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COMPARING THE NOVEL CORONAVIRUS TO THE IMPEDING ENVIRONMENTAL AND CLIMATE CHANGE DEVASTATION

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ABSTRACT:

Nature is alarming us a message with the coronavirus pandemic and the ongoing climate crisis, according to the research scientists of environment, and humanity was placing too many pressures on the natural world with damaging consequences, and warned that failing to take care of the planet meant not taking care of ourselves. Environmental Science is about discovering, understanding, explaining and predicting patterns in natural phenomena, producing more accurate explanations of how the natural world works (Bertolaso, 2013; Robson & McCartan, 2016), regardless of potential applications. It is the result of deep curiosity and its goal is the pursuit of knowledge for its own sake (Crane, 2014). For the most part, science uses, quantifiable inquiry that often involves testing researchable hypotheses, usually by means of a progressive research program, with data and experiments (Lakatos, 1970; Fisher, 1990; Goggin, 1986). In doing so, it may overturn networks of belief (Kuhn, 1970). Falsifiability is a virtue in a scientific theory (Lakatos, 1970), and science could be seen simply as an accepted process for establishing truth through repeatable observation and experimentation (Popper, 1953; 1959). This careful, rational, self-critical method of discovering knowledge provides a pathway to escape the contingencies of history (Ledford, 2015). Humanity historically has applied scientific knowledge to solve problems, take decisions and reach today's level of development. Although today *technology*[1] has come often to mean only the development and use of tools, techniques and machinery, here we refer to the broader process of the "organization of knowledge applied to further the efforts of human practices" (Jenkins, 1998); the application of knowledge, inventing and changing the world (The Nature of Technology, 1990). Jacob Bigelow (1829) is often credited with coining the term *technology* in *Elements of Technology*, where it was defined as "the principles, processes, and nomenclatures of the more conspicuous arts, particularly those which involve applications of science" (Hansson, 2015).The strength of the relationship between science and technology was recognized by Lynn White.

Leading research scientists also said the Covid-19 outbreak was a "clear warning shot", given that far more deadly diseases existed in wildlife, and that today's civilization was "playing with fire". They said it was almost always human behaviors that caused diseases to spill over into humans. We are intimately interconnected with nature, whether we like it or not. If we do not take care of nature, we cannot take care of ourselves. It is almost always a human behavior that causes it and there will be more in the future unless we change.

Keywords: Environment and Climate change linked to Coronavirus. (COVID-19)

INTRODUCTION:

Environment and Climate change has already made conditions more favorable to the spread of some infectious diseases, including Lyme disease, waterborne diseases such as Vibrio parahaemolyticus which causes vomiting and diarrhea, and mosquito-borne diseases such as malaria and dengue fever. Many of the root causes of climate change also increase the risk of pandemics. Deforestation, which occurs mostly for agricultural and industrial purposes, is the largest cause of habitat loss worldwide. Loss of habitat forces animals to migrate and potentially contact other animals or people and share germs. Large livestock farms can also serve as a source for spillover of infections from animals to people. Since climate also acts by influencing habitats, landscape-based modeling is also useful. This entails combining the climate-based models described above with the rapidly-developing use of spatial analytical methods, to study the effects of both climatic and other environmental factors (e.g. different vegetation types – often measured, in the model development stage, by ground-based or remote sensors). This type of modelling has been applied to estimate how future climate-induced changes in ground cover and surface water at global level would affect more and other natural disasters.This describes the climatic influence on the actual distribution of the disease, given prevailing levels of human intervention (disease control, environmental management, etc.). By then applying this statistical equation to future climate scenarios, the actual distribution of the disease in future is estimated, assuming unchanged levels of human intervention within any climatic zone. These models have been applied to climate change impacts on malaria, dengue fever and, within the USA. We have many reasons to take climate action to improve our health and reducing risks for infectious disease emergence is one of them, change is impacting human lives and health in a variety of ways. It threatens the essential ingredients of good health, clean air, safe drinking water, nutritious food supply, and safe shelter and has the potential to undermine decades of progress in global health. Climate change may shift habitats and bring wildlife, crops, livestock, and humans into contact with pathogens to which they have had less exposure and immunity. Changes in rainfall and temperature, for example, can affect the availability of food eaten by animal hosts, such as bats, chimps, pangolin, and deer. The resulting changes in the size and range of their populations may bring them into closer contact with humans.

