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High heat can serve up food insecurity within days

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Amid record-high temperatures globally, a study Monday reveals that a few days of searing heat can be enough to prevent billions of people already living hand-to-mouth on daily wages from putting food on the table.

A week of extreme temperatures in India, for example, means an additional eight million people will likely experience serious food insecurity, according to findings published in the journal *Nature Human Behaviour*.

Spread across 150 countries examined—especially in tropical and sub-tropical zones—that same heat wave translates into millions of men, women and children at risk of hunger, even if overall food precarity is increased by less than one percent, they found.

The World Bank estimates that nearly 30 percent of the global population suffered moderate or severe food insecurity in 2022.

Analysis of heat impact on food availability is usually limited to decreases in crop yields, with the effects felt over months or years.

The new study, however, reveals that the impact can be immediate when it is tied to income.

"If it gets hot today, there might be food insecurity within just a few days because people can't work, which means they can't earn income and

afford to buy food," lead author Carolin Kroeger of Oxford University told AFP.

Such outcomes are typically greatest in jobs where pay is closely tied to productivity, such as for agricultural harvests or piece-rate work.

Female brick carriers in West Bengal, for example, are paid by the number of bricks they carry a day. When the hot weather forces them to carry fewer bricks, they experience income losses as high as 50 percent.

Recent reporting from AFP has illustrated the findings here.

Syrian blacksmith Murad Haddad wakes up early and takes turns at the anvil with his five brothers to avoid the torching temperatures.

"The heat is killing us. I have six kids, and I can hardly look after them," he said. "But if I don't work, I can't make ends meet."

Records broken

"You see stronger effects in countries with lower incomes, more agricultural employment and more vulnerable employment," said Kroeger.

Kroeger found that individuals who had just experienced a hot week were more likely to have health problems and "difficulties living on their present income," resulting in significantly lower income.

Those effects were cumulative—the more hot days in a week, the stronger the impact.

470 billion potential work hours—equivalent to almost 1.5 weeks of work per person worldwide—were lost in 2021 due to extreme heat.

The findings come as food prices remain high from sustained inflation and a month after India, the largest rice exporter in the world, restricted exports due to damaged harvests.

But supply and prices aren't the only problem.

Researchers have also found that rising temperatures cause a significant decline in essential nutrients in many of the staple crops and legumes upon which much of the world depends.

"A lot of heat records were broken in the last year or two so I definitely think some of the things we saw might get worse," said Kroeger.

"But there are also a couple of things that could help, like micro-insurances and improvements to labour laws—the balance could still tilt," she added.

According to the UN's IPCC climate science advisory panel, hundreds of millions of people will likely be afflicted by at least 30 so-called "deadly heat days" every year by 2080, even if the world meets the Paris climate deal goal of capping warming well below two degrees Celsius.

More information: Carolin Kroeger, Heat is associated with short-term increases in household food insecurity in 150 countries and this is mediated by income, *Nature Human Behaviour* (2023). DOI: 10.1038/s41562-023-01684-9.
www.nature.com/articles/s41562-023-01684-9