



State of Resilience: Preparing Indiana for environmental change

Environmental change is affecting Indiana's climate and introducing new stressors to its economy, health, and infrastructure, threatening the way Hoosiers live and do business. Scientists from Indiana University and Purdue University, among others, predict that these impacts will include more days of extreme heat, more extreme rain events, increased public health risks, and reduced agricultural production in the coming decades.

Indiana can lessen the harmful impacts of climate change and protect our economy and way of life by becoming more resilient. This will require action across all levels of government and the private sector. It will require the best available information about the challenges ahead, solutions that are feasible and affordable, and effective communication.

What is resilience?

Put simply, resilience is the ability to withstand or bounce back from adversity. In the context of climate change, resilience is the capacity for built, natural, and human systems to avoid, absorb, or respond to challenges introduced by environmental change.

Resilient communities share several qualities that help them withstand disruptions. Among these important qualities are:



Diversity: A community with a wide variety of capabilities, skills, and resources is better equipped to weather and recover from adversity.



Redundancy: Excess capacity makes it easier to respond to demands that may arise during periods of emergency. For example, a community with two hospitals is more resilient than a community with just one.



Equity: If community resources are fairly distributed, there will be fewer especially vulnerable neighborhoods requiring extra attention during times of stress.



How resilient is Indiana right now?

We don't know the answer to this important question. Each community and economic sector in Indiana faces its own set of threats and has its own strengths and weaknesses that make it more or less prepared for environmental change. For example, communities, farms, and businesses located near rivers are more vulnerable to flooding from heavy rains, while residents in southern Indiana will likely be more susceptible to heat-related illnesses, as the average annual number of days over 90 degrees is projected to double by mid-century for many parts of the state.

Major climate change impacts identified by the Indiana Climate Change Impacts Assessment include more frequent and more damaging floods, reduced agricultural production, more heat-related illnesses, damage to critical infrastructure, a rise in the spread of infectious diseases transmitted by ticks and mosquitos, loss of biodiversity, and decreased air and water quality.

To help Indiana communities understand their vulnerabilities to climate change and evaluate their preparedness, IU's Environmental Resilience Institute developed an online tool called the Hoosier Resilience Index (hri.eri.iu.edu).

How can Indiana increase its resilience?

A resilient Indiana is one that takes proactive steps to reduce the threats and vulnerabilities associated with climate change. Activities that increase resilience also create local jobs, attract new businesses, and improve public health and quality of life. There are three elements to increasing resilience:

Reduce the threat: Reducing the amount of greenhouse gases emitted into the atmosphere from the burning of fossil fuels and other activities, in Indiana and elsewhere, will make future impacts less severe. While some amount of impact is unavoidable, the more governments, businesses, and the public do to reduce future emissions, the less suffering and disruption Hoosiers and the global population will experience down the road. An Indiana that is 2-4 degrees warmer is much better off than an Indiana that is 7-10 degrees warmer.

Avoid the impacts: Hoosiers can avoid creating new or greater risks by understanding Indiana's future threats and making informed decisions. Knowing what actions to prioritize requires a comprehensive understanding of how climate change is affecting the state's built, natural, and human systems. Indiana researchers are investigating environmental change throughout the state to provide accurate predictions and feasible solutions to state leaders.

Prepare for the unavoidable: Not all climate change impacts can be avoided. Comprehensive preparation for emergency response, management, and recovery may be the best course of action for worst-case scenarios. A state that integrates resilient practices into its operations and infrastructure is better positioned to address large-scale disasters.

About the Environmental Resilience Institute

Indiana University's Environmental Resilience Institute, part of the Prepared for Environmental Change Grand Challenge initiative, brings together a broad, bipartisan coalition of government, business, nonprofit, and community leaders to help Indiana prepare for the challenges that environmental changes bring to our economy, health, and livelihood.

What state policies and programs will increase Indiana's resilience?

Resilience is a team sport. State and local governments, business and industry, farmers, faith and community institutions, and individuals all play an important part.

As Indiana faces the increasingly disruptive impacts of climate change, state policy can play a critical role in setting priorities and initiating processes that spur the public and private sectors to build resilience into their long-term planning and day-to-day operations.

Broad actions that state-level leaders can take include:

initiating resilience planning that focuses state agencies on climate risks and preparedness and promotes collaboration between the public and private sectors.

incentivizing climate resilience in state-regulated sectors, such as power generation, insurance, transportation, and building codes.

prioritizing electric grid and other infrastructure reliability, capacity, decentralization, and resilience to specific weather events.

supporting local governments and businesses that are implementing resilient and sustainable practices and programs.

championing programs that will lead to reductions in greenhouse gas emissions, such as clean energy and transportation.

providing leadership for multi-hazard mitigation and response planning at the local level.

