



10.

Adaptation

Investments Now Will Reduce Future Risk

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ADAPTATION FOR SAFE, RESILIENT COMMUNITIES

Key Takeaways:

- Adaptation is a cost-effective climate solution. Collaboration with the scientific community, federal, state, local governments, the private sector, and other stakeholders can maximize resiliency and preparedness for natural disasters.
- Bad policy exacerbates the risks and costs of extreme weather. Poor planning, overly burdensome permitting timelines, socialized risk, and failed coordination misallocates resources and inhibits the ability of communities to adequately prepare and respond to natural disasters. The private sector should play a leading role in assessing climate risk
- Policy reforms should allow for timely construction of more durable infrastructure. Quicker deployment of more resilient buildings, flood control prevention, and forest management practices will reduce the risks and costs of extreme weather events.

For the American people, there is perhaps no greater connection to climate change than when a natural disaster hits their community. Whether it is a heat dome in the Pacific Northwest, wildfires in Colorado, or a hurricane ravaging the Gulf Coast, the personal costs of extreme weather are far too real. Natural disasters take lives, ruin livelihoods, and destroy homes and businesses. From droughts that threaten crops to flooding at military installations, extreme weather affects nearly every aspect of the U.S. economy and government.

Of course, the scientific link between anthropogenic warming and extreme weather is extremely complicated. While there is scientific uncertainty about how climate change affects some extreme weather events, other effects are clearer. For instance, sea levels are rising at accelerating rates, and some regions of the planet are more susceptible to extreme heat. However, there is low confidence to link human-caused emissions to the frequency and intensity of tornadoes.¹

The National Oceanic and Atmospheric Administration (NOAA) summarizes the science of climate change's impact on hurricane activity in the Atlantic and around the world. In summarizing the literature, NOAA calls it "premature to conclude with high confidence" that there is a link between greenhouse gas concentrations and past hurricane activity in the Gulf Coast. However, NOAA projects with medium- to high-confidence that major hurricanes will increase in number and intensity if the planet warms by two degrees Celsius.²

The improvement of detection and attribution science will better inform policymakers about anthropogenic activity's effect on natural disasters. Further, climatologists may be able to better estimate the likelihood of an extreme weather event caused by human-induced warming. This chapter is not meant to be an exhaustive review of a tie between climate change and extreme weather. For trends, detection, attribution, and projections, see the Intergovernmental Panel on Climate Change's latest assessment report. Climate change should not be an excuse for ineffective policies that increase the vulnerability of communities to extreme weather events. Encouragingly, the human and economic vulnerability from climate-related disasters has been declining.³

The reality is that, with or without manmade climate change, natural disasters are going to strike in the United States and around the world. Policy reforms should better enable preparation, response, and recovery. The examples of what we know and do not know about anthropogenic warming and extreme weather are meant to communicate four important points:

- 1. Scientific knowledge is vital to help communicate our understanding of climate change and extreme weather.** Even with imperfect knowledge, the best available science should be a guide for policymakers. Accurately communicating risk and uncertainty will help allocate resources to their most valuable use to prepare and respond to natural disasters.

- 2. Adaptation is a cost-effective climate solution, and the private sector should play a leading role in assessing climate risk.** Adaptation has already been instrumental in reducing climate-related deaths and risks. Even simple measures like access to affordable air conditioning and home heating are instrumental in protecting people from extreme weather. Furthermore, collaboration with the scientific community, federal, state, local governments, the private sector, and other stakeholders can maximize resiliency and preparedness for natural disasters..
- 3. Bad policy exacerbates the risks and costs of extreme weather.** Poor planning, overly burdensome permitting timelines, socialized risk, and failed coordination misallocates resources and inhibits the ability for communities to adequately prepare and respond to natural disasters.
- 4. Adaptation investments are a complement, not a substitute, for global decarbonization.** Adaptation is a more immediate solution to reduce the public health and safety risks of extreme weather. But that does negate the need to reduce emissions globally. As with any approach, policymakers should carefully weigh costs, benefits, and tradeoffs.

ADAPTATION POLICY IN THE U.S.

In the United States, policy reform should allow for timely construction of more durable infrastructure. Quicker deployment of more resilient buildings, flood control prevention, and forest management will reduce the risks and costs of extreme weather events. The longer it takes to conduct an environmental review and permit for a project, the longer an area is susceptible to the next natural or manmade disaster. Take Offutt Air Force Base, south of Omaha, Nebraska, for example. An *NBC News* and *InsideClimate News* report covered the flooding at the Air Force Base in March 2019. Reporter David Hasemyer wrote that the base knew flooding was a risk as water had come close to the base's runway eight years earlier.⁴ Hasemyer observed, "Crucially, construction was never approved to begin reinforcing an earthwork levee system to protect the vital base from the Missouri River the next time it raged over its banks. Winkler said approval for the levee construction was complicated by myriad requirements from the Army Corps of Engineers that took six years to navigate."⁵ Identifying vulnerabilities and ways to reduce those vulnerabilities is the first step in reducing the risk of extreme weather. Carrying out plans with expediency (and with proper environmental and public safety vetting) is just as critical.

