

INDIA

LANCET COUNTDOWN ON HEALTH AND CLIMATE CHANGE DATA SHEET 2023

Health and climate change in India

The Lancet Countdown on Health and Climate Change is an academic collaboration of over 200 researchers from around the world, which annually takes stock of the evolving links between health and climate change through 40+ peer-reviewed indicators. Since 2016, these indicators have provided regular, reliable global and regional stocktakes on climate change and health. This document summarises key findings from the 2023 Report of the Lancet Countdown* for India, which reveal that:



Trends in **heat and health** are particularly concerning, with populations experiencing increases in exposure to high temperatures, undermining livelihoods and threatening people's health and wellbeing.



Populations are vulnerable to the effects of **sea-level rise, flooding, and drought**, threatening both direct health impacts as well as indirect impacts of reduced crop-yields and population migration and displacement.



Climatic conditions have grown increasingly suitable for the spread of **vector-borne diseases** including dengue and malaria.



Deaths attributable to **air pollution** are increasing, with responsibility mostly falling on exposure to fossil fuels and biomass derived PM_{2.5}.

These findings underline the urgency of strengthening local health systems, adapting to climate change, and pursuing efforts to reduce greenhouse gas emissions through interventions that simultaneously deliver health co-benefits. These actions will help build healthier, more resilient populations, and forge the way to a thriving future for India.

Heat and health

Exposure to high temperatures threatens people's lives, health, and wellbeing, leading to death and heat-related disease, and increasing healthcare demand during heatwave episodes. Older people, socio-economically deprived communities, very young children, pregnant women, and those with underlying health problems are particularly at risk.



From 2018 to 2022, the average summer temperatures that people were exposed to were 0.5°C higher than the 1986–2005 baseline average (indicator 1.1.1).



From 2013–2022, the total number of heatwave days experienced annually by children under the age of one was 43% greater than the equivalent demographic from 1986–2005. Adults over age 65 saw a 216% increase across the same timeframe (indicator 1.1.2).



From 2013–2022, each infant was exposed to an average of 7.7 life-threatening heatwave days per year, while adults over age 65 were exposed to 8.4 days per year (indicator 1.1.2).

ECONOMIC IMPACT OF HEAT

Heat exposure limits labour productivity, which undermines livelihoods and the social determinants of health.

191 billion potential labour hours lost due to heat exposure in 2022, an increase of 54% from 1991–2000 (indicator 1.1.4).

US\$219 billion potential associated income loss in 2022, equivalent to 6.3% of GDP (indicator 4.1.3).



Agricultural workers were hit the hardest, seeing 64% of the potential hours lost and 55% of the potential income losses in 2022 (indicators 1.1.4 & 4.1.3).

FUTURE PROJECTIONS

Unless urgent mitigation and adaptation action is taken, the health impacts of heat will increase drastically in coming years.

2°C SCENARIO

In a scenario in which temperatures are kept to under 2°C of heating, heatwave exposure for people over age 65 is projected to be 5 times greater by mid-century (2041–2060 average) (indicator 1.1.2).

Vulnerability to infectious diseases

The suitability for transmission of many infectious diseases, including vector-borne, food-borne, and water-borne diseases, is influenced by shifts in temperature and precipitation associated with climate change.



Over the last decade (2013-2022), conditions have been suitable for the spread of malaria by *Anopheles* mosquitoes for more than a third of the year (indicator 1.3).



Over 2013-2022, the basic reproduction number (R₀, an indication of transmissibility) for dengue has been above 2, meaning that each infected person will likely infect two new susceptible people (indicator 1.3).



More of India's coast is now suitable for the transmission of *Vibrio* pathogens, responsible for a range of human infections including gastroenteritis, sepsis, and cholera, with 39% of the coast suitable in 2022 (indicator 1.3).

Drought and health

Droughts can impact crop yields and livestock, increasing the risk of food insecurity and malnutrition. They can also affect water security, impair sanitation, and increase the risk of infectious disease transmission.

29%

From 2013-2022, an average of 29% of India's land area experienced over 3 months of extreme drought per year (indicator 1.2.2).

138%

The amount of land experiencing at least one month of extreme drought per year has increased 138% from 1951-1960 to 2013-2022 (indicator 1.2.2).

Air pollution, energy transition and health co-benefits

The low adoption of clean renewable energy and the use of fossil fuels and biomass lead to high levels of air pollution and to a high burden of disease and mortality. All of these lead to increasing demand on care services.

83%

In 2020, 83% of the domestic energy used per person came from polluting biofuels. Only 17% of energy was non-polluting at point of use. (indicator 3.1.2).

35%

In 2020, over 815,000 deaths were attributable to small particulate matter (PM_{2.5}) generated from human activities. This was a 35% increase from 2005 (indicator 3.1.1).



Of these deaths in 2020, 44% were due to the combustion of fossil fuels, while 22% were due to the use of biomass (indicator 3.2.1).

RENEWABLE ENERGY TRANSITION



Renewable energy made up less than 2% of total energy supply and contributed less than 9% of total electricity output in 2020. 43% of total energy supply and 71% of total electricity output came from coal (indicator 3.1.1).

61%

In 2020, 61% of household energy came from solid biofuels (wood and dung) while 21% came from fossil fuels (coal, liquid fuels, and natural gas) (indicator 3.1.2).

Transitioning energy systems to renewables would benefit human health, simultaneously reducing air pollution; mitigating greenhouse gas emissions; and contributing towards universal, affordable, and clean energy.

Engagement in health and climate change

To respond to the health impacts of climate change, locally relevant data and research is required to inform policies and to enable governments to take a leading role in championing health-centred climate action on mitigation and adaptation within India and in international negotiations.



In 2022, 127 scientific papers were published with lead authors based in India, a decrease from 2021's record 187 papers. Overall, there has been a 182% increase in papers relating climate change and health (including adaptation, mitigation, and impacts) from 2012 to 2022 (indicator 5.3.1).

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*Romanello M, di Napoli C, Green C et al. 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. *Lancet* 2023; published online Nov 14. [https://doi.org/10.1016/S0140-6736\(23\)01859-7](https://doi.org/10.1016/S0140-6736(23)01859-7).

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