Discussion Paper for the Congressional Natural Hazards Caucus

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Congress has established the Natural Hazards Caucus to better understand why the nation is increasingly vulnerable to natural hazards and to explore alternative courses of action. Incentives and disincentives that have developed over the course of time shape, for better or worse, current remedies and policies. The needed changes in approach are not confined to government or private enterprise alone but require partnerships. The following issues need attention in the near term:

- We do not know how much the nation is paying for natural disasters. Accurate data that is consistent across hazards, time, political jurisdictions, and economic sector will tell us whether things are getting better or worse.

  Congress can designate an executive branch agency to compile and publish the true costs of natural disasters.

- Mitigation -- allocating resources today to reduce a greater loss in the future -- is too rarely adopted as a strategy to deal with natural hazards. Data supporting the cost-effectiveness of mitigation is scattered, anecdotal, and not useful to policy makers.

  Congress can establish a means to inform itself of the costs and benefits of mitigation, and insist that responsible executive branch agencies systematically document the cost-effectiveness of their mitigation programs.

- Improving the emergency response to disasters must be a continuing priority. Improving the advance notice of a hazard and harnessing information technology to warn those in harm's way should be priorities.

  Congress can require that agencies support geophysical, oceanic, and atmospheric research and instrumentation that increases lead times, accuracy, and specificity of warnings.

- Long-term recovery requires effective coordination among agencies and service providers.

  Congress can work with federal agencies, state and local government, and the private sector to improve coordination beyond the immediate post-disaster period.

- The current federal-state-local relationship provides mitigation resources after the disaster, not before. The relationship needs to shift the emphasis so that mitigation efforts prevent citizens from becoming disaster victims in the first place.

  Congress can consider whether current law is effective and is rigorously administered by responsible agencies. Congress can urge that proposed legislation not increase the nation's vulnerability to natural hazards, and set an example by insisting that the siting of new federal facilities should include cost-effective mitigation measures.

- Advances in information technology have greatly increased public and private reliance on critical infrastructure. When natural hazards threaten the integrity of critical infrastructure, losses from business disruption can match losses from property destruction. Businesses and government must work in concert to make the private sector more resilient to natural hazards.

  Congress can identify and remove barriers that may prevent the entry of new technologies into the marketplace that could improve hazard mitigation.

Introduction

The costs of natural disasters are rising in the United States despite our unprecedented scientific understanding of the nature of natural hazards, new technology and tools for protecting lives and property, and an unparalleled ability to forecast and warn the population. Why, then, is the nation becoming more vulnerable to natural disasters, and what can be done about it? Natural disasters occur where the inescapable forces of nature -- e.g. hurricanes, earthquakes, floods, severe weather, volcanic eruptions -- exceed the resilience of people and infrastructure of modern society. More people and more wealth in the US are moving into harm's way without an individual or collective understanding that their risk of loss has increased. Despite these demographic changes, the nation can and should make itself more resilient to natural disasters.

The challenge to the Congressional Natural Hazards Caucus is to demonstrate, through its actions and its authority, that the intersection of the violent forces of nature with our increasingly prosperous nation should not inevitably result in more human suffering and higher economic costs. A successful caucus reflects a strong partnership between its congressional members and groups outside Congress that share similar interests. A working group of organizations has come together with a common desire to reduce the toll -- both human and financial -- of natural hazards and to enhance the nation's ability to recover from those events. This discussion paper is intended to provide the work group's perspective on key issues to assist the Caucus in setting its agenda for the 107th Congress and over the longer term.

Natural disasters tend to disrupt a wide swath of vital sectors and facilities: industry, agriculture, transportation, schools, hospitals, insurance, telecommunications, water, power, and even the U.S. military forces. Consequently, jurisdiction for natural hazards programs is spread among many committees in Congress and each committee only handles a piece of the overall effort to prevent and mitigate natural disasters. A key role for the Caucus will be to address issues that span multiple committee jurisdictions and to provide a "big picture" context for more specific legislative efforts.

