



# Global Warming Impact on Humans



**“Understanding the Global Warming danger to current and future generations is the first step to implementing positive solutions”**

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**Note: Communicating this information as news to others is free of charge. 1**

# **Global Warming Impact on Humans – A Factual Examination**

- **Everyone should understand the dangers from Climate Change and the impact on people everywhere on Earth**
- **Understanding and believing the danger is the first step to positive action to lower air pollution.**
- **We are all part of one global village. Pollution in one country affects all other countries on the planet.**
- **This is an accurate presentation of the dangers. Solutions will be described in other presentations.**



# Understand the Danger from Global Warming

What follows are summaries from scientific and scholarly articles describing the danger from air pollution, carbon emissions and global warming on all the inhabitants of Planet Earth.

The information on each slide represents faithful quotes from the source cited at the bottom of each page. A few clarifying notes have been added in parentheses.



# Consumption of Fossil Fuels Impact

- Carbon dioxide (CO<sub>2</sub>)... is released through natural processes such as respiration and volcano eruptions and through human activities such as deforestation, land use changes, and burning fossil fuels.
- Humans have increased atmospheric CO<sub>2</sub> concentration by 47% since the Industrial Revolution began. This is the most important long-lived "forcing" of climate change.

Source: NASA , <https://climate.nasa.gov/causes/>, 2019



# Global Warming is Real

- **Scientific consensus is overwhelming: The planet is getting warmer, and humans are behind it.**
- **Climate change encompasses not only rising average temperatures but also extreme weather events, shifting wildlife populations and habitats, rising seas, and a range of other impacts.**
- **All of these changes are emerging as humans continue to add heat-trapping greenhouse gases to the atmosphere.**
- **... models have found that changes in solar irradiance and volcanic aerosols have contributed only about two percent of the recent warming effect over 250 years. The balance comes from greenhouse gases and other human-caused factors...**

**Source: National Geographic, Is Global Warming Real?,  
January 31, 2019**



# The Larger Air Pollution Problem

- In 2016, 91% of the world population was living in places where the WHO air quality guidelines levels were not met.
- Ambient (outdoor air pollution) in both cities and rural areas was estimated to cause 4.2 million premature deaths worldwide in 2016.
- Some 91% of those premature deaths occurred in low- and middle-income countries, and the greatest number in the WHO South-East Asia and Western Pacific regions.

Source: World Health Organization,  
[https://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health), 2016





# The Human Cost of Global Warming

- Anthropogenic Global Warming (AGW) - chiefly of environmental pollution and pollutants, originating in human activity.
- Rising seas will threaten coastal homes and cities. Salination of agricultural soils will destroy farming land.
- Dry areas will become drier with longer droughts, loss of ground water, and deglaciation. Agriculture will be seriously affected.
- Serious storms (hurricanes, cyclones and tornadoes) will become more frequent and dangerous, destroying crops and buildings, and causing floods and epidemics (the cholera outbreak that followed Cyclone Idai in Mozambique in 2019).
- Heat waves will become more frequent and intense. When wet-bulb temperatures approach human skin temperature, body temperature can no longer be regulated by perspiration—with fatal consequences.
- “... it is reasonable to assume the AGW will double the death rate in connection with poverty for a period of a century, causing one billion deaths altogether...”

Source: Frontiers in Psychology – Environmental Psychology , “The Human Cost of Anthropogenic Global Warming, October 16, 2019



# Global Warming Harms Children

- There is an overwhelming scientific consensus that global warming is mostly man-made: 97% of climate scientists have come to this conclusion.
- The urgent need to address climate change has become even clearer with the release of a major report in October 2018 by the world's leading scientific body for the assessment of climate change, the Intergovernmental Panel on Climate Change (IPCC). The IPCC warns that in order to avoid catastrophic global warming, we must not reach 1.5°C above pre-industrial levels.
- Perhaps most importantly, the IPCC report gave the world a clear deadline to avoid catastrophe: greenhouse gas emissions must be halved from their 2010 levels by 2030. (note: the human race is nowhere near accomplishing this goal)
- Future generations will experience the worsening effects unless action is taken now by governments. However, children and young people are already suffering due to their specific metabolism, physiology and developmental needs..... impacting a whole range of rights – from water, sanitation and food to adequate housing, health, education and development – (these are) .... particularly harmful to children.



Source: Amnesty International, <https://www.amnesty.org/en/what-we-do/climate-change/>, 2019



# Global Warming Impacts Children's Health

- Children born today will face a lifetime of climate change-related health problems, one of the world's oldest and most prestigious medical journals warns in a report released yesterday (Nov. 13, 2019).
- *The Lancet's* "Countdown: Tracking Progress on Health and Climate Change" says the new era of climate change will "define the health of an entire generation" — unless there is significant intervention.
- The health impacts flagged by the report start at the prenatal level with a heightened risk of low birth weight and neonatal death and continue through childhood and adolescence with potential lung problems, asthma attacks and insect-borne diseases.

