

# Colorado prisons vulnerable to natural disasters but may be ill-prepared

October 24 2023, by Lisa Marshall

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Three-quarters of Colorado prisons are likely to experience a natural disaster in the coming years, but due to aging infrastructure and outdated policies, many are ill-equipped to keep residents safe, suggests new

University of Colorado Boulder research.

The study, [published](#) in the journal *Natural Hazards Review*, comes on the heels of one of the hottest summers on record and as U.S. lawmakers are calling for an investigation into a rash of what are believed to be [heat-related deaths](#) in the nation's prisons.

In other research, including interviews and focus groups with 35 formerly incarcerated Coloradans, the researchers found that most had already suffered from climate-related hazards, experiencing everything from "brutally hot" or "ice cold" cells to [respiratory problems](#) related to wildfire smoke and lack of toilet facilities during floods.

"We showed that the incarceration infrastructure in Colorado is highly vulnerable to climate-related hazards and that incarcerated people who are Black and Hispanic are at even greater risk," said Shideh Dashti, associate professor of Civil, Environmental and Architectural Engineering, and co-author on both studies. "This is a serious racial justice and environmental justice issue that needs to be addressed."

## **Prisoners among the most vulnerable**

Researchers have long known that marginalized communities, including [people of color](#), [low-income families](#) and people with disabilities, are more vulnerable to climate change. But those behind bars face added risk, as they can't leave or adapt their space to escape threats.

Facilities tend to be old, with poor insulation and outdated heat, ventilation and air-conditioning systems. Colorado's oldest prison opened in 1871. About 40% of incarcerated individuals have a mental health diagnosis, and many take medication that impairs their ability to regulate body temperature.

"When coupled with the extreme temperatures, wildfire smoke and floods that climate change brings, these conditions and lack of agency render incarcerated people extremely vulnerable," said co-author Ben Barron, a Ph.D. candidate and research assistant in the CU Boulder Department of Geography.

Until recently, little research had been done in this area.

To address the gap, the interdisciplinary research team gathered [census data](#) on 110 Colorado facilities, including prisons, jails and juvenile detention and immigration detention centers. They used GIS mapping software and climate modeling data to calculate whether each facility was at low, medium or high risk of wildfire, heatwaves, floods and landslides.

They found that 74.5% of facilities housing 83% of Colorado's incarcerated population have either moderate or high exposure to at least one hazard, and 17% percent are at risk of two.

One third of facilities, housing about 12,700 people, are at medium to high risk of wildfire.

Fifteen are at risk of flooding while, notably, 26 had no FEMA flood risk data available at all.

About half of facilities are at risk of extreme heat.

The study also found that incarceration facilities are more than twice as vulnerable to flooding than Colorado schools are. That's relevant, the authors said, because unlike prisoners, students are free to leave when flood risk arises.

Black people are significantly more likely than whites to be jailed in a

facility at risk of extreme heat, while Hispanic or Latino people are at greater risk of experiencing a flood while incarcerated, the study found.

## 'We're dying in here'

Dashti said the team had trouble getting information from many facilities about their engineering or architectural elements, but interviews with the formerly incarcerated painted a disturbing picture.

"It's truly horrifying to listen to," said Barron, who conducted nine interviews and four focus groups for a separate paper that has not yet been published.

Some interviewees recalled temperatures soaring into the upper-90s inside their cells.

"We just want the doors open because we're dying in here," one told researchers.

When [air-conditioning](#) was turned on, it was often left on full blast into the cooler months, making it so frigid that ice formed inside cell windows.

Other formerly incarcerated people described being awakened in the night by wildfire smoke and stuffing clothing over vents and windows to keep ash out of their cell. Some had to wait outside in long lines in triple-digit temperatures to get their medications.

"I remember people just burning," recalled one 46-year-old man, describing his cell mate. "He was out there all day. And he was so purple, and he had edema on his head so bad you could put your thumb in his forehead, and it would just stay."

## 'Cruel and unusual punishment'

Due to lack of emergency planning, prisoners in other states have been infamously left behind when natural disasters hit.

In 2005, during Hurricane Katrina, thousands were locked inside the Orleans Parish Prison for days, submerged in deep, sewage-tainted water and without power. In 2020, during wildfires in California, a wildfire came within a few miles of two state prisons. While neighbors were evacuated, prisoners were left in place.

Colorado prisons have been evacuated at least two times: In 2013, a fire forced evacuation of 900 people from Territorial Correctional Facility in Cañon City. In Barron's interviews, a person evacuated that day described it as "chaos." In May 2023, hundreds at the Delta Correctional Center were evacuated due to the threat of flooding.

Dashti said that, as an engineer, she has been horrified to learn of what she equates to "cruel and unusual punishment" in U.S. prisons. She hopes the findings will encourage governments to update building codes and policies to ensure that facilities are more resilient and humane in the face of more frequent and severe natural hazards expected as a result of climate change.

"But we can't simply engineer our way out of the problem," she said.

The U.S. has the highest rate of incarceration in the world, imprisoning 700 out of every 100,000 people, compared to 115 out of 100,000 for its peer nations. In Colorado alone, about 31,000 people are currently behind bars.

Dashti, Barron and their interdisciplinary research team believe more support should also be provided for education, mental health care, public

housing and other means to keep people from committing crimes or help rehabilitate them when they do.

Some prisons should be closed, they argue.

"It's not enough to say we'll just retrofit and add air conditioning," said Barron. "We need to stop putting so many people in jail."

**More information:** Sara Glade et al, Hazards and Incarceration Facilities: Evaluating Facility-Level Exposure to Floods, Wildfires, Extreme Heat, and Landslides in Colorado, *Natural Hazards Review* (2023). [DOI: 10.1061/NHREFO.NHENG-1556](https://doi.org/10.1061/NHREFO.NHENG-1556)

Provided by University of Colorado at Boulder

Citation: Colorado prisons vulnerable to natural disasters but may be ill-prepared (2023, October 24) retrieved 27 April 2024 from <https://phys.org/news/2023-10-colorado-prisons-vulnerable-natural-disasters.html>

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