Another major cause of species loss is climate change, which can also change where animals and plants live and affect where diseases may occur. Historically, we have grown as a species in partnership with the plants and animals we live with. So, when we change the rules of the game by drastically changing the climate and life on earth, we must expect that it will affect our health. For example, climate change can cause flash floods on land and sweep human sewage into the sea. When this happens, some of these viruses might contaminate shellfish, for example, leading to higher levels of disease in humans.

METHODOLOGY:

We have known for some time that 2020 was going to be a milestone year for the climate change crisis, requiring a radical reversal of the current trajectory in global greenhouse gas emissions. But what we did not know was that we would also face a global health crisis this year. The decisions we make now to tackle this imminent threat will affect us for generations to come, including our ability to halt global warming. The coronavirus tragedy has shown that we are only as safe as the most vulnerable among us and that cross-border threats require global, systemic solutions, as well as individual behavior changes. Despite these gains in researching, analyzing, and understanding climate change, a great deal of basic scientific work remains in clarifying the state of scientific opinion on the anthropogenic causes of climate change and ways to mitigate their effects. In addition, the international community needs to expand cooperation efforts in collecting data on the effects of climate change to facilitate adaptation and early warning systems.

***Rationale**: We used key parameters of epidemic spread to estimate the contribution of different transmission routes with a renewal equation formulation, and analytically determined the speed and scale for effective identification and contact tracing required to stop the epidemic.*

DISCUSSION:

Climate change seems, to many, an Armageddon in slow motion and its dangers can feel impersonal and its causes diffuse. It is easy to think "I didn't cause this" or that "it doesn't directly affect me." But there is another way to look at it. Like COVID-19 if you are concerned about climate change. The first point is obvious: climate change and coronavirus share a similar magnitude, affecting every country on earth. With regard to the second, Levy notes that both crises affect different nations, and different communities, with varying degrees of severity. Climate change is not the cause of the COVID-19 coronavirus; however, it may cause a virus like COVID-19 to become worse, according to hosted by the Harvard Center for Climate Heath & Global Environment. Although it is too early to tell what direct impacts Climate Change has had on the spread of the coronavirus, evidence supports that climate change could indirectly impact the spread of the illness, infectious diseases, and other immerging viruses with flu-like symptoms across the globe. According to T.H. Chan School of Public Health, the continuous burning of fossil fuels causes air pollution and climate change, and an increase in air pollution is the cause of many respiratory issues especially in underserved, low-income, urban communities with little access to healthcare. This increase in air pollution leads to a decrease in lung health, and a decrease in lung health allows for bacterial and viral pathogens (a bacteria, virus or microorganism that can cause disease) such as COVID-19 to thrive and become worse.

Many cases of pneumonia around the world are caused by air pollution; pneumonia is one of the symptoms of COVID-19 and could be exacerbated by poor lung health due to air pollution. Exposure to air pollution leads to a higher risk of respiratory infections and the higher your respiratory infection risk, the higher your chances are of becoming infected with a respiratory virus like COVID-19.

"Climate change solutions are pandemic solutions," officials in the webinar stated. There is a complex interaction between our global environment, climate change, and our health. Therefore, international relations dealing with our global and physical health are paramount. Most countries across the globe have now implemented a suite of strategies to reduce transmission of the novel coronavirus (2019-nCoV) and mitigate the effects of the COVID-19. The virus is known to have originated in the port city of Wuhan, in the central Hubei province, China. At the time when the first case was recognized, Wuhan was experiencing its winter season, where the average temperatures can range from 1 to 11 degrees Celsius. However, for the first time, China is also reporting no new local cases. And conducted a rapid review of evidence to explore if climate conditions may influence the spread of (SARS-CoV-2. Given the tremendous impact of this pandemic on people’s lives combined with the fact that many experts believe that global heating and other environmental disturbances could facilitate the development of more novel viruses such as COVID-19, We would like to explain how climate change relates to the transmission and spread of infectious diseases. Rising global temperatures, coupled with the increasing frequency of extreme weather events, are predicted to cause changes in the seasonality, geography, and intensity of infectious diseases. According to the United States Agency for International Development, about 75% of all emerging and re-emerging infectious diseases are zoonotic – meaning they come from animals. These include, among others, SARS, H5N1 avian flu, and the H1N1 influenza virus. An increasing number of animal carriers of diseases are changing their behavior and migrating to new areas due to climate change and habitat loss.

