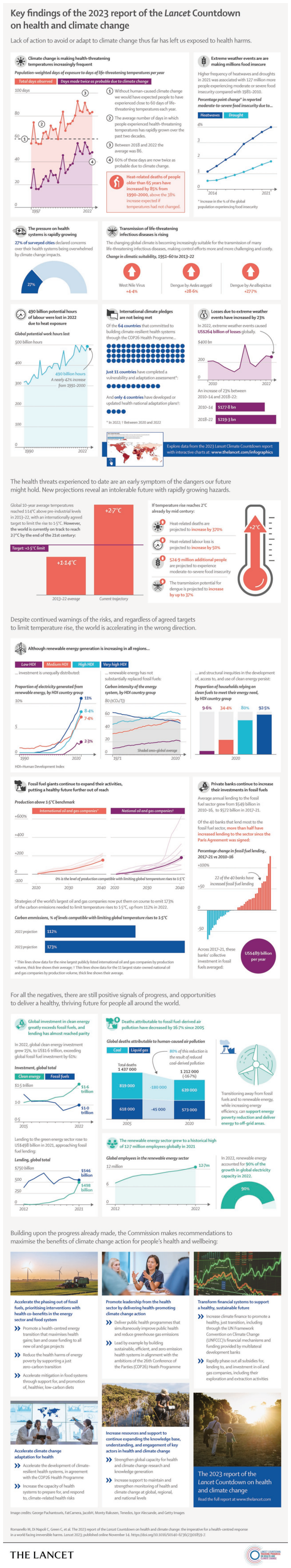
New projections reveal soaring health risks of persistent global inaction over the climate emergency

November 14 2023


Key findings of the 2023 report of the Lancet Countdown on health and climate change
Lack of action to avoid or adapt to climate change thus far has left us exposed to health harms.
Climate change is making health-threatening temperatures increasingly frequent
Population-weighted days of exposure to days of life-threatening temperatures per year
Total days observed
Days made twice as probable due to climate change
Without human-caused climate change we would have expected people to have experienced close to 60 days of life-threatening temperatures each year.
The average number of days in which people experienced health-threatening temperatures has rapidly grown over the past two decades.
Extreme weather events are are making millions food insecure
Higher frequency of heatwaves and droughts in 2021 was associated with 127 million more people experiencing moderate or severe food insecurity compared with 1981–2010.
Percentage point change* in reported moderate-to-severe food insecurity due to...
Heatwaves
Drought
The health threats experienced to date are an early symptom of the dangers our future might hold. New projections reveal an intolerable future with rapidly growing hazards.
Despite continued warnings of the risks, and regardless of agreed targets to limit temperature rise, the world is accelerating in the wrong direction.
For all the negatives, there are still positive signals of progress, and opportunities to deliver a healthy, thriving future for people all around the world.
Building upon the progress already made, the Commission makes recommendations to maximise the benefits of climate change action for people's health and wellbeing:
The 2023 report of the Lancet Countdown on health and climate change
THE LANCET

Key findings of the 2023 report of the Lancet Countdown on health and climate change. Credit: The Lancet

New data reveal the catastrophic threat to the health and survival of billions of people all over the world, and to successful adaptation efforts, from any further delays in action to limit temperature increase to 1.5°C above pre-industrial levels, according to the 2023 Report of *The Lancet* Countdown on Health and Climate Change: The imperative for a health-centered response in a world facing irreversible harms.

With the world currently on track for 2.7°C of heating by 2100, and energy-related emissions reaching a new record high in 2022, the lives of current and future generations hang in the balance.

"Our health stocktake reveals that the growing hazards of climate change are costing lives and livelihoods worldwide today. Projections of a 2°C hotter world reveal a dangerous future, and are a grim reminder that the pace and scale of mitigation efforts seen so far have been woefully inadequate to safeguard people's health and safety," says Dr. Marina Romanello, Executive Director of *The Lancet* Countdown at University College London.

"With 1,337 tons of carbon dioxide still emitted every second, we aren't reducing emissions anywhere near fast enough to keep climate hazards within the levels that our health systems can cope with. There is an enormous human cost to inaction, and we can't afford this level of disengagement—we are paying in lives. Every moment we delay makes the path to a livable future more difficult and adaptation increasingly costly and challenging."

The 8th *Lancet* Countdown report led by University College London represents the work of 114 leading experts from 52 research institutions and UN agencies around the world including the World Health Organization (WHO) and the World Meteorological Organization (WMO), providing the most up-to-date assessment of the links between health and climate change.

Published ahead of the 28th UN Conference of the Parties (COP), the report presents 47 indicators that include new and improved metrics that monitor household air pollution, financing of fossil fuels, and engagement from international organizations on the health co-benefits of climate mitigation.

"There is still room for hope," says Dr. Romanello. "The health focus at COP28 is the opportunity of our lifetime to secure commitments and action. If climate negotiations drive an equitable and rapid phase out of fossils fuels, accelerate mitigation, and support adaptation efforts for health, the ambitions of the Paris Agreement to limit global heating to 1.5°C are still achievable, and a prosperous healthy future lies within reach. Unless such progress materializes, the growing emphasis on health within climate change negotiations risks being just empty words, with each fraction of a degree of heating exacerbating the harms felt by billions of people alive today and the generations to come."

