



Covid-19: Backhanded Compliment of Nature to Mankind

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Abstract

Apparently the anthropogenic disturbances on nature will have a huge repercussion on the existence of all life forms on this planet including humans. For the past 100 years all the natural habitats witnessed unprecedented pressure in the form of pollution, mining, habitat conversion and destruction; invasion of exotic species; hunting and manmade wildfire and the associated climate change events. The aforesaid actions drastically reduced the wildlife habitats and species number. Ultimately the diminished habitat has driven the existing wildlife close to human-dominated habitats, resulting in man-wildlife conflicts and paving the way for the outbreak of zoonotic diseases. Say for instance the recent outbreaks such as Ebola, bird flu, Rift Valley fever, West Nile virus and Zika virus have also originated from wild animals and affected humans. Umpteen times nature gives massive wake-up call to mankind about the wretched conditions of nature. Nature warns mankind in the form of natural calamities and epidemic outbreaks. Obviously instead of spending millions and trillions to contain a disease, it is better to pay attention on sustainable conservation which can help to prevent reoccurrence.

Keywords: COVID 19; Epidemic Outbreaks; Habitat Destruction; Wet Markets

The United Nations Environment Programme (UNEP) has rightly pointed out that humans and wildlife are part of one connected system. Nature provides shelter, water, food, medicine, clean air and many more immeasurable benefits to all living forms including humans. On the other hand, the anthropogenic disturbances on nature will have a huge repercussion on the existence of all life forms on this planet including humans [1].

For the past 100 years all the natural habitats witnessed unprecedented pressure in the form of pollution, mining, habitat conversion and destruction; invasion of exotic species; hunting and manmade wildfire and the associated climate change events. The aforesaid actions drastically reduced the wildlife habitats and species number. Ultimately the diminished habitat has driven the existing wildlife close to human-dominated habitats, resulting in

man-wildlife conflicts and paving the way for the outbreak of zoonotic diseases. Obviously most of the human-wildlife conflicts are lethal to both; however, mankind faces more casualties, livelihood and economic losses. The UN, World Health Organization (WHO) and subject experts have mentioned that the combined consequences of the ongoing habitat destruction, wet markets and climate change events play a crucial role on the outbreak of the deadliest coronavirus COVID-19 [1]. It is therefore time for us to realize that a live shark is worth more than a dead one.

Habitat destruction

Habitat destruction is nothing but the clearing or modifying of the conditions which are necessary for plants and animals for their survival in a habitat. It is one of the greatest challenges faced by wildlife around the world since ages. A report from the IPBES

(Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) says only one-quarter of land areas and one-third of oceans remain relatively undamaged by human activity. Particularly the forest areas have experienced huge loss from time immemorial. For instance, around 15 billion trees are being cleared every year for various purposes. According to the CBD (Convention on Biological Diversity) nearly 160,000 square km of forest land were cleared every year during the 1990s. However, it has been reduced to 50,000 square km/year from 2000 to 2010. Undoubtedly, this kind of conversion affects not only the wildlife but also mankind in different ways including calamitous outbreaks [2].

Felicia Keesing, ecologist, Hudson Valley, USA, opined in her recent interview about the COVID-19 pandemic that whenever there is a problem to biodiversity, it ultimately reflects on human health and human existence. Keesing says that the impoverished forest habitat in the USA affects the population of opossum, an endemic marsupial of America, resulting in the increased occurrence of Lyme disease caused by ticks. Interestingly, opossum regularly feed on ticks; naturally, the absence of opossum increases the occurrence of Lyme disease [3].

Mounting evidence has highlighted that outbreaks of new diseases are directly proportionate with habitat and species depletion. The WHO has also enshrined in its most recent report that the denatured habitats accelerate the pathogens' evolutionary processes and diversification of diseases [1]. As a result of habitat destruction, wildlife and humans are forced to coexist/share the same landscape; naturally the new pathogens can effortlessly spread from wildlife to livestock and humans. SARS was also supposedly transmitted from civet cats to humans and MERS originated from dromedary camels. The UN has also emphasized that the recent outbreaks such as Ebola, bird flu, Rift Valley fever, West Nile virus and Zika virus have also originated from wild animals and affected humans. Thus, there are more chances that COVID-19 could also have emerged from wild animals [1].

It is worth to mention here that habitat destruction affects not only humans but also other life forms living in far-off places. Researchers have stated that Kenya witnessed an unprecedented locust outbreak only due to Australian bushfires [4]. The continuous degradation of habitats and the ongoing climate change events have brought the wildlife and humans to live in close proximity, which facilitates for more and more outbreaks because naturally the wild

species have their own set of pathogens and parasites (beneficial and harmful) which can be easily transmitted to humans.

