



Climate Change and Viruses



“Climate change is contributing to the spread of dangerous viruses and diseases to the human population”.

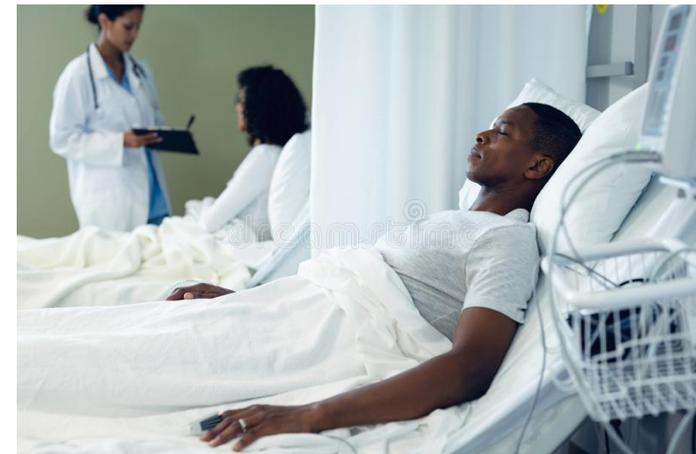
H. William Clark

sustainabilityforlife.com

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Introduction

- **There is not a confirmed scientific direct connection from Climate Change to the COVID-19 virus.**
- **There ARE multiple credible articles over the last decade that describe a connection between global warming and the rise and spread of dangerous disease to humans.**
- **This presentation defines these connections.**
- **Six news articles, each with a different aspect of the problem.**



CBS News, April 22, 2020, 5 things to know about climate change and coronavirus with WHO Climate Lead Dr. Campbell-Lendrum

- **Air pollution kills 7 million people a year throughout the world. 9 in 10 people round the world are inhaling polluted air**
- **But air quality has largely improved due to the coronavirus outbreak. 30% reduction in pollution (many industrial facilities and vehicles are shutdown)**
- **70 percent of the world's infectious diseases have come from the natural environment, with many from animal-to-human contact. Damage to the environment makes it more likely these diseases will emerge.**
- **Climate change didn't cause coronavirus -- but it can help spread future pandemics. Overall environmental damage seems to increase the risk of future pandemics.**
- **Adjusting our diet can be better for both you and the environment. Cows produce methane gas. Vegetarian diet is healthier.**



Fox News, Nov. 13, 2019, The Climate Crisis will profoundly affect the health of every child alive today

- **At the current rate, global temperatures will be 7 deg F hotter in 70 years.**
- **This means more disease, famine, early death from natural disasters.**
- **Climate Crisis: children are suffering from asthma, diarrheal disease, dengue fever.**
- **Heat waves have gotten longer and more frequent.**
- **The health benefits from clean energy far outweigh the investment costs.**



Medical News Today, April 3, 2020, How might climate change affect the spread of viruses?

- **We know from past epidemics that changes in temperature, rainfall, and humidity can have profound effects on the spread of infectious disease.**
- **Warm water in the Pacific... can provide perfect conditions for the spread of yellow fever.**
- **Changes in temperature, rainfall, and humidity will have effects on the world's animals and ecosystems.**
- **Climate change might increase the likelihood of viruses jumping from wild species into our own. (...new diseases to which humans have little immunity)**
- **Climate change could increase the biting rate of insects, which carry disease.**
- **Rising temperatures can affect the availability of food for wild animals, the quest for food may bring them in closer contact to humans.**
- **When temperatures rise, people in need of food sell wild animals for food in markets. These wild animals can be hosts for viruses.**
- **Mild winters ... make it easier for viruses to spread the following year, resulting in worse outbreaks.**