A primary goal of the Congressional Natural Hazards Caucus is to develop a wider understanding within Congress that reducing the risks and costs of natural disasters is a public value. That requires educating Members and staff about the costs of natural disasters to all 50 states and 435 congressional districts, and the benefits their constituents will realize through greater efforts to understand, prevent, and mitigate natural disasters. *In many instances, we already know how to reduce the losses from natural disasters, but we just do not do it.* At the same time, we need to explore and implement new approaches and take advantage of new technology and improved scientific understanding.

Natural disasters strike states and regions, but they too frequently have a national impact and require a national response. Members of the Congressional Natural Hazards Caucus, who represent individual states but act in the national interest, realize that reducing the danger of natural hazards to the constituents in their state benefits all citizens across the entire nation.

Magnitude of the Problem

Natural hazards are a national and indeed international problem, but their impacts are felt at the local level in communities and individual homes hit by losses. No part of the country is free from natural hazards, whether they be hurricanes in North Carolina, earthquakes in California, flooding in Missouri, tornadoes in Oklahoma, wildfires in Montana, landslides in Alaska, or ice storms in New York. As the following Federal Emergency Management Agency (FEMA) map of presidential disaster declarations shows, all states are vulnerable.

Hurricanes continue to deliver mounting losses, both human and financial. Last year, Hurricane Floyd forced the evacuation of 4 million people, forcing 10,000 into shelters. The costs of 1992's Hurricane Andrew reached $23 billion. Over 75 million Americans live in metropolitan areas that are subject to high or moderate earthquake risk. It is estimated that a repeat of a major earthquake like the 1906 San Francisco or 1964 Alaska ones could cause up to $500 billion in damage to a heavily populated area. The costs of flooding have risen over time and now approach $6 billion annually. In 1998, droughts in southern states caused farmers and ranchers nearly $9 billion in damage. An average of 1,000 tornadoes are reported each year across the United States, taking 80 lives and causing over 1,500 injuries. Landslides cause $1-2 billion in damages and more than 25 fatalities on average each year often in conjunction with other major natural disasters such as earthquakes and floods, exacerbating relief and reconstruction efforts.

A Changing Policy Landscape

While natural disasters have always been with us, their character has changed over the years reflecting population increase, urbanization, economic growth and technological advances. The federal programs initiated in response are also constantly evolving. Major engineering projects to control river flows are giving way in some areas to watershed management and restoration of natural flood plains. Weather services have been expanded to include climate forecasts. Wildfire suppression on federal lands now involves alternative management approaches such as prescribed burns. Pre and post-event mitigation initiatives have been added to emergency response programs.

Federal programs related to natural hazards are almost always multi-purpose. Flood management also contains elements of ecosystem protection and maintenance of waterways for transportation and recreational purposes. Weather services meet the day-to-day needs of the public, and the agriculture, transportation, energy and other sectors for routine forecasts. Fundamental research into Earth systems underpins not only natural hazard understanding but also a wide range of environmental and resource concerns. Emergency management capabilities are broadly useful beyond natural disasters for events such as industrial accidents, domestic preparedness and terrorist threats, technological challenges like Y2K, and war.

Because federal activities with respect to natural hazards are threaded throughout the federal government, precise identification of program dollar amounts would, in most instances, be incorrect or misleading. Although all of these programs could stand improvement, they are already receiving congressional scrutiny through the existing jurisdictional structure. However, the work group believes there are a number of strategic challenges that transcend normal program oversight and that affect our overall resilience as a nation to natural extremes.

Challenges for the 107th Congress and Beyond

This section identifies barriers to effective natural hazard mitigation and response along with caucus activities that can address these barriers. The goal is to show activities that can reasonably be accomplished in the 107th Congress as well as longer-term challenges for the caucus to consider.

