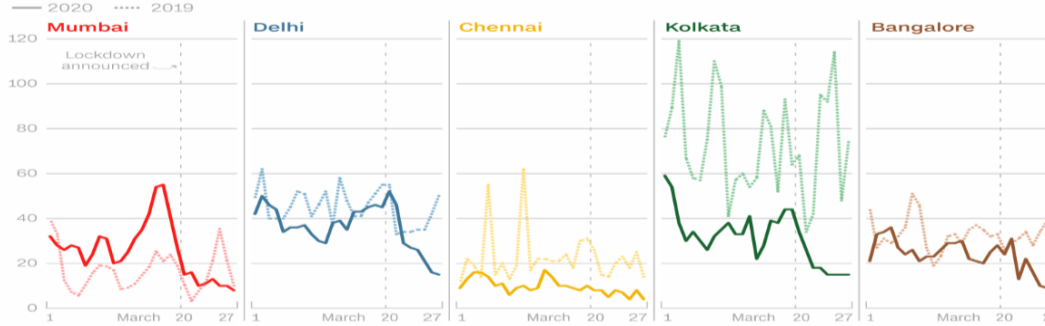
Source: timesofindia.indiatimes.com, 18 May, 2020.

Source: Navbharattimes.indiatimes.com, 29 April, 2020.

Air Quality Report.

NO₂ levels fell dramatically after India's lockdown

Average daily nitrogen dioxide emissions in March, micro grams per square meter



Sources: Centre for Research on Clean Air and Energy; Central Pollution Control Board
Graphic: Natalie Leung; Natalie Croker, CNN

Source: <https://edition.cnn.com>

Not only in the lower part of the atmosphere shown the positive change but the upper part in the stratosphere ozone layer recovered in this time due to low air traffic in significant reduction in Particulate Matter and greenhouse gases[7]. Ozone monitoring instrument used by NASA to observe and analyse the ozone layer pollutants such as aerosols, NO₂ and others, this definitely helped the NASA to interpret the pre and post data of lockdown worldwide. [12]



Earth has several ways of healing itself from any detrimental change, with or without the current COVID-19 lockdown going around the world. A new example of this has just been recorded as scientists confirm that the 1 million square kilometre wide hole over the Arctic has now closed. A rare hole in the ozone layer, spreading over 1 million square kilometre in area, was discovered by scientists earlier this month.

Water Pollution

The quality of water in rivers and beaches is now much clean and clear. Water quality of Yamuna river near Kalindi Kunj in South East Delhi has improved in the lockdown which has been plagued by pollution for years by the heavy amount of toxic foam caused due to mix of sewage, chemicals and detergents from industrial waste as stated by Delhi Jal Board Vice-Chairman Raghav Chadda. [15] Himanshu Thakkar, co-ordinator at South Asia Network on Dams, Rivers and People told to NDTV, the river Ganga near Kanpur and Varanasi

looks cleaner as a result of lockdown and in a rare

source: <http://www.indiatimes.com>

sighting fishes can be seen near the steps of Varanasi ghat because of absence of crowd and increased water flow amount of unseasonal rainfall and snowfall in some parts along with less happening of religious activities specially cremation in Varanasi. [15]The canal water of Venice is cleared and flowing greatly due to settling down of sediments that is caused by boat traffic.[12]

This combination of pictures created on May 13, 2020, shows a general view of the Barceloneta beach in Barcelona, overcrowded on August 21, 2017 (L) and empty on May 13, 2020, during the national lockdown to prevent the spread of the COVID-19 disease. (Photos by Josep LAGO / AFP [11])



According to P K Mishra from Department of Institute of Chemical Engineering, IIT-BHU, as industries (which are major source of pollutants) shut down and people confined at their homes, the Ganga water quality has significantly improved at Varanasi (40 -50 percent improvement). In addition to that locals are not taking bath at ghats which is a common ritual among few community. [16]



A combination photo shows (top) Chinese tourists arriving from Nusa Penida in Denpasar on Indonesia's resort island of Bali and (bottom) a general view of the same pier. (Image: AFP)[13]

The Uttarakhand Pollution Control Board Water (PCBW), of Haridwar test reveals that the river water is fit after chlorination after a decade because of closure of the industries. But this change was only seen in the upper stream as in the lower stream at Varanasi, there has been very little change in this regard. [8]