Climate inaction is already costing lives and livelihoods

The failure to seriously mitigate climate change is self-evident, with health-related losses and damages soaring globally. In 2023, the world experienced the hottest global temperatures in over 100,000 years, and heat records were broken on every continent, exposing people all over the world to deadly harms.

Even at the current 10-year global average 1.14°C of heating, people experienced on average 86 days of health-threatening high temperatures in 2018-2022, over 60% of which were made more than twice as likely to occur because of man-made climate change. Heat-related deaths in people aged over 65 increased by 85% in 2013-2022 compared to 1991-2000, substantially above the 38% increase expected had temperatures not changed (i.e., accounting only for changing demographics).

The increasing destructiveness of extreme weather events jeopardizes water security and food production, putting millions at risk of malnutrition. In 2021, more frequent heat waves and droughts than had occurred annually between 1981 and 2010 were responsible for 127 million more people experiencing moderate to severe food insecurity in 122 countries.

Similarly, changing weather patterns are accelerating the spread of life-threatening infectious diseases. For example, warmer seas have increased the area of the world's coastline suitable for the spread of Vibrio bacteria that can cause illness and death in humans by 329 km every year since 1982, putting a record 1.4 billion people at risk of diarrheal disease, severe wound infections, and sepsis. The threat is particularly high in Europe, where Vibrio-suitable coastal waters have increased by 142 km every year.

Health care systems are the first line of defense for protecting people from the growing health harms from the changing climate. But even the current 1.14 °C of heating is putting serious pressure on health services, with 27% (141/525) of surveyed cities reporting concerns over their health systems being overwhelmed by the impacts of climate change.

Strikingly, the total value of economic losses resulting from extreme weather events was estimated at $264 billion US in 2022, 23% higher

than in 2010-2014. Heat exposure also led to 490 billion potential labor hours lost globally in 2022 (a nearly 42% increase from 1991-2000), with income losses accounting for a much higher proportion of GDP in low- (6.1%) and middle-income countries (3.8%). These losses increasingly harm livelihoods, restricting the capacity to cope and recover from the impacts of climate change.

"We're facing a crisis on top of a crisis," warns Dr. Georgiana Gordon-Strachan, Director of *The Lancet* Countdown Regional Centre for Small Island Developing States. "People living in poorer countries, who are often least responsible for greenhouse gas emissions, are bearing the brunt of the health impacts, but are least able to access funding and technical capacity to adapt to the deadly storms, rising seas and crop-withering droughts worsened by global heating. Despite this, rich nations have broken their long-standing pledge to deliver the comparatively modest sum of US$100 billion a year to help vulnerable countries cope with climate change, jeopardizing a fair, equitable transition to a healthy future."

New projections expose health imperative for urgent mitigation

For the first time, this year's report provides a disturbing glimpse of what could lie ahead in a heating world. New projections, developed with the support of the Climate Vulnerability Forum (CVF), outline the rapidly growing risks to population health if the 1.5°C target is missed, with every health hazard monitored by *The Lancet* Countdown predicted to worsen if temperatures rise to 2°C by the end of the century.

Under this scenario, yearly heat-related deaths are projected to increase by 370% by mid-century, with heat exposure expected to increase the hours of potential labor lost globally by 50%. More frequent heat waves

could lead to around 525 million more people experiencing moderate to severe food insecurity by 2041-2060, exacerbating the global risk of malnutrition.

Life-threatening infectious diseases are also projected to spread further by mid-century, with the length of coastline suitable for Vibrio bacteria expanding by 17%–25% and leading to 23–39% more cases, and the transmission potential for dengue increasing by 36%–37%—contributing to its rapid global expansion.

"In the face of such dire projections, adaptation alone cannot keep up with the impacts of climate change, and the costs are rapidly becoming unsurmountable," says Professor Stella Hartinger, Director of *The Lancet* Countdown Regional Centre for Latin America. "We must go beyond treating the health symptoms of climate change to focus on primary prevention. The root causes of climate change must be tackled through rapidly accelerating mitigation across all sectors to ensure the magnitude of health hazards do not breach the capacity of health systems to adapt. Unless governments finally start to act on these warnings, things will get much, much worse."

A world moving in the wrong direction

The 2022 *Lancet* Countdown report highlighted the opportunity to accelerate the transition away from health-harming fossil fuels in response to the global energy crisis. However, data from this year's report reveal a world moving in the wrong direction.

New and updated indicators reveal that investment and lending on fossil fuels are on the rise. The carbon emissions of the global energy system (the biggest single contributor to global greenhouse gas emissions) grew by 0.9% in 2022 to a record 36.8 Gt, while governments keep incentivizing fossil fuel expansion. In 2020, 69 of 87 countries

(responsible for 93% of all global carbon emissions) provided fossil fuel subsidies to the net value of $305 billion—exceeding 10% of national health spending in 26 of the countries, and 50% in 10 countries.