Determining the Cost of Disasters

We do not know how much the nation is paying for natural disasters. Despite their frequency, there is no system in either the private or public sectors for consistently compiling their costs. For very large events the federal government collects detailed information, but that collection is not comprehensive and it covers only a limited period of time. Useful data must be consistent across hazards, time, political jurisdictions and economic sectors. This information is critical not only to an informed discussion about the most effective use of limited mitigation resources, but also to the establishment of a baseline that can help us tell whether things are getting better or worse, and whether mitigation efforts are having the desired effect.

What Congress Can Do:

- Designate an existing executive branch agency to be responsible for implementing a process that will comprehensively compile the frequency, costs, and geographic distribution of natural disasters to the nation. This information should be included in an annual report on the state of the nation's resilience to natural hazards.

Demonstrating and Documenting the Cost-Effectiveness of Mitigation

The basic tenet of mitigation is that it makes sense to allocate resources today to reduce or eliminate a greater loss at some time in the future. Unfortunately, this tenet is too often an assertion with little or no supporting data. For example, the National Flood Insurance Program has been in operation for over thirty years but has yet to be subjected to the kind of analysis that would determine whether the program has actually encouraged building in undesirable locations, as has been charged. Various mitigation strategies for different hazards, with different costs and, presumably, different degrees of effectiveness can be applied to new construction and to existing facilities. But no organization has responsibility for, or has taken the initiative to conduct the rigorous analyses necessary to permit informed choices among alternatives. As a result, much of the information supporting the proposition that mitigation should be a public value is localized and often anecdotal. Without substantial and credible data, proponents carry a double burden in persuading decision-makers to devote scarce resources to future loss reduction. In the recent past, Congress has requested reviews by the General Accounting Office to assess the cost-effectiveness of certain mitigation activities supported by the federal government, but these reviews have been sporadic and limited in scope.

What Congress Can Do:

- Establish a means to keep itself informed on mitigation progress and problems and to initiate studies of its own on major mitigation issues.
- Designate responsible executive branch agencies and insist that they take the requisite action to document thoroughly the costs and benefits of mitigation projects, particularly (although not solely) those supported by federal funds. Inherent in closer congressional scrutiny should be the understanding that not all approaches will be cost-beneficial – there is a great deal yet to learn. But requiring more discipline of the process will help avoid waste from repeating approaches that are found wanting.
- Initiate development of an appropriate set of resilience indicators to serve as a baseline for future decisions and evaluating progress.

Improving Emergency Response

No matter how effective the national efforts at pre-event hazard mitigation are, the strongest hurricanes, earthquakes, and other events will, on occasion, continue to overwhelm these defenses. Furthermore, population increase, urbanization, and growing dependence on critical infrastructure (communications, electricity, gas, sewage, transportation, and water) are extending the time horizon and expanding the scope and geographic domain of emergency management operations. Accordingly, improving emergency response must likewise be an ongoing priority. Fortunately, the same technological advance that is increasing the demands on emergency response is also creating new opportunities for coping. Two areas stand out: improving the advance notice, timeliness, reliability, accuracy, and geographic specificity of hazard warnings;

and harnessing information technology to the task of disseminating information to those in harm's way as well as coordinating the emergency response and recovery efforts.

What Congress Can Do:

- Require that agencies give priority to research in geophysical, oceanic, and atmospheric hazards, examining the causal linkages leading up to such events with an eye to achieving urgently needed increases in lead times, accuracy, and specificity of warnings. Congress should recognize that future advances in these areas depend on current support for fundamental research.
- Ensure that agencies invest in the observing instruments and infrastructure needed to detect and warn of hazards.
- Direct the agencies to document their progress and plans for adapting advances in information technology to disseminating warnings, and to emergency response.