Noise Pollution

Noise is an unpleasant sound that cause disturbance both for plant and animals. In Indian cities the number of motor vehicles are more than the population due to urbanization. The capacity of roads is not according to the number of vehicles causing long hour traffic jam and honking. To combat the noise issue green vegetation belt specially combination of shrub and trees can help in urban area up to 5-11 dB. [17] The biggest source of noise in the city are honking of vehicles which is recorded 100 dB and sometimes even more. [18] The other sources of sounds in cities are loudspeaker, airplane sound and sound from factories. Delhi is experiencing clean air, water and lower noise. Prashant Gargava the Secretary of CPCB said that the noise pollution level in residential area is 55 dB in day and 45 dB at night which is recorded between 30-40 dB and when the surrounding sound is lower than then the chirping sound (which is measured at 40-50 dB) people get to hear the chirping sound. The Govindpuri metro station area which has usually 100 dB

has reduced to 50 dB now. [18] Not only in Delhi there are various examples of cities where the noise level has reduced during pandemic lockdown.

The other positive impacts on the environment can be seen in governance system-controlled investment toward the sustainable energy transition and goals related to protection of environment. It was argued by researcher prior to COVID-19 pandemic that reduction in economic activities will help to reduce the global warming and pollution and would allow slow flourishing of environment. They also pleaded that biodiversity protection to form part of pandemic recovery stage.[12]

This pandemic has taught us better use of technology. The trend of online teaching and conferencing/meeting was not as such popular as it is today. 99 percent of the teaching, meeting, webinar and conferences were being conducted via online using different tools and apps/software which actually reduces the economic burden, no use of fuel for transportation etc. Institution and people from different countries come together to support the educational institution and system by offering free courses, training programmes and access of libraries for books and journals.

Impact on Bio diversity

One side the nature is healing itself and on the other side the virus was deadly, both were going simultaneously. As human movement and economy is totally altered by COVID- 19 whereas it has shown unexpected effects on bio-diversity. Many wild animals have been seen in the city areas on the deserted roads. The situation is reversed now as wild animals are roaming free while humans are self -isolated. This lockdown has filled the vacuum of wildlife since their number has increased. The death rate of species due to roads kill by cars, trucks and birds hit by air plane are lowered. The example of UK annually accidents by cars and trucks take the life of about 100000 hedgehogs and foxes, 50,000 badgers, 30,000 deer as well as many owls, birds, insects and other species. Besides it delaying in the cutting of roadside wild grass and bushes remaining habitats of wildflowers has provide more pollen to bees this summer.[2]

The demand for fish has lower down causing fishing fleet sit idle around the world. This will definitely increase the biomass of fish. A German scientist Rainer Froese projected that some fish such as Herring in European water could double their numbers. [12] Lower crowd of people in most of the national parks have minimised the wildlife stress. Many wild animals during lockdown have been spotted in public places of cities when people stayed at home. [2]

Coyotes (wolf) have recently been spotted on the Golden Gate Bridge in San Francisco



Source: Photograph: Shannon Stapleton/Reuters

Critically endangered South Asian River Dolphin know as Ganges Dolphin have been spotted back in the Ganga river after 30 years.[8] Dolphin have seen in various part of the country like, in Kolkata, Bihar Vikramshila Gangetic Dolphin Sanctuary, Beas river in Punjab etc. The local of Mumbai says that 10000 of Flamingos have come this year which is massive and unusual. Their number is so large that the whole lake looks pink in colour due to the presence of flamingos. [8]

Dolphin Near Kolkata Ghat seen during Lockdown-



पहली बार 1500 दुर्लभ डायनासोर प्रजाति के घड़ियालों ने लिया जन्म, देखें तस्वीरें



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लॉकडाउन का असर, चंबल तट पर पहली बार 1500 घड़ियालों ने लिया जन्म - trending clicks AajTak



Aajtak.in 17 june,2020

(Timesofindia.indiatimes.co, 25 April,2020)



Source:https://www.indiatoday.in (Flamingoes in Mumbai Lake)

Negative Changes

Many psychological changes have been observed among the children and adults. During prolonged COVID-19 lockdown the number of cases related to domestic violence, divorce and child custody, job loss and salary cut down. [19] Mumbai top in divorce cases followed by Delhi. In Mumbai number of divorce cases have increased nearly three times. Explaining the reason behind the rise in cases, Arvind Singhatiya, founder and CEO, Legalkart said challenges related to work from home and pressure of household work has increased a lot. In many cases it has seen that chances of miscarriage of have increased due to loss of job. People start doubting each other and hesitate to come closer for maintaining social distancing. The world economy has slumped down amid of corona virus as people start losing their jobs. Industries which were providing jobs to masses are now closed and people are wandering and labour class specially the daily wagers are struggling for the bread and butter. This has increased the poverty level. In response to that the behaviour of human being is changing. Many have come forward and helping needy people whereas others are busy in storing the food and services for their own purpose. While staying at home there is no fun like outside. The use of disposable face mask and personal protective equipment and their discard in to the natural environment is adding the burden of plastic waste.

