



## **DISASTER RESPONSE AND CLIMATE CHANGE**

### **What predicts risk reduction behavior?**

#### **BACKGROUND**

A wide range of nonprofits, both faith-based and secular, provide the social assistance, food banks, shelters, community health clinics, and other services that make up each community's social safety net. Many of these services become vital lifelines for residents impacted by natural disasters. However, even as climate change brings more extreme weather to Indiana, these organizations vary considerably in how much risk reduction they carry out to ensure they can accommodate the needs of the vulnerable populations they serve (seniors, low-income, children, individuals with disabilities, etc.) during and after weather emergencies.

Paul H. O'Neill School of Public and Environmental Affairs Professor Beth Gazley and doctoral student Rachel Cash surveyed Indiana social, health, and human services charities. Along with O'Neill School Professor Doug Noonan and IU Department of Earth and Atmospheric Sciences Associate Professor Ben Kravitz, they have explored the factors influencing risk reduction behaviors in nonprofit organizations responding to local disasters in the context of climate change. This data provides some general comparisons relevant to other states, especially to those in the Midwest.

This brief offers Indiana service providers, emergency planners, and policy makers place-based information about the extent to which these essential community resources are preparing for more extreme weather. The analysis offers a neutral, nonpartisan perspective on nonprofit disaster preparedness statewide.

The information matters because even while U.S. public policy recognizes these organizations as necessary partners in disaster response,<sup>1</sup> their readiness for climate change is

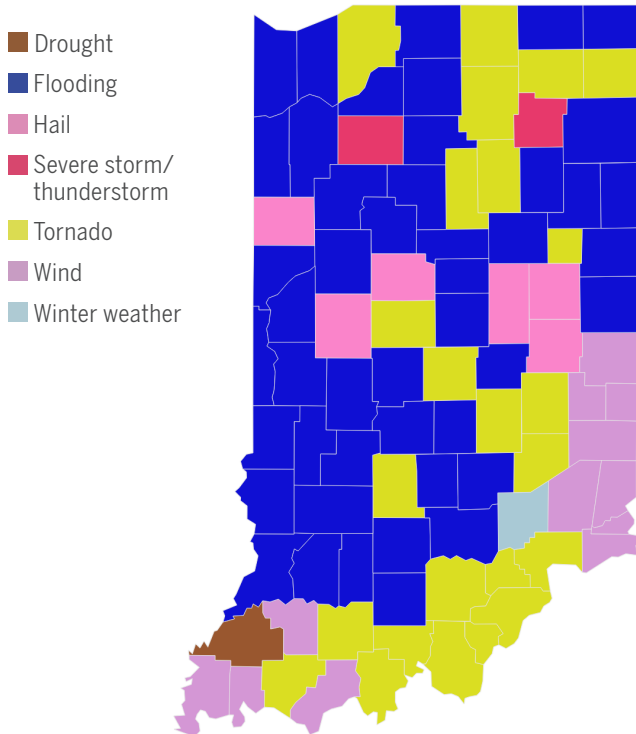
#### **KEY FINDINGS**

- Charity leaders' direct experiences with disasters shape climate views.
- Nonprofit boards of directors who had conversations about climate change were more likely to engage in risk reduction.
- Focusing on the potential impacts of climate change on a nonprofit's clients is key to starting a conversation about climate change.
- Nonprofits with greater organizational capacity were the most likely to engage in risk reduction actions.
- Discussions about making adaptations for climate change and disaster risk reduction, which usually occur separately, should be integrated to optimize disaster preparedness.
- Policy makers need to consider all social and human service nonprofits that view themselves as part of each community's disaster response network and encourage them to participate in various local planning networks.
- Policy makers must engage all community resources and knowledge about weather and flood risk to meet the demands of disaster response in the face of climate change.

generally unknown and under examined. Similarly, disaster-response research overlooks Midwest disaster planning, as most of the knowledge generated to date focuses on coastal hurricanes. Indiana, however, is also prone to escalating hazards including severe storms, high wind events, and flooding.<sup>2</sup> This brief explores paths for public managers to

close this knowledge gap, resulting in better and nimbler local disaster planning.