Improving the Long-Term Recovery Process After a Disaster

Disasters are inherently messy and confusing. If they weren't, they would not be disasters. Before the president can declare a disaster, he must find that the situation is beyond the capabilities of the state and the affected local governments to respond effectively. To assist stricken individuals and governments, disaster relief law provides authority to FEMA to coordinate the response activities of all the federal agencies involved. While coordination is not always flawless in the midst of chaos that follows disasters, there is a single federal point of contact for state and local officials. In general, this works so well that there is a persistent cry for a similar arrangement beyond the immediate post-disaster period – a single federal point of contact to assist state and local officials as well as the public in dealing with the longer-term grant programs of agencies such as the Department of Agriculture, Department of Housing and Urban Development, the Economic Development Administration of the Department of Commerce, and the Environmental Protection Agency, to name a few. A priority for long-term recovery should be reducing future repetitive loss -- no one should be put in harm's way again after suffering through a disaster.

What Congress Can Do:

- Explore alternatives to assist state and local governments in developing, coordinating and submitting grant assistance requests for longer-term development and recovery projects and activities after a disaster.
- Develop an awareness program to address the problem of repetitive loss.

Federal-State-Local Relationships

The first permanent program of federal disaster relief, enacted in 1950, provided only for the emergency repair or temporary replacement of essential public facilities. The benefits to disaster-stricken communities and individuals have expanded considerably in the last 50 years, with the federal government assuming a greater share of the liability for inappropriate (from a loss reduction perspective) decisions by all levels of government. It was not until 1988 that funds for mitigation were authorized, and not until the mid-west flooding of 1993 that these funds were provided at a significant level. However, providing mitigation funds in a *post-* rather than a *pre-*disaster setting reflects a political environment in which rewards are greater for meeting the

needs of disaster victims than for preventing them from becoming victims in the first place. The resulting lack of state and local government commitment to and capacity for mitigation is a fundamental impediment to loss reduction.

What Congress Can Do:

- Consider whether current law – including disaster relief legislation – is as effective as it might be in encouraging state and local governments to reduce their vulnerability to natural hazards, and make any necessary changes.
- Insist that current law designed to reduce future natural disaster losses be rigorously administered by the responsible agencies.
- Establish a mechanism to determine the impact of any proposed legislation on the vulnerability of the nation to natural hazards.
- Insist that the federal government set an example of cost-effective mitigation in the siting and construction of new federal facilities and in the rehabilitation of existing ones.
- Consider supporting regional, hazard-based, approaches to loss reduction by fostering collaboration among political jurisdictions, non-governmental organizations and the private sector.
- Identify ways to raise awareness among state and local governments and the general public of the greater risks that communities face when they allow development in inherently dangerous areas.

