

Does climate change lead to conflict?

As the climate changes, the risk of riots and ethnic conflict in India could increase by up to 50%



In India, where global climate change is predicted to increase rainfall slightly but with greater variability—meaning more droughts and floods—the effect of rainfall shocks are increasingly apparent. Photo: Hemant Mishra/Mint

As the world stays on course to warm 2°C by 2050, it is likely to become a more violent place. Among the places at maximum risk of war, riot or ethnic conflict: India and the subcontinent.

These are the findings of a new study published last week in the journal *Science* by researchers from Princeton University and the University of California, Berkeley.

The team reviewed data from 60 studies, spread across disciplines as varied as archaeology and economics and found that even marginal oscillations in global climate from 10,000 BC to the present day marred peace and stability.

“The results of our paper make a very strong case for the view that extreme climate outcomes lead to more conflict and violence,” co-author Edward Miguel, an economics professor at Berkeley, told me in an e-mail interview. “The historical data that we typically use do not rely on climate change per se, only on climatic variation that can be studied in existing data. But the results do have clear implications for future climate change.”

The results were the same across widely different societies and countries, whether Brazil, Tanzania, the US or India. A shift of one standard deviation—a unit of change from the normal—in rainfall or heat, the researchers said, increased the chances of group violence, such as civil war, riots or ethnic conflict by an average of 14%; of personal violence, such as murder or rape, by 4%.

The climate does not have to be particularly volatile to destabilize societies. A standard-deviation shift of one, the researchers found, is the rough equivalent of an African country warming up by no more than 0.35°C over 12 months.

Most of India and the subcontinent faces the prospect of three- to four-deviation shifts in climate by 2050, which implies a 42% to 56% rise in the risk of civil war, riots or ethnic conflict.

The paper refers to many historical cases of climate effects on the rise and fall of civilizations. Miguel pointed “to the collapse of the Mayan civilization in the 9th century AD, and the collapse of multiple Chinese imperial dynasties, all following periods of extreme adverse climate”.

That trend continues. As Climate Central, an independent US organization of scientists and journalists researching and reporting climate change, pointed out, previous studies have associated numerous recent conflicts with climate extremes. These include the Arab Spring, which began in 2010, and the ongoing Syrian civil war. Increases in food prices from climate-related events preceded the unrest in Tunisia and Egypt. The Syrian revolt began after a drought and soaring food prices.

Many studies have warned that the frequency and severity of drought will intensify in areas with growing populations, such as South Asia, Africa and the Middle East, exacerbating water shortages that are already evident.

Particularly worrying is the pace of climate change. “It appears that the impacts of climate changes are more imminent than previously thought,” said a 2012 study commissioned by the US Central Intelligence Agency. “This is cause for significant concern in the latter part of this century, but will affect society in significant ways today and through the coming decade.”

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Analysing nationwide rainfall, crime and dowry data, economists Sheetal Sekhri and Adam Storeygard found that domestic violence and dowry deaths in India rose in periods of lower-than-normal rainfall. For instance, a one-metre rainfall deficit led to a 37% spike in dowry deaths. "Dowry deaths are used to increase income in time of economic distress, as these killings give households access to a large dowry payment," said the study, released in March.

Another paper released in January found that rainfall shocks increased the incidence of most crimes, including burglary, banditry, rape, riots and murder. David Blakeslee and Ram Mukul Fishman examined data from three decades (1970-2000) and found only property crimes increased in times of abundant rainfall.

In 2011, two studies found an association between times of sparse rainfall and Hindu-Muslim riots in India.

The Princeton-Berkeley study now appears to clearly establish that climate change, or variation, causes conflict. But why does this happen?

Common sense suggests that weather variations unsettle people's lives. For instance, a farmer who loses his crop is a stressed and, perhaps, an angry farmer. Scientifically, it is hard to say.

"We're in the same position that medical researchers were in during the 1930s: they could find clear statistical evidence that smoking tobacco was a proximate cause of lung cancer, but they couldn't explain why until many years later," the study's lead researcher, Solomon Hsiang, told a blog called Carbon Brief. "In the same way, we can show that climatic events cause conflict, but we can't yet say exactly why."

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