Wet markets

Wildlife trade has been phenomenal over the past few decades, and minting of money in wet markets has become the cynosure of all eyes [1]. CITES (Convention on International Trade of Endangered Species of Wild Fauna and Flora) has mentioned in its report that the billion-dollar transnational illegal wildlife trade plays a crucial role on the outbreak of new epidemic zoonotic diseases. At this moment, the WHO also opined that animals are the likely source of COVID-19, especially bat which is the most probable carrier. However, experts are not able to pinpoint the source of the coronavirus at present, although they have predicted that it may be from the wet markets of China. To support this, a study in 2002-03 about the SARS outbreak mentioned that horseshoe bats are the reservoir of SARS-CoV-like viruses [4]. Interestingly horseshoe bats and other exotic mammals are widely cultured and marketed in southern China.

Aside from China, several sub-Saharan African countries and some Asian countries are also harbourers of wet markets. Samyukta Chemudupati, trainer in the use of forensics in wildlife crime, India, says that global communities need to share the information to understand how the illegal wildlife trade helps to transmit new zoonotic diseases. Further, she added, the pet animal trade is also a very big issue and deserves immediate investigation on its role on outbreaks and she also recommended for a blanket ban [1,5].

According to Felicia Keesing, wet markets are known to sell unique and rare live exotic species. Evidently most of the species that are available in the wet market do not naturally occur in any ecosystem/landscape. The well-organized transnational illegal wildlife trade has made it possible, i.e. pool the animals that are originated from different ecosystems/landscape. Most of the wet markets sell numerous endangered and other exotic species. Say for example, many South Asian wet markets sell pangolin, which was declared as critically endangered by the IUCN. In general, most of the exotic species harbour unique set of ecto- and endo-parasites and pathogens which could trigger outbreaks [1].

In general, exotic animals are transported from long distances and crammed together into small cages known for its mediocre quality. They are under tremendous stress with poor immunity

and periodically shedding/excreting whatever pathogens they have. The sellers and buyers unknowingly have contact with the body parts and the fluids of these animals and act as carrier, host and transformers of the lethal pathogens to far-off places. Naturally in a new environment the introduced pathogens start to express invasive behaviour, *i.e.* rapid multiplication, and subsequently try to establish its population/colony in a predatory-free environment; mostly the human body is ideal for this. Keesing says that obviously we are running an uncontrolled experiment with multi-species of pathogens and parasites resulting in the emergence of calamitous outbreaks. Often, they become virulent and infect mankind and shatter the global economy [1].

Recently the UN also stated that the wet markets are the ideal mixing bowl of different pathogens, so it has urged the global leaders to shut all such markets immediately. Interestingly China's legislature initiated actions to curb the wildlife trade and the consumption of wild animals. Pertaining to India, Samyukta Chemudupati says even though we have Wildlife Protection Act, 1972 and Wildlife Crime Control Bureau (WCCB), Indians regularly consume huge variety of wildlife and are actively involved in wildlife trade [1,5].

Climate change

Planet Earth has witnessed five mass extinctions due to volcanic activity, collision of asteroids and climate change. Countless species including dinosaurs were wiped out from the planet during such mass extinctions. The species whatever we have now are those that have escaped from the previous extinctions. Astonishingly the current biodiversity has 65 million years of evolutionary history. Now the planet has started to experience its sixth mass extinction called Anthropocene extinction. The IPBES reported in 2019 that one million species are now at risk of extinction and evidently the ongoing climate change plays a major role [2].

According to the WWF, global warming resulting from human emissions of greenhouse gases is warming the planet faster than at any time in the past 10,000 years. These changes forced the wildlife to adapt to a new climate pattern which will drastically affect mere existence of the species. As a response to the increasing climate, species have to migrate in order to find a suitable place. WWF have estimated that most species on this planet will have to migrate faster than 1,000 metres/year and naturally a large number of species have the chance to go close to human-dominated landscapes. In

support of this, recent studies have pinpointed that climate change has driven the aggressive polar bears towards areas where people live. Pertaining to India the movement of tigers, leopards, wild tuskers, rhinos, bison and deer in urban landscape can be correlated with climatic events [2].

Inger Andersen, executive director of the UNEP, said the ongoing climate crisis has played a crucial role on the COVID-19 pandemic. She added mankind recklessly put huge pressure on natural habitats and to reciprocate, nature is sending us COVID-19. Andersen said that the COVID-19 outbreak was a 'clear warning shot' about the existence of similar disease causing pathogens that abound with wildlife. She explained that 75% of all emerging infectious diseases come from wildlife; so we should stop playing with fire (nature) [4].

Moreover a recent conference on indigenous rights, held at New York, mentioned that COVID-19 and other health endemics are directly coupled to climate change and deforestation. Levi Sucre Romero, an indigenous person from Costa Rica, mentioned that if we do not help to protect biodiversity and nature, we will face even worse threats. He also pointed out that COVID-19 again reminds us of the need to maintain the balance of diversity of Earth. He also extended that people have to keep in mind that more than 25% of medicines only come from forests. If we lose our forests we lose our medicines too. In this context the UN clearly said that if the natural systems are modified continually, mankind has to pay a huge price [6].