Source: Scientific American, Children Are Particularly Vulnerable to Climate Change's Health Impacts, November 14, 2019+



# Who is Vulnerable?

- **Climate change affects the social and environmental determinants of health – clean air, safe drinking water, sufficient food and secure shelter.**
- **Areas with weak health infrastructure – mostly in developing countries – will be the least able to cope without assistance to prepare and respond.**
- **All populations will be affected by climate change, but some are more vulnerable than others. People living in small island developing states and other coastal regions, megacities, and mountainous and polar regions are particularly vulnerable.**
- **In particular, children living in poor countries – are among the most vulnerable to the resulting health risks and will be exposed longer to the health consequences.**
- **The health effects are also expected to be more severe for elderly people and people with infirmities or pre-existing medical conditions.**

**Source: World Health Organization,  
Climate Change and Health, 2019**



# Australia Report: Deaths and Childhood Developmental Stunting

- Climate change is “absolutely” already causing deaths, according to a new report.... which also predicts climate-related stunting, malnutrition and lower IQ in children within the coming decades.
- “During the Black Sunday fires in Victoria, Australia, in 2009, for example... people were directly killed by the fires, but there were nearly 400 additional deaths in those hot days from heat stress and heatstroke,”
- The report warned that rising global temperatures would expand the habitat of mosquitos, exposing more people to diseases including dengue, chikungunya and zika, and would cause other diseases to spread into Australia, including Nipah virus, which is spread by bats, and Qfever, which is already prevalent around Townsville.
- The decreased nutritional value of staple crops as a result of higher CO2 concentration was also expected to cause stunting, anemia and malnutrition in children, within 10 to 20 years.

**Source: The Guardian, Climate crisis already causing deaths and childhood stunting, report reveals, July 31, 2019**



# Heat Waves and Deaths

- In 2018 in Japan, more than 1,000 people died (and thousands hospitalized) during an unprecedented heat wave. In 2019, scientists proved it (the heat wave) would have been impossible without global warming.
- Using attribution analysis, researchers can separate the signal of climate change from the noise of daily weather.
- .... the oppressive temperatures were more than unusual. They were unprecedented. In fact, without climate change, they would have been impossible.
- In a world without climate change, the likelihood of a heat wave as bad or worse happening in any given year is 0.00003 percent. That is about once every 3.33 million years, otherwise known as never. The 2018 heat wave was impossible until anthropogenic global warming changed the climate.

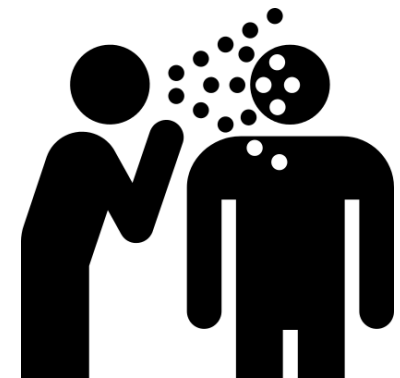
**Source: Eos, American Geophysical Union, The First Undeniable Climate Change Deaths, 2019**



# Deadly Impact of Air Pollution and Climate Change

- The dangers start at the beginning of life. Toxic pollutants cross the placenta, increasing the risk of preterm birth and low birth weight, which can cause lifelong damage to multiple organ systems.
- Children breathe more rapidly than adults do, so they absorb more pollutants at a time when their developing organs are more vulnerable. As a result, air pollution causes an estimated 600,000 deaths each year in children under five, mostly from pneumonia.
- There is also emerging evidence that air pollution compromises children's cognitive development and can increase their risk of behavioral disorders.
- As man-made climate change has taken hold over the last four decades, dozens of new infectious diseases have emerged or begun to threaten new regions, including Zika and Ebola.
- The World Bank estimates that by 2050, there could be one billion climate refugees from sub-Saharan Africa, South Asia, and Latin America.

Source: Foreign Affairs, Climate Change is Already Killing Us, September 23, 2019





# Dangerous Heat

- The average temperature of the United States could rise by as many as 11 degrees Fahrenheit by the end of the 21st century.
- The Centers for Disease Control notes that elderly individuals, infants and chronically ill people are considered the most vulnerable for heat-related deaths.
- ... heat exhaustion... heat stroke... cardiovascular disease... kidney disease.

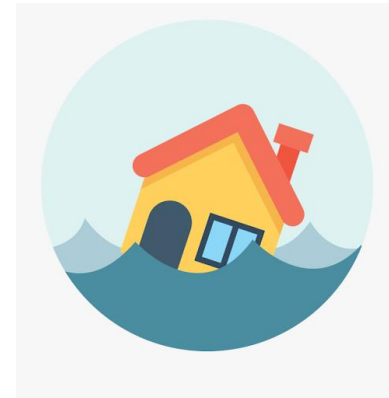
**Source: Public Health, Climate Change, 2020**



# Rising Ocean Levels

- In the worst-case scenario – with rising emissions and global heating of 4.5C above pre-industrial levels...
- Sea-level rise is faster than previously believed and could exceed 1 metre by the end of the century unless global emissions are reduced, according to a survey of more than 100 specialists.
- .... which would potentially engulf areas home to hundreds of millions of people....
- By contrast, if humanity succeeds in cutting carbon dioxide and holding the increase in temperature to 2C, the rise would be a more manageable 0.5 metre.
- The authors said the results showed how much warming – and sea-level rise – could be avoided if governments fulfilled their 2015 Paris climate agreement promises....

**Source: The Guardian, Sea Levels Could Rise by More than a Metre by 2100, Experts Say, May 8, 2020**



# The Spread of Diseases

- 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. (Note: if the virus then jumps to humans, human fever may be unable to fight the virus)
- 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.

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



# Summary

- The burning of fossil fuels has increased CO<sub>2</sub> in the atmosphere.
- Climate Change and Global Warming are undeniably connected to humans burning fossil fuel, and temperatures will rise in the 21<sup>st</sup> Century, possibly over 10 deg. F.
- Air Pollution is killing 4+ million people globally, each year, including many children.
- Across the next 100 years, Anthropogenic Global Warming is estimated to cause the pre-mature deaths of a billion+ people.
- Children suffer many negative health effects, including stunting of their development.
- Heat waves are already killing people by the thousands.
- Dangerous storms are increasing in frequency and intensity.
- Higher temperatures are accelerating the spread of dangerous viruses.
- Globally, millions of adults and children are in mortal danger.
- The only solution is to rapidly reduce carbon-to-atmosphere emissions.