### FIGURE 1. Most expensive hazards in Indiana by county, 2022



Source: [Hazards, Vulnerability, & Resilience Institute, University of South Carolina](#)

## METHODOLOGY

The researchers identified 1,257 organizations across Indiana's 92 counties reflecting the state's social safety net. This group included first responders like the American Red Cross and St. Vincent de Paul chapters, but also the network of United Way organizations and their grantees/community partners, all community foundations in the state, organizational members of local disaster-planning networks (including Community Organizations Active in Disaster [COADs]/Voluntary Organizations Active in Disaster [VOADs]), and organizations that provide human, health, youth, disability, senior, and social services. The list comprised 21 organization categories in the National Taxonomy of Exempt Entities.<sup>3</sup>

Researchers analyzed the impact of one kind of natural disaster event—flooding—on Indiana's social safety net because it is the leading cause of death and economic loss

in Indiana and the United States.<sup>4</sup> Indiana's severe flood risk has increased exponentially.<sup>5</sup> Indiana charities and the people they serve are at risk of both urban flooding caused by flash flooding and riverine flooding that affects rural areas. Respondents were asked to recall their experience with these and other severe weather events, such as winter weather, tornadoes, and severe wind events.



Source: David K, Via [Wikimedia Commons](#)

Between March and August 2022, respondents received three invitations to participate in the survey, and 467 nonprofit leaders responded. Questions addressed charities' vulnerable populations, the types of disaster services they have provided in the past, and their partnerships and networks. The survey also collected information about the agencies' past experiences with disasters, plans and preparedness for future disasters, and how climate change might fit into their emergency planning. A follow-up set of interviews, fielded in summer 2024, captured more nuanced information about the perceived barriers and incentives for more active disaster planning.

Investigators used this data to examine external and internal variables affecting these nonprofits' risk adaptation behaviors. They hypothesized these behaviors are a function of three community characteristics (community social vulnerability, disaster risk exposure/geophysical vulnerability, and disaster experience) mediated by five organizational characteristics of respondents (views about climate change's causes and impact; board or stakeholder receptivity to a discussion about climate change; and network activity of the organization). They then used a statistical program to evaluate the strength of

these relationships and determine which were significant predictors of risk adaptation behaviors.

## FINDINGS

The analysis reveals that past experience with a weather disaster influences charity leaders' perceptions of the impact of climate change on clients and facilities. However, only a minority of charity leaders are cognizant of local flood risks, while the majority have not yet considered the potential impact of increased flood risk on those they serve.

Active networking and board engagement predicts the implementation of more risk reduction steps. Organizations that reported their boards of directors had conversations about climate change were more likely to engage in climate change action, emergency planning, and adaptation. These results suggest the lived experience with local disasters and an understanding of them promotes more realistic climate change views.

Even when they report an understanding of the human causes of climate change, however, nonprofit leaders do not necessarily report their stakeholders will be receptive to a conversation about it. A charity's stakeholders are likely to represent potential allies in climate change action but also may stand in the way of making any changes to reduce its risks. Nonprofit boards of directors represent diverse constituencies and climate change is a divisive issue in Indiana and the rest of the United States. However, nonprofit leaders remain optimistic they can effectively communicate the severity of climate change and note that focusing on the potential impacts of climate change on the vulnerable communities they serve is key to starting a conversation.

Networking plays a significant role in climate action. Organizations active in a disaster-response network are more likely to plan for disaster and to conduct risk-reduction activities. However, most agencies reporting past experience responding to community disaster needs are not active in COAD/VOAD networks.

Organizational capacity surfaced as the most reliable predictor of climate change action. Larger, older agencies, with bigger budgets, were the most likely to plan for climate

change and engage in risk reduction measures. Smaller, less-established organizations, with fewer resources, therefore, have a distinct capacity disadvantage. Integrating smaller organizations into planning networks may expand their capacity to prepare for threats. Policy makers and grant makers, therefore, should encourage participation in local community disaster planning networks among a wider scope of charities to increase the distribution of information about flood risk and improve knowledge of climate change science. Findings also suggest that many agency leaders have already made connections outside normal disaster network channels, through their professional service networks. Organizations with fewer resources could take advantage of these professional service network connections to educate the public about climate change and strengthen disaster preparedness.



Source: [Copyright Trustees of Indiana University](#)

Policy makers must engage all community resources and knowledge collectively to meet the demands of disaster response in the face of climate change. This study indicates policy makers need to recognize that the discourse around climate change adaptation and disaster risk reduction, usually isolated from each other, should be integrated. This separation unnaturally disconnects charitable and government sectors and makes them less effective than they could be in the disaster missions they share.

## REFERENCES

- 1 Federal Emergency Management Agency [FEMA]. (n.d.). National Response Framework. <https://www.fema.gov/emergency-managers/national-preparedness/frameworks/response>.
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## FURTHER READING

To read more about disaster response and climate change, see links to Beth Gazley's publications in her faculty profile at the Paul H. O'Neill School of Public and Environmental Affairs, [go.iu.edu/gazley](https://go.iu.edu/gazley).



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