Lessons haven't been learned

For the past few decades mankind witnessed the outbreaks of several new zoonotic diseases such as SARS, Zika, Nile virus, Rift Valley fever and Ebola and the list seems unending. These outbreaks caused permanent damages to global economy, livelihood and human life. The available reports established that the global community faced a loss of US \$100 billion and also highlighted that it will reach several trillion dollars if the outbreaks had become calamitous pandemics. Pertaining to India, 1.7 lakh crore was announced as a lockdown package for COVID-19 [7]. On the other hand most of the poor third world countries are at risk during these pandemics and paradoxically they are paying a huge price every time.

Umpteen times nature gives massive wake-up call to mankind about the wretched conditions of nature. Nature warns mankind in

the form of natural calamities and epidemic outbreaks. Ironically every country, international organization and researchers are up in arms for a few days and then go back to their routine business.

In fact every year habitat degradation, pollution and wildlife trade are spiralling. Besides, countries have started to impose new bills and acts to justify/legitimate their looting. Brazil recently passed a bill called Bill 191 which paves the way for large-scale mining and agriculture in indigenous lands. It is worth to mention here that Brazil has 15-20% of world's biodiversity with a commendable number of endemic species. Interestingly every year 700 new species are discovered from this region. Bill 191 will have huge impacts on this diversity [6]. Who knows if the medicine for the next global pandemic can be found in this region.

If we study the mind-set of the global community we can find that we haven't learned any lesson from our past misdeeds and have completely failed to decode the nature's warning messages. Obviously it is the apt time to stop our perpetual war against nature.

Self-restoration of nature

Interestingly the COVID-19 outbreak has been effectively utilized by nature to repair itself. Most of the countries imposed a nation-wide lockdown to contain COVID-19 which has completely arrested all sorts of vehicle transport including shipping activity. The species which are driven out by humans from their natural habitats are back to their original home. Civet cats have started to roam on Kerala streets, deer have been spotted in Noida streets. Residents of Alipiri, Tirupati, have seen sambar and wild boars in large numbers. After several decades, Dighalipukhuri Lake of Assam witnessed the flock of lesser whistling ducks. Residents mentioned that boating and other recreational activities in the lake restricted the migratory species movement and now the bird lovers thank the lockdown. On top of that, the restriction of people and fishing trawlers in Rushikulya Rookery, Odisha, witnessed the mass congregation of Olive Ridley turtles and officials witnessed day-time mass nesting for the first time in several decades [8-11].

Besides, the lockdown has brought down the air pollution level drastically in several cities across the national boundaries. For example, 64-83% decline of nitrogen dioxide was reported from the major cities of Spain. Paris reported 20-30% decline in overall

air pollution levels just in the second day of the self-confinement. Compared to previous five years UK announced a low level of air pollution. Likewise, Columbia University's Earth Institute documented a 50% drop in carbon monoxide at New York. In most of the cases, the drastic decline was reported in the first week of self-confinement, obviously during the end of lockdown it will decrease more but still cannot reach ground zero [12].

Jacqueline Klopp, co-director of the Earth Institute's Center for Sustainable Urban Development, USA, says that it is an important learning moment for the global community; we should think that nine out of ten people live in highly polluted air environment which directly kills an estimated 7 million people each year. Now we can just compare the global life loss of COVID-19 and life loss caused by air pollution. She added that global community needs to rethink before getting the economy in a normal state by just putting it back into the same polluting industries. She has recommended for more research and investment in electric vehicles and renewable energy. Further, during our economy rescue plans we assure ourselves that we are investing in things that can give us a better future. The same was stated by Mary Robinson, former Irish president and UN high commissioner for human rights [4]. She says that global communities are going to invest a huge amount to sustain the jobs and livelihoods for the COVID-19 victims and she urges the global leaders to do it with a very strong green emphasis. Further, she added the threat from climate change is as real as the threat from COVID-19, though it seems far away. As far as the climate is concerned we must not go back to old unhealthy habits afterwards. It is easy for us to persuade people during a crisis. Obviously it is high time to revamp our old notion and ideology on biodiversity and environmental issues. Instead of spending millions and trillions to contain a disease, it is better to pay attention on sustainable conservation which can help to prevent reoccurrence.

Conclusion

It is worth to conclude with the words of Lord Sri Krishna: Whenever and wherever there is a decline in virtue and a predominant rise of irreligion at that time I descend myself, as an embodied being. Since god is the 'Nirakar Nirguna' whenever we destroy nature he himself descends in the form of natural calamities and epidemic.

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