The finance sector is also contributing to growing health threats, with 40 private banks that lend the most to fossil fuels collectively investing $489 billion US every year between 2017 and 2021 in the industry, and over half increasing their lending since 2010-2016, further hindering the zero-emission energy transition.

Together, the world's 20 largest oil and gas giants have increased their projected fossil fuel production levels since last year, which would result in greenhouse gas emissions surpassing levels compatible with 1.5°C of warming by 173% in 2040 (up from a 112% increase expected from their 2022 strategies), further reducing their compliance with the Paris Agreement. Concerningly, fossil fuel companies allocated just 4% of their capital investment to renewables in 2022, putting a healthy future further out of reach.

Meanwhile, the most underserved countries are being left behind in the clean energy transition, and inequitable access to clean energies has left the most vulnerable communities reliant on air-polluting fuels. Despite plentiful natural renewable energy resources, just 2.3% of electricity comes from clean renewables in low-income countries (compared with 11% in wealthy countries); and 92% of households still rely on polluting biomass (such as wood or dung) to cook and heat their homes (compared with 7.5% in rich nations).

"With the world on the brink of irreversible harm, the fact that governments and companies shamelessly continue to invest in oil and gas amounts to them ensuring that the Paris 1.5°C target will not be achieved, putting the health of millions of people at risk," says Professor Paul Ekins, *The Lancet* Countdown Working Group Lead on Economics

and Finance. "Both this investment in fossil fuels, and the subsidies that continue to be poured into fossil fuel production and consumption, must be urgently redirected to incentivize the expansion and affordability of clean renewable energy and to activities that improve public health and resilience."

Transformative opportunities of health-centered climate action

Despite the scale of the challenges, the report outlines the life-changing health benefits that could come from a health-centered transition to a zero-carbon future that prioritizes equity and justice within climate action.

At the heart of this ambition is a commitment to enabling and supporting an accelerated transition to clean energy and energy efficiency in low-income countries. "Empowering countries to transition from dirty fuels towards local, modern renewable sources of energy, would not only bring immediate health benefits, but also reduce socioeconomic and health inequities, by developing local skills, generating jobs, supporting local economies, and delivering energy to off-grid areas to electrify homes and health-care facilities, particularly in areas where energy poverty still undermines people's health and well-being," says Professor Ian Hamilton,*The Lancet* Countdown Working Group Lead on Mitigation Actions and Health Co-benefits.

Simultaneously, improvements in air quality could prevent many of the 1.9 million deaths every year coming directly from exposure to fuel-derived outdoor air pollution, and millions more from indoor air pollution. Shifting to accessible active, public, and electric travel could avert many of the 460,000 deaths caused annually by travel-related $PM_{2.5}$ emissions, while improving health by supporting physical activity.

At the same time, accelerating a transition to healthier, low-carbon diets could prevent up to 12 million deaths due to poor diets every year, as well as reduce 57% of agricultural emissions from diary and red meat production. These gains would also deliver healthier populations, reduce pressures on health systems, help minimize health care-related emissions, and promote health equity.

While swift action is urgently needed, there are some encouraging signs of progress, signaling what could be the start of a life-saving transition. This year's report reveals that deaths from fossil fuel-derived air pollution have fallen almost 16% since 2005, with 80% of this decline due to efforts to reduce pollution from coal burning.

At the same time, global investment in clean energy grew 15% in 2022 to $1.6 trillion US, exceeding fossil fuel investment by 61%, while lending to the green energy sector rose to $498 billion US in 2021, approaching fossil fuel lending. As a result, renewable energy accounted for 90% of the growth in electricity capacity in 2022, and employment in renewables reached a record-high with 12.7 million employees in 2021.

Ultimately, this year's *Lancet* Countdown report solidifies the need for global collaboration and action on an unprecedented scale from governments, businesses, and the public. "While ambition to unlock money for adaptation will be critical, health-centered action requires urgent mitigation," says Professor Anthony Costello, Co-Chair of *The Lancet* Countdown. "This will require defending people's health from the interests of the fossil fuel and other health-harming industries. Transformative climate action is needed today to enable a future where present and future generations can thrive."

Responding to the report publication, UN Secretary-General, António Guterres (who was not involved in writing the report) says, "Climate

breakdown has begun, and humanity is staring down the barrel of an intolerable future. We are already seeing a human catastrophe unfolding with the health and livelihoods of billions across the world endangered by record-breaking heat, crop-failing droughts, rising levels of hunger, growing infectious disease outbreaks, and deadly storms and floods.

"There is no excuse for our collective inertia. Only powerful and immediate action will limit global temperature rise to 1.5°C and avert the very worst of climate change. The evidence is unequivocal—a just and equitable transition from fossil fuels to renewables together with a global surge in adaptation investment will save millions of lives and help protect the health of everyone on Earth."

More information: The 2023 report of the Lancet Countdown on health and climate change: the imperative for a health-centred response in a world facing irreversible harms, *The Lancet* (2023). DOI: 10.1016/S0140-6736(23)01859-7 , www.thelancet.com/countdown-health-climate

Provided by Lancet

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