Public-Private Partnerships

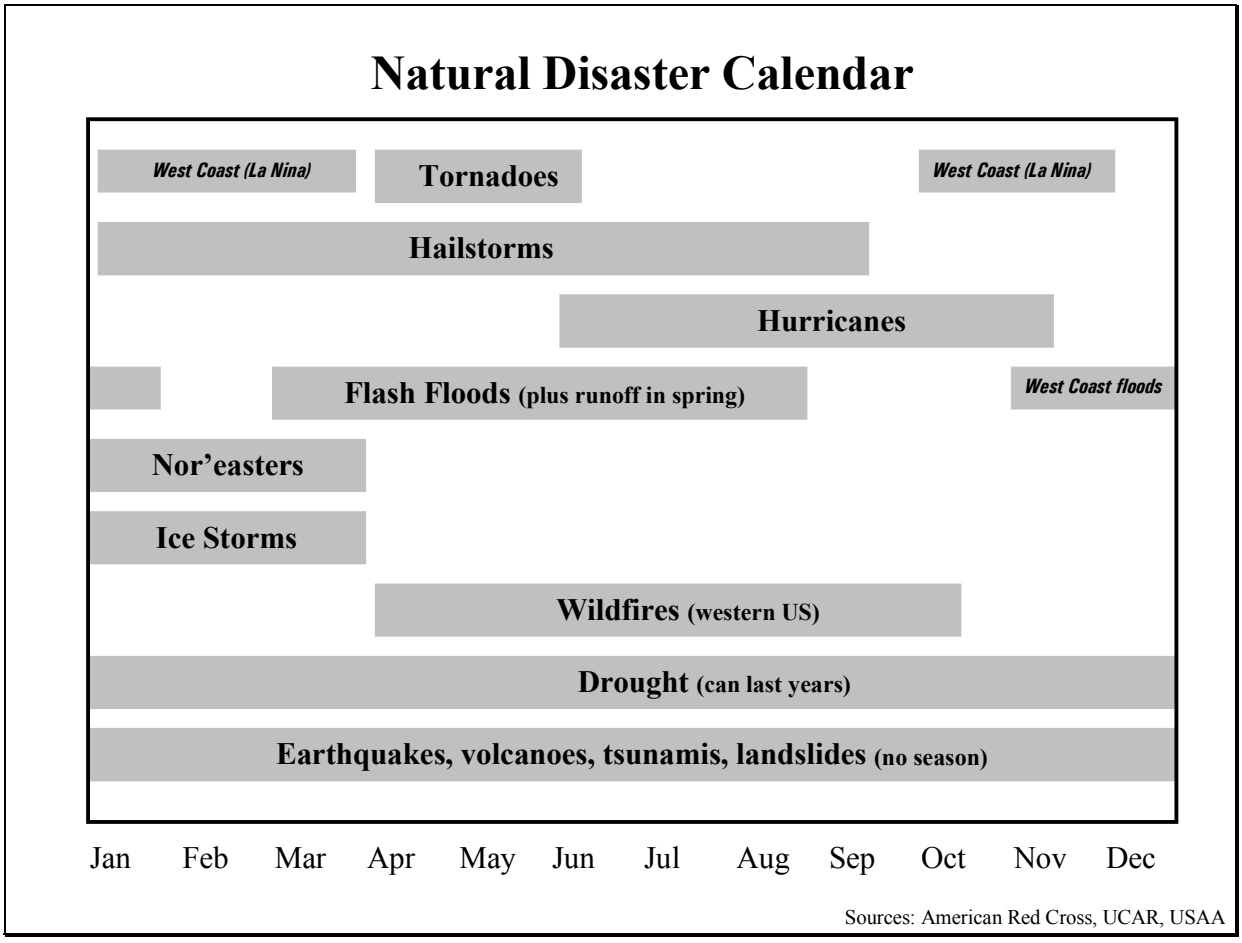
In the future, ensuring public safety and business continuity in the face of hazards will require close partnership between private enterprise and government in myriad ways. Advances in information technology have dramatically increased societal reliance on critical infrastructure and, in the process, transformed the profile of disaster impacts. As a result, losses from business disruption frequently match those from outright property destruction. Moreover, while businesses must assume individual responsibility for maintaining uninterrupted function in the face of hazards, their dependence on common infrastructure (communications, electricity, gas, sewage, transportation, and water) means firms cannot achieve this entirely on their own. They must work in concert with each other, and with government at all levels. But science and technology contain solutions as well. The rapid pace of change makes it necessary to accelerate the transfer of new knowledge and technological advances into business and government practice, in order to realize fully emerging opportunities for mitigation.

What Congress can do:

- Identify and remove barriers that may prevent the entry of new technologies into the marketplace.
- Foster incentives that will encourage businesses, especially small ones, and individuals to improve their resilience to natural hazards.
- Identify disincentives that exist in both the public and private sectors to hazard mitigation.

A disaster presents opportunities to reduce or eliminate the probability of that disaster ever happening again. But the most effective planning to take advantage of those opportunities occurs before, not after, the disaster. If Congress provides a firm foundation for pre-disaster mitigation in law and public policy there is great potential for reducing not only the post-disaster recovery trauma, but the number of disasters as well.

The work group looks forward to assisting the caucus in the next session of Congress to develop events that will address these issues and help to raise the visibility of hazards-related topics with the media and American public.



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