But there is also fear among conservationist groups that fewer staff in many national parks could result in more cases of poaching and illegal logging, mining and pollution in many areas showing threat that the previous effort will go in vain. The efforts to protect ecosystem and species will be reversed. Because of the loss of employment and income of local people they will find new way to feed their family. [2]

Illegal activities have been increasing during corona outbreak such as deforestation in Amazon rainforest and Brazil shown by satellite images and animal poaching in Africa. When there is no other source of income for people, they will definitely get involve in poaching for high value products like rhino horn and ivory. And this is exactly happening in Africa as predicted by Matt Brown of the Nature conservancy. [12]

In Botswana black rhinos are being poached and in Colombia the report of wildlife conservation organisation Panthera tells the rise of poaching of endangered species including wild cats, Jaguars and Pumas while in Indian report says Tigers are being poached as staff and tourist are away from park[4]. Wildlife Conservation Society in New York urges the Government to ban live animal markets and stop illegal trafficking and poaching of animals. These areas are under research and scientist's community are investigating the pandemic lockdown effect because such type of giant human confinement has never happened before.

Most of the experts have the view that no doubt this pandemic has adversely affected the fuel industries the oil prices has gone down, fall in car sale by 44 percent, 83 percent down in motor traffic. [2] The fuel demand of the world has fallen by 10 % amid Coronavirus and the energy economist believe that it may not revive from the crises as the pandemic pushed the fossil fuel into terminal decline. It is predicted that there is a 2 % decline in fossil fuel demand. There is a need to accelerate the clean energy transition by the

governments reported by London based think tank Carbon Tracker. [12] People are learning and using the teleconferences from home. It was advised to the UK government by the head of the Automobile Association to switch investment from building new road infrastructure to widening the internet bandwidth. [2]

The group of Environmentalist pressured the government to take it as a wakeup call. Definitely this covid-19 has taken many lives and taught us various lesson. Matt Walpole of the Flora and Fauna said that there are significant risks by assuming that this short-term slowdown in economic activities will benefit the nature. As rightly said by the UN chief, Inger Andersen that the nature is sending us message and if we neglect planet, we will put our own wellbeing at risk. Now there has been political shift from the individual consumption to collective wellbeing. [2]

The climate diplomacy and environmental policies are not left touched. In respond to pandemic the 2020 United Nation Climate Change Conference was postponed to 2021 as its venue has been converted into field hospital. If the government's prime motive is to just revive the business without taking much care, as usual the temporary gain in the environment will be lost as it is happened in China. The Wuhan city has eased the lockdown with no new cases at the end of March and the level of pollution rising since then. [20]

Forbes

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Carbon Dioxide Levels Just Hit 417ppm, Highest In Human History

By Trevor Nace, Contributor
10 June 2020 at 23:42 • 3 MIN READ



Heavy air pollution is emanating from a Chinese factory smokestack Getty

Country-wide lockdowns and quarantine acted to temporarily decrease emissions of global greenhouse gas. However, as the yearly May benchmark was released it appears to have done little to slow the ever-increasing rise in carbon dioxide in the atmosphere.

May 2020 hit a record high, 417 parts per million (ppm) carbon dioxide as measured at the Mauna Loa Observatory, which has continually measured CO₂ in the atmosphere since 1958.



Heavy air pollution is emanating from a Chinese factory smokestack Getty

Conclusion

The pandemic has brought many challenges with it, but it also has shown the different path to proceed further. Societal shift such as widespread use of telecommuting and technology supporting virtual meeting and conferencing may sustain longer. Although reduction in transportation is a temporal change. For reduction of emission only

structural, behavioural and technological change can help stated by expert. It is important that the environment and biodiversity has improved a lot but the way pandemic has reduced it is horrible. We have to find solution and build new infrastructure and technology to overcome it. Now people and government official are valuing the prediction of scientist modelling in case of disease spread. In urgent crises the government strong action can be taken to deal with such kind of issue specially the issue of climate change

Suggestion

- Work from home will help to improve the quality of environment as the people will use less transportation leading less use of fuel.
- Strict alternate measure of short time lockdown (2 to 4 days) aiming to control the quality of air.
- Similar industrial effluence training is possible by episodically closure and opening to recognise the impact on Water.
- We should move to the option of clean and green energy.
- Government should think widening bandwidth and speed of the internet

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