This, coupled with our search for alternative sources of food to meet our needs, increases the chances that humans will come into contact with animal carriers and become infected. Human intervention in the environment, like the massive deforestation of the Amazon, not only causes a decrease in biodiversity but also forces many wild animals to find new habitats, driving them closer to populated areas and into close contact with humans. This creates opportunities for pathogens to move from animals to humans and significantly increases the likelihood of epidemic outbreaks. Large areas of intact natural habitats act as natural barriers that separate humans and wild animals and keep them safe from one another. A rich diversity of wild animal populations stems the spread of epidemic diseases, known as the "dilution effect." This is because the higher the species variation, the lower the density of potential hosts for a virus. Species variation decreases the number of highly susceptible populations in a species, which lowers the probability of transfer to humans. We invade tropical forests and other wild landscapes, which harbor so many species of animals and plants and within those creatures, so many unknown viruses. We cut the trees; we kill the animals or cage them and send them to markets. We disrupt ecosystems, and we shake viruses loose from their natural hosts. When that happens, they need a new host. The World Health Organization is reporting on how transmission patterns of infectious diseases will change because of climate change. There is a need to learn more about these complex cause-and-effect relationships and apply this information using integrated models to predict, as far as possible, the future impacts of climate change on the transmission and spread of infectious diseases. We have to wake up. The coronavirus is the first lesson of its kind at this magnitude to make inroads into our psyche and blood. It will not be the last, but if we do not change the way we behave, by then it will be too late. Worse viruses like cousins of Ebola may well ensue. Our food resources and ability to care for the environment will become increasingly challenged over the next generation. All of which will depend on climate. Once the worst of the coronavirus is past can we not forget the overwhelming immunological danger that comes from the pronounced heat of the world. The heedless ones are the bureaucrats who can pour 2 trillion in immediate aid, which the country needs but who willfully neglect the less obvious trillions needed to combat global warming. Their eyes are on corporate profits. Their vision is myopic and heedless. We need to care for the body, but we cannot neglect our house, the Earth. The International response to THE COVID-19 pandemic has shown that massive behavioral changes from social distancing to reduced airline travel are indeed possible on a global scale. It is not clear that the lessons of the coronavirus can be applied to climate change, however, because the two policy problems differ in fundamental ways, most obviously in their time horizons. COVID-19 is an immediate once-in-lifetime even that threatens human lives in the here and now. Climate change, in contrast, is a gradually unfolding planetary challenge whose many implications will only become truly manifest in coming decades.

It is commonplace in politics for the urgent to overwhelm the important. This is particularly true when the former inspires panic and the latter permits procrastination. Defeating the coronavirus requires societies and individuals to suffer acute, short-term pain, in the expectation that the pandemic will pass, and economies will quickly recover. Decarbonization implies something more daunting: a transformation of the entire global economy, with attendant dislocation, to avoid a catastrophe that sense is coming, but are only beginning to feel. One should not assume that we are going to be rescued by a change in the weather. You must assume that the virus will continue to do its thing. Because humanity has never before encountered this new coronavirus, the vast majority of the population is highly susceptible to infection. That widespread vulnerability will likely overwhelm any temperature effect on transmission rates, according to a study that modeled the effect of varying levels of seasonality on transmission, posted at medRxiv.org. Perhaps the most important lesson of the coronavirus is that if we don't prepare now, and start thinking about how to stop problems before it's too late, we're risking everything we care about: our homes, our jobs, and the health of our loved ones. This is where the virus has something very important to teach us if we are willing to learn. The climate crisis is going to be many, many times worse. It may happen more slowly but let us not kid ourselves. Greater disease transmission, food shortages, energy blackouts, floods, homelessness, joblessness, species extinction each will stagger us and then do so again. For the first time, a pandemic has brought many of the world's major economies to a virtual standstill. Supply chains have been disrupted and the free movement of people restricted. No one knows how long this will last, or how severe a blow it will land on the global economy. But when the dust clears, the air will be clearer. One of the most striking effects of the global spread of Covid-19 has been the reduction in pollution from nitrogen dioxide and carbon dioxide. Millions of people around the world have virtually stopped traveling by car, airplane, or even leaving their homes. Factories are shut down. Manufacturing is grinding to a halt. Personal and professional lives are moving online as social distancing becomes required.