The Infrastructure Investment and Jobs Act dedicated \$47 billion for climate resiliency projects to improve preparedness for fires, floods, droughts, and hurricanes.⁶ \$2.6 billion will go to NOAA, of which \$492 million will provide resources "to map and forecast inland and coastal flooding, including 'next-generation water modeling activities.'"⁷ "NOAA [will] also get \$50 million to predict, model and forecast wildfires."⁸ The bill included nearly \$6 billion for forest restoration, management, and wildfire prevention, and contains measures for watershed and coastal restoration, \$11.6 billion to the Army Corps of Engineers for flood control and river dredging, and money for the environmental remediation of abandoned mines. Additionally, the Inflation Reduction Act provided \$24.9 billion for different conservation, forestry, and agriculture programs. Included in this funding is \$1.8 billion to the U.S. Forest Service to conduct wild-fire reducing activities and \$350 million for vegetation management. While these bills made notable investments to the country's natural ecosystems, policymakers should do more to remove barriers for climate adaptation investments.

POLICY RECOMMENDATIONS FOR SAFER, MORE RESILIENT COMMUNITIES

To enable investments for safer, more resilient communities, Congress and the administration should:

- **Enact full expensing for buildings and structures.** Full expensing allows a business to deduct expenses immediately rather than over a long depreciation schedule. For a residential building the depreciation schedule is 27.5 years and for a nonresidential building the depreciation schedule is 39 years. As the Tax Foundation notes, "This is problematic; due to inflation and the time value of money, a dollar in the future is worth less than a dollar today. Thus, delaying deductions for the cost of business investments means that the real value of the deductions is less than the original cost."⁹ Immediate expensing for long-lived assets would not only provide a boost to the economy, but it would encourage the development of more efficient, environmentally friendly, and climate resilient buildings.¹⁰

- **Modernize the National Environmental Policy Act.** While the Fiscal Responsibility Act included several reforms to modernize NEPA, such as instituting page limits and timeframes to complete Environmental Impact Statements and Environmental Assessments, the law failed to tackle one of the biggest NEPA-related challenges: litigation. The current statute of limitations for NEPA litigation is six years. To speed up the development of climate-friendly infrastructure, conservation and clean energy projects, lawmakers should reduce the statute of limitations, ideally to 120 days. (For more information, see permitting chapter).
- **Reform the National Flood Insurance Program.** A fundamental problem that increases the public’s vulnerability to extreme weather is the misperception of risk as well as policies that distort and socialize that risk. The National Flood Insurance Program (NFIP) is a prime example where the federal government has, for years, used out-of-date flood maps and subsidized insurance premiums for homeowners living in high-risk areas (often wealthy families).¹¹ The distortion of risk has resulted in overbuilding in areas susceptible to flooding. When flooding does occur, taxpayers are on the hook to massively bail out the program.¹² In October 2021, the Federal Emergency Management Agency (FEMA) launched its new Risk Rating 2.0 to have insurance premiums more accurately reflect the risk of living in certain areas. Productively, the new rating system uses methodology that builds off “years of investment in flood hazard information by incorporating private sector data sets, catastrophe models and evolving actuarial science.”¹³ The more the federal government and public can rely on private risk assessors to communicate the risks of climate change and have prices accurately reflect that risk, the safer people will be. Meanwhile, developers will think more carefully about where they build. Risk Rating 2.0 is a much-needed step in the right direction, but deeper reforms are needed, including transferring NFIP to the private sector as much as possible.¹⁴ At the very least, homeowners and builders will more fully bear the cost of their decisions.
- **Repeal the Foreign Dredge Act.** More than a century old, the Act prohibits any foreign-built or foreign-chartered ships from dredging in the U.S. Consequently, some world class dredgers that could deepen and widen America’s ports at a fraction of the cost and time cannot bid on contracts. The Dutch and Belgians own these dredgers and present minimal risk to American national security. In addition to making America’s ports more competitive and removing inefficiencies created by congestion and light loading, dredging is an effective tool to replace sediment and protect against coastal erosion.¹⁵
- **Better coordinate federal activities on adaptation.** Several federal agencies provide resources for prevention of, response to, and recovery from natural disasters. Along with more funds committed through the infrastructure bill and appropriations bills, better coordination is necessary to protect communities and be good stewards of taxpayer dollars.
- **Limit emergency use spending to emergencies.** According to policies established by the Office of Management and Budget in 1991, emergency spending should be necessary (essential or vital, not merely useful or beneficial); sudden (coming into being quickly, not building up over time); urgent (requiring immediate action); unforeseen; and not permanent.¹⁶ Any emergency funding to respond to natural disasters should adhere to these criteria.
- **Maintain steady support for resiliency research and development.** The private sector will be the leader in resiliency innovation as there is an economic incentive to make buildings safer and crops more weather resistant. However, government research facilities and academic institutions play an important role in studying basic physics, chemistry, novel materials, biosciences, and more. Research in these sciences can lead to groundbreaking discoveries and consequently innovative new technologies that help communities adapt to climate change. Congress should continue supporting basic science research and continue to support research to help policymakers and the public better understand climate vulnerabilities and how to prepare and respond to them.¹⁷

ENDNOTES

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