Investigation shows inequity in US wildfire emergency response

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Recent U.S. wildfire events—including the 2023 Maui wildfire in Hawaii, the 2022 Hermit's Peak/Calf Canyon fire in New Mexico, and the 2020 Cameron Peak Fire in Colorado—are tragic examples of how

disadvantaged communities can suffer most during and after a wildfire.

While all three fires had a devastating impact on an entire community, they disproportionately affected low-income populations who were left without adequate insurance or the financial means to rebuild their homes.

To study inequities in U.S. wildfire management, scientists at the State University of New York at Buffalo are conducting a data-driven assessment of how socioeconomic variables affect the allocation of resources during a wildfire incident. Specifically, they are investigating how socioeconomic variables (such as income and racial demographics) impact the number of personnel dispatched to a community post-wildfire and the dollars spent on extinguishing the fire.

They presented their preliminary results at the 2023 Society for Risk Analysis Annual Conference in Washington, D.C.

In their ongoing study, Industrial and Systems Engineering professor Sayanti Mukherjee and M.S. student Fatima Umar have collected data from the U.S. Census Bureau on county-level socioeconomic indicators like average income and racial demographic composition and obtained detailed information on more than 230,000 wildfire events nationwide from 2014 to 2022 (provided by the National Interagency Fire Center).

"Our results show a pronounced trend in which counties with higher percentages of lower-income and black populations receive less personnel and funding," says Mukherjee. "Conversely, counties with higher proportions of high-income and white people are more likely to secure significant amounts of these resources."

The researchers have also observed that the percentage of households with annual income over $200,000 positively correlates with the number

of personnel and the estimated cost of putting out a fire. "This indicates that high-income neighborhoods receive more attention in the wildfire disaster response and recovery phase," says Umar.

Based on their preliminary findings, Mukherjee and Umar suggest that equity-informed risk analysis should be incorporated into disaster response planning to provide a more accurate assessment of the wildfire-induced risk in a community.

"This would enable government officials to work towards reducing disparities in wildfire management and response," says Mukherjee. "By considering marginalized communities' unique needs and vulnerabilities, disaster response efforts can be more equitable and just."

More information: WiSE: Wildfire Safe Evacuation Planning and Management—Wednesday, December 13, 8:30-8:50 a.m.

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