CHANGES IN THE ENVIRONMENT:

Human activities have resulted in major changes in the environment. By altering land use for settlement, agriculture, logging, extractive or other industries and their associated infrastructure humans' fragment and encroach into animal habitats. They destroy the natural buffer zones that would normally separate humans from animals and create opportunities for pathogens to spill over from wild animals to people. Climate change primarily the result of greenhouse gas emissions–exacerbates the situation. Changes in temperature, humidity and seasonality directly affect the survival of microbes in the environment; and evidence suggests that disease epidemics will become more frequent, as the climate continues to change. Rapid climate change is challenging to those with fewer resources for responding quickly, leaving them more vulnerable and amplifying their risk of harm from the spread of zoonotic disease.

Pathogens change genetically (mutation) as they evolve which allows them to exploit new hosts and survive in new environments. One example of this is the emerging resistance of pathogens to antimicrobial drugs–such as antibiotics, antifungal, antiretroviral and antimalarials–often resulting from the misuse of the drugs, either by people or in veterinary medicine.

Between 2030 and 2050, climate change is expected to cause approximately 250 000 additional deaths per year, from malnutrition, malaria, diarrhea, and heat stress alone. The direct damage costs to health is estimated to be between USD 2-4 billion per year by 2030.Areas with weak health infrastructure mostly in developing countries will be the least able to cope without assistance to prepare and respond. WHO supports countries in building climate-resilient health systems and tracking national progress in protecting health from climate change? Is the same human activities that are destabilizing the Earth’s climate also contribute directly to poor health? For example, the main driver of climate change, fossil fuel combustion, also contributes about 2/3 of human exposure to outdoor air pollution, which causes over 4 million deaths a year. Including indoor air pollution brings the total to over 7 million deaths worldwide every year about 1 in every 8 deaths. There are three categories of research into the linkages between climatic conditions and infectious disease transmission. The first examines evidence from the recent past of associations between climate variability and infectious disease occurrence. The second looks at early indicators of already-emerging infectious disease impacts of long-term climate change. The third uses the above evidence to create predictive models to estimate the future burden of infectious disease under projected climate change scenarios. The global shutdown caused by the virus has inadvertently become the biggest experiment ever in the reduction of greenhouse gases. Many environmentalists see this as an opportunity to make significant strides in preventing serious outcomes from climate change.

HISTORICAL EVIDENCE:

There is much evidence of associations between climatic conditions and infectious diseases. Malaria is of great public health concern and seems likely to be the vector-borne disease most sensitive to long-term climate change. Malaria varies seasonally in highly endemic areas. The link between malaria and extreme climatic events has long been studied in India, for example. Early last century, the river-irrigated Punjab region experienced periodic malaria epidemics. Excessive monsoon rainfall and high humidity was identified early on as a major influence, enhancing mosquito breeding and survival. Recent analyses have shown that the malaria epidemic risk increases around five-fold in the year after an El Niño event.

EARLY IMPACTS OF CLIMATE CHANGE:

These include several infectious diseases, health impacts of temperature extremes and impacts of extreme climatic and weather events. The main types of models used to forecast future climatic influences on infectious diseases include statistical, process-based, and landscape-based models These three types of model address somewhat different questions. Statistical models require, first, the derivation of a statistical (empirical) relationship between the current geographic distribution of the disease and the current location-specific climatic conditions. This describes the climatic influence on the actual distribution of the disease, given prevailing levels of human intervention (disease control, environmental management, etc.). By then applying this statistical equation to future climate scenarios, the actual distribution of the disease in future is estimated, assuming unchanged levels of human intervention within any particular climatic zone. These models have been applied to climate change impacts on malaria, dengue fever and, within the USA, encephalitis. For malaria, some models have shown net increases in malaria over the coming half century, and others little change. Process-based (mathematical) models use equations that express the scientifically documented relationship between climatic variables and biological parameters e.g., vector breeding, survival, and biting rates, and parasite incubation rates. In their simplest form, such models express, via a set of equations, how a given configuration of climate variables would affect vector and parasite biology and, therefore, disease transmission. Such models address the question: "If climatic conditions alone change, how would this change the potential transmission of the disease?" Using more complex "horizontal integration", the conditioning effects of human interventions and social contexts can also be incorporated.

