DISASTER RESILIENCE
A NATIONAL IMPERATIVE (2013)

Disasters are becoming more destructive in the United States and around the world. Blizzards, tornadoes, floods, hurricanes, wildfires, heat waves, earthquakes and other natural hazards collectively kill and injure thousands of Americans every year and affect the lives of many more. Disasters destroy homes and businesses, displace people, disrupt transportation, and interrupt economic activity. And human-induced disasters, such as acts of terrorism, financial crises, or social unrest, can be as destructive as natural ones.

Concerned about the nation's increasing vulnerability to disasters, eight federal agencies and a community resilience group asked the National Research Council to examine ways to increase disaster resilience in the United States and to develop a plan of action for the nation. Accordingly, this report recommends steps the nation can take to bolster its resilience. A culture of resilience offers a way to reduce vulnerability to disasters and their impacts before they occur, with the potential to decrease disasters' costs and consequences.

The Cost of Our Current Path

One indicator of the urgent need to increase the nation's resilience is the large sums of money spent responding to disasters. Federal expenditures, which are borne by the entire country, have been growing steadily for the past 60 years. In 1953, for example, federal spending on disasters totaled $20.9 million (adjusted to 2009 dollars), or $0.13 per person. In 2009, with many more disaster declarations, the federal government spent $1.4 billion – about $4.75 per person – on disaster relief. And this federal spending does not include the staggering costs of disasters to cities, states, industry, companies, and individuals, only part of which is covered by insurance.

If we continue on our present course, data suggest that the cost of disasters will continue to rise, both in dollar amounts and in social, cultural, and environmental losses to communities. Given the population's shift toward coastal and southern regions, more people will be in the way of hazards such as hurricanes and drought. Vulnerable people such as the aging – a growing segment of the American population – will need more coordinated assistance during and after a disaster. Meanwhile, our nation's infrastructure continues to age beyond acceptable design limits, leaving those who rely on it more vulnerable as well.

We can instead choose to enhance the resilience of our communities and our nation. Developing a culture of resilience would mean better anticipating disasters and their consequences, enhancing the ability to recover more quickly and strongly. Resilient communities would plan and build in ways that would reduce disaster losses, rather than waiting for a disaster to occur and paying for it afterward.

Envisioning a More Resilient America

What would a more resilient America look like? To guide its work, the authoring committee adopted a vision of the future – a vision of a more disaster-resilient America in the year 2030. In this nation:

- Information on risks and vulnerabilities to individuals and communities is transparent and easily accessible by all.
- All levels of government, communities, and the private sector have designed resilience strategies and operation plans based on this information.
- Proactive investments and policy decisions – including those to prepare for, mitigate, respond to, and recover from disasters – have reduced the human and economic toll of disasters.
- Community coalitions are widely organized and supported to provide essential services before and after disasters occur.
- Recovery after disasters is rapid, and the per capita federal cost of responding to disasters has been declining for a decade.

Achieving this vision will require a new national culture of disaster resilience in which each individual and every community takes responsible for resilience to disasters. Improved resilience will result from decisions made at all levels of government, the private sector, and communities.

For example, federal agencies will need to assist communities in taking steps to avoid losses and reduce risks rather than rely primarily on post-disaster relief. The private sector will need to upgrade infrastructure to meet 21st-century building codes and include disaster-resilient designs. City and county officials will need to maintain and advocate land use, zoning plans, and construction codes that enhance resilience and emphasize working with the national environment. And individuals and communities will need to realize that they are their own first line of defense against disasters, offering mutual assistance and developing governance strategies to manage crises cooperatively.

Recommendations

Federal, state, and local governments should support the creation and maintenance of broad-based community resilience coalitions at local and regional levels.

Improving resilience in anticipation of disasters requires that representatives from all community sectors – government agencies, the private sector, and nongovernmental and faith-based organizations -- work in concert and have a common vision of resilience. Broad-based public-private coalitions provide a way to unify all parts of a community around the goals of resilience. Such coalitions can assess a community's vulnerability, educate people about risks, and evaluate and expand a community's capacity to handle those risks. Coalitions are also key to improving the resilience of a community's critical infrastructure and systems – such as power systems and health care services – that are often dispersed across the public and private sectors.

