

From Global Warming to Global “Boiling” – UN Secretary General

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The steady increase in average global temperatures, both on land and sea, coupled with an increasing frequency of extreme weather events is not only endangering ecosystems but now even threatening plants and animal species. Shrinking glaciers, dry spells, heat waves and forest fires compounded by ever increasing greenhouse gases synergistically escalate the problem.

A 0.1°, 0.5°, 1.5° or 2°C rise in temperature may have profound effects. A half a degree or even a few tenths of a degree change may have a dramatic impact – causing dire water shortages, flooding and heat waves. Polar ice caps and coral reefs may be severely impacted by even a 0.5° C rise [1].

The Intergovernmental Panel on Climate Change (IPCC) report states that unparalleled climate changes caused by human activity has increased the planet’s temperature by 1.1°C [1].

Pakistan’s northern regions are home to over 7000 glaciers, the highest number outside the Polar Regions, and these are threatened and may disappear completely by the end of the century. Last year, Pakistan saw devastating floods that inundated more than a third of the entire country. Pakistan’s carbon footprint is less than 1%, but it continues to pay a heavy price due to climate change.

SPREAD OF DISEASES

Lyme disease, West Nile virus, dengue and malaria have significantly escalated due to rising temperatures and changing rainfall patterns. By 2050, yellow fever deaths across Africa could increase by up to 25%. Climate changes have enabled malaria-carrying mosquitoes to move as much as 4.7 km further from the Equator every year. A temperature rise of 2-3 °C may increase the malaria vulnerable population by 3%-5% [2].

Post flooding, leptospirosis and campylobacter enteritis spiked in the Czech Republic and coastal Maryland areas [3, 4]. Six weeks after heavy flooding, Germany also saw an outbreak of cryptosporidiosis [5].

Higher cholera and shellfish poisoning is noticed with an increase in ocean temperatures and levels, in addition to escalated proliferation of micro-organisms like *Vibrio vulnificus* and *V. cholerae* [6, 7]. The hot summer of 2006 saw an increase in

wound infections and sepsis in North Sea and Baltic bathers [8].

Children, aged, the obese and patients of heart disease, diabetes, hypertension are more vulnerable [9]. Outside-hospital cardiac arrest cases increase by as much as 14% during each heat wave period [10]. Incidence of asthma and urolithiasis also increase in extreme heat.

A recent UNICEF report estimates that 76% of children in South Asia – 460 million – are exposed to extreme high temperatures (> 35 C) for more than 83 days per year. 28% of these children are exposed to 4.5 or more heat waves yearly. In parts of Pakistan’s Sindh province, including Jacobabad, the world’s hottest city in 2022, temperatures are routinely in their 40s in June, thereby exposing more than 1.8 million people to health risks. This was preceded by devastating floods a year before. More than 800,000 children in flood affected areas were at risk of severe heat stress in June 2023 (UNICEF).

WATER AND FOOD SCARCITY

Climate change also has an adverse effect on the availability of water and food. The scarce clean water accentuates the spread of water-borne diseases. More than half the world population faces water scarcity at least for a month every year. By 2025, up to 64% of the world population may live in water-stressed basins [11]. Global warming can reduce crop yields, triggering food paucity and escalating prices.

AIR POLLUTION

Global warming increases ground level ozone formation, worsens particulate matter pollution, exposing 99% of the world’s populace to compromised and suboptimal air quality as per WHO’s 2021 air quality guidelines [12].

Air pollution is linked to as many as seven million premature deaths every year, as per UNEP data. In 2019 alone, up to four million people died from exposure to fine particulate outdoor pollution, with the majority of deaths in Central Europe and East Asia.

POPULATION DISPLACEMENT AND MIGRATION

Severe extreme weather events cause displacement and migration of the population especially from low-lying coastal and vulnerable areas. In 2012 alone, these calamities forced 32 million

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people to flee their homes.

This displaced population, with little access to health care, is more prone to infectious and communicable diseases and also suffers due to sparse facilities for routine immunization and maternal health programs [13].

MENTAL HEALTH AND PSYCHOLOGICAL WELL BEING

The adverse warming has a negative impact on mental health and triggers conflicts. The stressors of basic needs' paucity, thin healthcare and high temperatures negatively impact individual and community wellbeing, triggering anxiety, depression, PTSDs and an increase in suicide rates. Rubonis and Bickmann reported a 17% spike in global incidence of psychopathology. The disaster affected population had a 30-40% psychological morbidity during the first year, with an increased propensity for such afflictions turning chronic. 10%-20% of rescue workers may suffer from PTSD [14].

Additional adverse effects on communities are triggering conflicts around water resources, competition for agricultural produce and grain sources.

Recently, United Nations General Secretary António Guterres made a startling comment that the era of global warming has ended and that of "global boiling" has arrived.

Governments and health planners and providers have a responsibility to put health as of high strategic importance while formulating climate change strategies. Climate change is already impacting human health in a major way, and reducing greenhouse gas emissions provides an excellent opportunity for improving public health [15].

CONFLICT OF INTEREST

Declared none.

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