This modelling method has been used particularly for malaria and dengue fever. The malaria modelling shows that small temperature increases can greatly affect transmission potential. Globally, temperature increases of 2-3ºC would increase the number of people who, in climatic terms, are at risk of malaria by around 3- 5%, i.e. several hundred million. Further, the seasonal duration of malaria would increase in many currently endemic areas.

Since climate also acts by influencing habitats, landscape-based modeling is also useful. This entails combining the climate-based models described above with the rapidly-developing use of spatial analytical methods, to study the effects of both climatic and other environmental factors (e.g. different vegetation types – often measured, in the model development stage, by ground-based or remote sensors). This type of modelling has been applied to estimate how future climate-induced changes in ground cover and surface water in Africa would affect mosquitoes and tsetse flies and, hence, malaria and African sleeping sickness. Changes in infectious disease transmission patterns are a likely major consequence of climate.

PREVENTING THE VIRUS:

The virus is new and has not been studied well; however there are methods every individual should take when possible. Firstly, people should not be out in public if they can do so. It is unnecessary for individuals contact each other physical because this only increases the chances of the virus spreading. Secondly, wearing protective equipment such as masks and gloves are essential if people need to be out for any reason. Protective gear and good hygiene greatly help to prevent any virus infection in the case of physical activities. Above all, people should pay attention to experts in the field, ones who realize the virus is not just a pandemic, but a threat to the internal structures of society. Some authorities are people who care about short-term goals such as holding their positions or opposing lockdowns, therefore putting lives at stake. As Carl Sagan said ‘Perhaps a better way to say it is that in science there are no authorities; at most, there are experts. Even though there are precautionary measure that have been advised, the virus is new, so it is important to be as careful as possible.

Examples of how diverse environmental changes affect the occurrence of various infectious diseases in humans.

Environmental Changes	**Example Diseases**	**Pathway of Effect**
Dams, canals, irrigation	Schistosomiasis	Snail host habitat, human contact
	Malaria	Breeding sites for mosquitos
	Helminthiases	Larval contact due to moist soil
	River blindness	Blackfly Breeding, disease
Agricultural Intensification	Malaria	Crop insecticides and vector resistance
	Venezuelan hemorrhagic fever	rodent abundance, contact
Urbanization, urban crowding	Cholera	sanitation, hygiene; water contamination
	Dengue	water collecting trash, Aedes aegypti mosquito breeding sites
	Cutaneous leishmaniasis	proximity, sand-fly vectors
Deforestation and new habitat	Malaria	Breeding sites and vectors immigration of suspectable people.

	Oropouche	contact, breeding of vectors
	Visceral leishmaniasis	proximity, sand-fly vectors
Reforestation	Lyme disease	tick hosts, outdoor exposure
Ocean warming	Red tide	Toxic algal blooms
Elevated precipitation	Rift valley fever	Pools for mosquito breeding
	Hantavirus Pulmonary syndrome	Rodent food, habitat, abundance

The overall cost to human wellbeing, and to economies, is enormous. Air pollution alone costs an estimated US$ 5.11 trillion in welfare losses globally each year. In the 15 countries with the highest greenhouse gas emissions, the health impacts of air pollution are estimated to cost more than 4% of their GDP. Public concern over the health impacts of air pollution is an increasing driver of social movements for action on climate change and overall environmental protection. Meeting the Paris goals would result in health gains which are twice as large as the costs of the mitigation measures from improved air quality alone. The health gains of climate action go well beyond air quality. They range from more sustainable diets and food systems addressing the rising burden of disease associated with overweight and obesity, to urban transport systems that facilitate walking and cycling, and bringing health gains from increased physical activity. Weighing in both the impacts of health-damaging business-as-usual policies and the massive health co-benefits of ambitious climate policy, drives climate policies that are more ambitious and health-promoting. Though here is one thing, however, that almost all health shocks have in common: they hit the poorest and the most vulnerable the hardest. They act as poverty multipliers, forcing families into extreme poverty because they have to pay for health care. At least half of the world's population does not enjoy full coverage for the most basic health services. When health disasters hit and in a business as usual scenario they will do so increasingly global inequality is sustained and reinforced, and paid for with the lives of the poor and marginalized.
To combat climate change, we need to drastically decrease our greenhouse gas emissions from fossil fuels like coal, oil and natural gas. Generating electricity from low-carbon energy sources like wind and solar decreases harmful air pollutants such as nitrogen oxides, sulfur dioxide, and carbon dioxide that lead to more heart attacks and stroke as well as obesity, diabetes, and premature deaths that put further strains on our health care systems. Reducing air pollution also helps keep our lungs healthy, which can protect us from respiratory infections like coronavirus. When COVID-19 eases, and we are ready to restart our economy, we can make our workforce healthier and more climate-resilient through scaling-up our investments in low-carbon technologies.