The public and private sectors in a community should work cooperatively to encourage commitment to and investment in a risk management strategy that includes complementary structural and nonstructural risk-reduction and risk-spreading measures or tools.

Risk management is a process that identifies the hazards facing a community, assesses the risks from these hazards, and develops and implements strategies to counter those risks and help communities become more

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[1] This definition was developed by the study committee based on the extant literature and is consistent with the international disaster policy community (UNISDR, 2011), U.S. governmental agency definitions (SDR, 2005; DHS Risk Steering Committee, 2008; PPD-8, 2011), and NRC (2011).

resilient. A diverse portfolio of tools to manage disaster risks provides choices for decision makers and communities before, during, and after disasters. Tools include structural methods, such as levees and disaster-resistant construction, and nonstructural methods, such as timely forecasts and warning systems and changes in zoning and land use.

Federal government agencies should incorporate national resilience as a guiding principle to inform the mission and actions of the federal government and the programs it supports at all levels.

While the federal government plays a central role in providing guidance and assistance to local communities, the nation currently lacks an overall vision and coordinating strategy for resilience.
In the short term – the next one to two years – the federal government should take steps to incorporate national resilience as a guiding principle. For example, federal agency leaders should work with state, local, and private-sector stakeholders to develop a vision of national resilience. A process should be developed to help agencies collaborate and coordinate their work on resilience. And federal agencies should develop a cost-effective strategy for investing in resilience. Additional steps will be needed three to ten years from now, such as developing a long-term national strategy for resilience, along with short-term incentives and guideposts for achieving long-term goals.

All federal agencies should ensure that they are promoting and coordinating national resilience in their programs and policies. A resilience policy review and self-assessment within agencies and strong communication among agencies are key to achieving this kind of coordination.

Many federal programs are not explicitly related to resilience but may nevertheless affect resilience in positive or negative ways. Because some agency policies or practices could inadvertently undermine community resilience, government agencies should evaluate their programs and activities to determine their long-term impact on resilience. A resilience self-assessment by each agency will also help the agency examine how its mission contributes to the nation's resilience, as well as how its programs affect resilience programs operating at state and local levels.

A national resource of disaster-related data should be established that documents injuries, loss of life, property loss, and impacts on economic activity.

The nation currently lacks a national repository for information about disasters that occur and the losses they cause. In addition, existing data are often incomplete, incompatible with each other, and inadequate to reveal in detail the geographic impact of losses. This lack of consistent information leaves communities unable to make informed decisions about where and how to prioritize their investments in resilience. A national data inventory would reconcile and integrate the fragmented data sets on disasters. It would serve as a national archive for data on historical disasters and the losses they caused. And it would provide an evidence base for evaluating the effectiveness of interventions and investments to build resilience.

The Department of Homeland Security – in conjunction with other federal agencies, state and local partners, and professional groups – should develop a National Resilience Scorecard.

How can community leaders know how resilient their community is? And how can they know if their decisions and investments to improve resilience are making a significant difference? Today, the nation does not have a consistent basis for measuring resilience, making it difficult or impossible to identify priorities for improvement or determine whether resilience has improved or worsened. A National Resilience Scorecard that encompasses the many physical and social factors that determine resilience would provide an objective baseline specific to each community and would provide a tool to track improvements. Communities could use this national scorecard to develop their own tailored scorecards that allow them to ask the right questions, create a resilience-building strategy, and measure its effectiveness.

Conclusion

Although disasters will continue to occur, actions that move the nation from a reactive to a proactive approach will reduce many of the societal and economic burdens and impacts that disasters cause. Building the nation's resilience is a long-term process, one that will be socially and politically challenging, but the reward for our efforts will be a safer, healthier, more secure, and more prosperous nation.

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