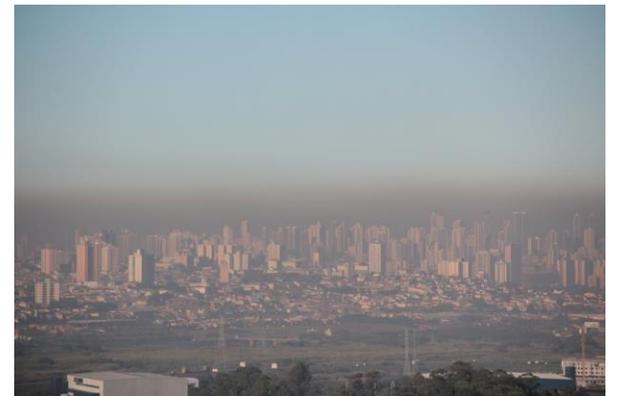
Scientific American, April 29, 2020, How a Warming Climate Could Affect the Spread of Diseases Similar to COVID-19

- **The higher ambient temperatures expected with a changing climate could...favor pathogens that will be more difficult for people's body to fight.**
- **Imagine that the world is hotter and that lizards adapt to live in temperatures very close to yours. Then their viruses adapt to higher temperatures**
- **A warming world could also have an effect on humans' other defense mechanism: the immune system... either directly via higher temperature or indirectly via its effects on global food security.**
- **..... Climate change disrupts a lot of patterns—of human behavior, of insects and even [of] bats — from which the COVID-19 virus and other deadly coronaviruses likely originated.**



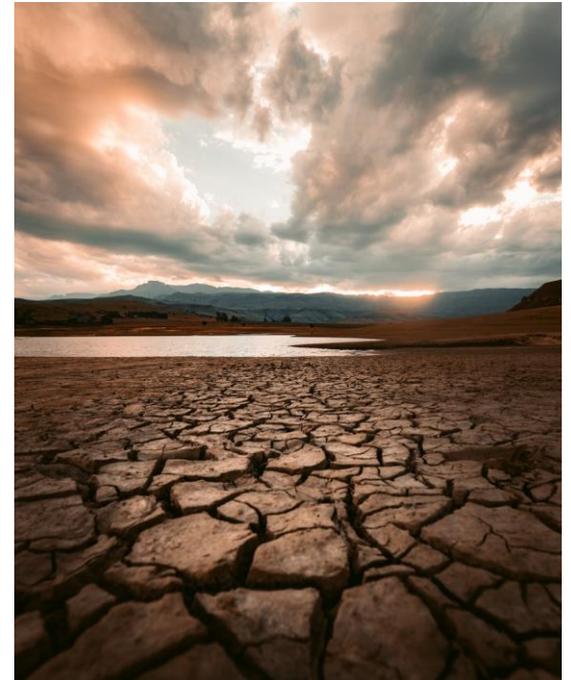
The Washington Post, April 15, 2020, Climate change affects everything — even the coronavirus

- **Climate change is frequently described as a threat multiplier...**
- **By altering the environment at a faster rate than any other moment in geologic history, scientists say, humans have created a wealth of chances for viruses to evolve.**
- **Climate change forces animals to migrate, producing new kinds of animal-to-animal and animal-to-human interactions.**
- **A Harvard University study of those sickened in the Covid-19 pandemic showed that people living in polluted environments are far less able to fight off the disease — an issue that will become even more prominent as the planet warms.**
- **... humans cannot be healthy unless the planet is, too.**



Fox News, August 5, 2020, Bill Gates claims pandemic's 'misery' will 'happen regularly' if climate change is not stopped

- **"If you want to understand the kind of damage that climate change will inflict, look at COVID-19 and spread the pain out over a much longer period of time."**
- **Gates estimated that the death toll from climate change would match that of the pandemic by 2060, and exceed it fivefold by 2100.**
- **The economic impact of climate change over the next two decades, he added, could be "as bad as having a COVID-sized pandemic every ten years."**
- **"So just as we need new tests, treatments, and vaccines for the novel coronavirus, we need new tools for fighting climate change: zero-carbon ways to produce electricity, make things, grow food, keep our buildings cool and warm, and move people and goods around the world,"**



Summary

- **Climate Change and warming temperatures are increasing the transmission and spread of dangerous viruses in a variety of ways:**
 - **Increase in insects biting**
 - **Animals live in a warmer world, their viruses adapt to higher temperatures.**
 - **Animals are coming into closer contact with humans**
 - **Viruses jump from animals to humans**
 - **Living in a polluted environment reduces the ability of humans to fight off viruses.**
 - **Human and economic toll from climate change could exceed pandemic impact.**