ECOSYSTEMS INTEGRITY AND HUMAN HEALTH:

Ecosystems are inherently resilient and adaptable and, by supporting diverse species, they help to regulate diseases. The more biodiverse an ecosystem is, the more difficult it is for one pathogen to spread rapidly or dominate.

Human action, however, has modified wildlife population structures and reduced biodiversity at an unprecedented rate, producing conditions that favor particular hosts, vectors and/or pathogens. For example, genetic diversity provides a natural source of disease resistance among animal's populations, whereas intensive livestock rearing often produces genetic similarities within herds and flocks, making them susceptible to pathogen spillover from wild animals. Similarly, biodiverse areas enable disease-transmitting vectors to feed on a larger variety of hosts, some of which are less effective pathogen reservoirs. Conversely, when pathogens occur in less biodiverse areas, transmission can be amplified, as has been shown in the case of West Nile Virus and Lyme Disease.

UNEP Executive Director, Inger Andersen has observed that, "We are intimately interconnected with nature, whether we like it or not. If we do not take care of nature, we can't take care of ourselves." The significantly lower level of human activity might lead to greater visibility of the diverse assemblage of species that live in urban areas and that often go unnoticed by the average human inhabitant.

WHAT CAN BE DONE?

Addressing zoonotic disease emergence requires addressing its root cause–primarily, the impact of human activities on ecosystems. This means recognizing the close relationships between human, animal, and environmental health. It means increased monitoring of human and wildlife health in landscapes that are at the beginning of transformation process to develop baselines, improve understanding and preparedness for potential outbreaks, and inform development to minimize risks to both humans and nature. And it calls for collaborative, multi-sectoral, trans-disciplinary and international efforts, as encapsulated by the One Health approach. With a global population nearing 10 billion, Andersen is emphatic that 2020 is "a year when we will have to fundamentally re-shape our relationship with nature."

UNEP, the UN Food and Agriculture Organization, and hundreds of partners across the planet are launching a 10-year effort to prevent, halt and reverse the degradation of ecosystems worldwide. Known as the UN Decade on Ecosystem Restoration 2021-2030, this globally-coordinated response to the loss and degradation of habitats will focus on building political will and capacity to restore humankind's relation with nature. It will be a direct response to the call from science, as articulated in the Special Report on Climate Change and Land of the Intergovernmental Panel on Climate Change, and to the decisions taken by all UN Member States in the Rio Conventions on climate change and biodiversity, and the UN Convention to Combat Desertification. UNEP is also working with world leaders to develop a new and ambitious Post-2020 Global Biodiversity Framework and bringing emerging issues (such as zoonotic) to the attention of decision makers.

A first lesson we are drawing from the COVID-19 pandemic and how it relates to environment and climate change is that well-resourced, equitable health systems with a strong and supported health workforce are essential to protect us from health security threats, including climate change. The austerity measures that have strained many national health systems over the past decade will have to be reversed if economies and societies are to be resilient and prosperous in an age of change.

Secondly, the ongoing pandemic illustrates how inequality is a major barrier in ensuring the health and wellbeing of people, and how social and economic inequality materializes in unequal access to healthcare systems. For example, the health threat of the novel coronavirus is, on average, greater for cities and people exposed to higher levels of pollution, which are most often people living in poorer areas. The same is true for the health impacts of climate change, with one of its major causes, the burning of fossil fuels, also adding pollution to the air and disproportionately impacting the health of those in poverty. The WHO estimates that by reducing the environmental and social risk factors people are exposed to, nearly a quarter of the global health burden (measured as loss from sickness, death and financial costs) could be prevented. Creating healthy environments for healthier populations and promoting Universal Health Coverage (UHC) are two of the most effective ways in which we can reduce the long-term health impacts from and increase our resilience and adaptive capacity to both the coronavirus pandemic and climate change.

