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California Wildfires and Planetary Health

By Peili Pey

SYNOPSIS

The California wildfires are an environmental disaster, but they also point to a deeper set of challenges, not only for the United States of America but for the global community. Such wildfires, which are ever-increasing in frequency and scale due to the impact of climate change, result in structural damage and long-term health risks that disproportionately affect vulnerable communities and are a costly burden to the state. A planetary health approach highlights the need for a more comprehensive understanding of the climate-environment-health interface in managing the risk and incidence of wildfires.

COMMENTARY

The crisis brought about by the California fires, which occurred over an extensive area including the suburban sprawl of well-known cities in the state, has revealed the importance of good governance, strong community support, good access to water, and careful land use planning, among other requirements, in preventing and managing such disasters. It has also driven home important messages regarding climate change and planetary health.

The fires have raged since they began on 7 January 2025. Those in the Palisades and Eaton locales have been the most challenging to contain. The devastation caused to the population and properties will be long-lasting, and so will the effect on the environment, health, and well-being of human and animal lives, which will be adversely affected for decades.

Climate Crisis Worsens Wildfires

It has been established by many [experts](#) in meteorology, climate, and wildfires that

the [climate crisis](#) worsens catastrophes like the California fires. Climate change is characterised by unpredictability and extreme weather patterns.

New climate-related developments marked by “milestones” such as “[2024 is the hottest year on record](#)”, or the “[driest year for rivers in three decades](#)”, or the “[heaviest rainfall in more than a century](#)” are not normal. They indicate a failure to tackle the climate crisis effectively and are now part of the new normal.

A study has shown that the new normal includes [volatile “whiplash”](#), which refers to wild swings from one extreme weather to another, with abrupt interludes between extreme dry and wet conditions. It was precisely the unusually arid conditions that caused [severe drought](#) in California and turned dry brush and grass into fuel for the fires. The abrupt interludes reduce the [resilience of biology and the ecosystem](#), making it difficult to control and recover from events such as wildfires and floods.

Various reports have asserted that the Palisades and Eaton fires are linked to climate change. As volatility patterns continue, such fires will only get more extreme and frequent in the future. A 2022 United Nations Environment Programme–GRID Arendal report titled “[Spreading Like Wildfire: The Rising Threat of Extraordinary Landscape Fires](#)” stated that these fires destroy forests, peatlands, animals, and the ecosystem, thereby releasing more carbon into the atmosphere, causing a positive feedback loop for global warming.

If the 2018 Camp Fire in Paradise, California, is used as a guide, it can take [20 years or longer to rebuild](#) following a wildfire disaster. However, it is not just infrastructural damage that needs to be contended with – environmental and health impacts must be given due attention.

Impact on Planetary Health

Planetary Health – characterised by the concept of interconnectedness between people’s health and well-being and the environmental conditions they depend on – can only be achieved by safeguarding Earth’s systems within safe operating limits. Environmental disasters, including wildfires, cause enormous damage to human health as reported by [Johnston et al., 2012](#), and [other expert studies](#).

It is also evident that human beings are responsible for the damage facing the Earth: the climate crisis caused by unsustainable human activities has led to more extreme, frequent, and uncontrollable wildfires, which have destroyed property, animals, and ecosystems and impacted human health. These are being documented and studied in not just the US, Canada and Australia for their wildfires, but also in [Southeast Asia](#), where haze and particulate matter (PM2.5) have plagued populations for decades.

Long-term effects are also of high concern due to a wide range of physical, emotional, and mental [health impacts](#), including weakened immune systems, increased susceptibility to infections, increased risk of depression, dementia and post-traumatic stress disorders (PTSD), effects on foetal development, amongst others. Such effects [disproportionately](#) impact disadvantaged, marginalised, and vulnerable populations, such as children, the elderly, pregnant women, and [homeless people](#). Workers in various outdoor occupations are also badly hit.

In the United States of America, where prisoners are paid to fight fires, issues of poor governance for such labour compound the challenge of managing the climate-environment-health interface. Scarcity in the supply of firefighters has led to an [exploitative situation](#) where these incarcerated persons risk their health and lives fighting at the frontline of wildfires, often using [inadequate equipment](#).

Similarly, the Indonesian wildfires up until 2023 have also been analysed in relation to their health impacts. [The United Nations Office for Disaster Risk Reduction \(UNDRR\)](#) reported that “pervasive air pollution from wildfires and peatland fires in 2019”, led to nearly 10 million children being deprived of “learning opportunities”, and “increased risks of complicated births and growth-related issues” for pregnant women and their infants.

A study by [Phung et al., 2022](#), also documented the health impacts spreading across Southeast Asia that stemmed from wildfires caused by indiscriminate vegetation and peatland burning, which were more widespread and uncontrollable due to climate change. Deforestation through the use of fire for agriculture is driven by poverty and lack of education. The combined effects of deforestation and climate change increase fire risks significantly.

The UNDRR report discusses the links between economic well-being, environmental well-being, and human health, noting that significantly higher foetal and infant deaths resulted from pollution in economically disadvantaged areas. The report proposes that poverty must be addressed in tandem with effective health and environmental action to improve resilience and management of the wildfires.

Planetary Health Action for the Well-Being of All

Planetary Health argues for the well-being of people and the environment, as their health depends on one another. This interconnectedness has become more apparent as the multitude of impacts caused or exacerbated by climate change becomes more salient.

Even then, the climate crisis and new weather patterns have proved complex and unpredictable enough to escape present [scientific measurements and understanding](#). The UNEP report cited earlier recognised the limitations of technology in addressing wildfires and other environmental disasters.

The health impacts of wildfires are a [costly burden](#) to the countries affected. The solution to these environmental disasters requires a concerted effort to integrate effective [governance measures](#), comprehensively addressing fire risks.

Greater cooperation across different sectors and transnational bodies needs to be established. This should encompass adequate financing, indigenous knowledge and traditional fire management practices, international and regional cooperation, community support, improvement of firefighter safety, disaster and resource management, a deeper understanding of socioeconomic and gender dimensions, and, importantly, recognition of the paramount importance of climate mitigation and adaptation and the strong ties it has to environment and health impacts.

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