Third, the global health crisis we find ourselves in has forced us to dramatically change our behavior in order to protect ourselves and those around us, to a degree most of us have never experienced before. This temporary shift of gears could lead to a long-term shift in old behaviors and assumptions, which could lead to a public drive for collective action and effective risk management. Even though climate change presents a slower, more long-term health threat, an equally dramatic and sustained shift in behavior will be needed to prevent irreversible damage.

Lastly, crises like these offer an opportunity for a regained sense of shared humanity, in which people realize what matters most: the health and safety of their loved ones and by extension the health and safety of their community, country and fellow global citizens. Both the climate crisis and unfolding pandemic threaten this one thing we all care about. Nonetheless, there are lessons to be learned about how future changes in human activity driven by climate change might increase the likelihood of viruses jumping from wild species into our own. Future risks are not easy to foretell, but climate change hits hard on several fronts that matter to when and where pathogens appear, including temperature and rainfall patterns. To help limit the risk of infectious diseases, we should do all we can to vastly reduce greenhouse gas emissions and limit global warming to 1.5 degrees.

We also need to take climate action to prevent the next pandemic. For example, preventing deforestation root cause of climate change can help stem biodiversity loss as well as slow animal migrations that can increase risk of infectious disease spread. The recent Ebola epidemic in West Africa probably occurred in part because bats, which carried the disease, had been forced to move into new habitats because the forests they used to live in had been cut down to grow palm oil trees. Ultimately, in the post-COVID19 anthropocene, global environmental governance mechanisms will need to be more tightly coupled with individual responsibility if we are to have an ecologically and economically efficient path forward towards sustainable development.

Rethinking our agricultural practices, including those that rely on raising tens of millions of animals in close quarters, can prevent transmissions between animals and spillover into human populations. As the world responds to and recovers from the current pandemic, it will need a robust plan for protecting nature, so that nature can protect humanity. we may feel more empowered to take on daunting issues like climate change and a transition to sustainable energy sources. On the other hand, hard economic times could undermine enthusiasm for environmental protection as people prioritize health, safety, and recovery. For example, if consumers turn their backs on solar and electric vehicles, the pandemic could stem the progress we have been making toward decarburization. These 100 days have changed the way we think about change. Ultimately, whether this pandemic is good or bad for the environment depends not on the virus, but on humanity. If there is no political pressure on governments, the world will go back to unsustainable business as usual rather than emerge with a healthier sense of what is normal. This makes ecological calls to move off a path of endless resource consumption more realistic, maybe even more desirable.

MODES OF PERSON TO PERSON TRANSMISSION OF RESPIRATORY VIRUSES:

Adapted from Centers for Disease Control and Prevention (CDC).

Contact, transmission	In both modes of contract transmission (direct and indirect), contaminated hands play an important role in carrying virus to mucous membranes.
Direct transmission	Virus is transferred by contact from an infected person to another person without a contaminated intermediate object (fomite).
Indirect transmission	Virus is transferred by contact with a contaminated intermediate object (fomite).
Droplet spray transmission	Virus transmits through the air by droplet sprays (such as those produced by

	coughing or sneezing); a key feature is deposition of droplets by impaction on exposed mucous membranes.
Aerosol transmission	Virus transmits through the air by aerosols in the inspirable size range or smaller; aerosol particles are small enough to be inhaled into the or nasopharynx and distally into the trachea and lung.

CONCLUSION:

The coronavirus is an example of how looking out for economic success can lead to the loss of lives, ultimately creating a path towards economic decline. Similarly, climate change is a slow, but impeding disaster that will be a larger threat than any virus in existence. If we do not prepare beforehand and attempt to stop environmental destruction, climate change cause societal deficiencies therefore leading to even more global destruction. As of now the virus as exposed the inefficiencies in our actions against the virus, such as healthcare inaccessibility and frequent testing. The virus and environmental change share many common denominators and attacking them should be prioritized. Otherwise, history will repeat, and our short-term attitudes will get the better of us when environmental devastation occurs.

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