



Creating a National Levee Safety Program

Recommendations from the National Committee On Levee Safety

Critical Infrastructure, Unknown Risk

We are at a critical juncture in our nation's history – risks of loss of life, property damage, and damage to our natural environment behind levees are increasing. Levees across the nation often have been central tools in flood risk management, reducing the effects of floods on people, property, and the environment. The infrastructure that we depend on during emergencies – roads, hospitals, drinking and wastewater facilities, and power generating facilities – also depends on levees.

Although we do know that there are levees in all 50 states, the total number, location, and condition of many of the nation's levees – and the population and property they protect – remain unknown. Preliminary estimates indicate there may be more than 100,000 miles of levees across the United States, and tens of millions of people live and work behind them.

Even though levees were originally constructed to protect property, often they have inadvertently increased flood risks by attracting greater development to the floodplain. In fact, many levees built to protect agricultural fields now protect large urban communities. The potential consequences of levee failure in these communities can be devastating. But we as a nation have failed to pay attention to this essential piece of our infrastructure. Many of our levees are deteriorating as the result of decades of neglect. Even levees that have been maintained over the years may not have been brought up to the most recent engineering standards.

The nation's attention was refocused on the role of levees as a critical piece of the nation's infrastructure most recently with the Midwest floods (1993 and 2008), California floods (1986 and 1997), and, of course, the tragedy of Hurricane Katrina (2005). Coupled with how much we rely on the nation's levees for our life, property, and economy, are we promoting the conditions for the next disaster? When and where the next significant levee failure will occur is not known. What we do know is that it will occur.

How Did We Get Here?

How did we, as a nation, arrive at a point where the American Society of Civil Engineers estimates it will require a \$50-billion investment over the next five years to repair and rehabilitate the country's levees?

From the earliest days of the United States until the 1930s, levee construction was sporadic and unsophisticated, without the benefit of engineering or scientific expertise. After great devastation and loss of life from the Mississippi and Ohio River floods in the late 1920s and 1930s, the US Army Corps of Engineers (USACE) was directed, at full federal expense, to take a more active role in levee design and construction, resulting in thousands of miles of robust levee systems. Many of these levees, which make up the backbone of the nation's levee system, are now over 50 years old.

The National Committee on Levee Safety

Congress created the National Committee on Levee Safety to develop recommendations for a national levee safety program, including a strategic plan for implementation of the program. The NCLS adopted the vision of an involved public and reliable levee systems working as part of an integrated approach to protect people and property from floods, and has been working toward this goal since October 2008.

The NCLS recommendations for a National Levee Safety Program are based on three central concepts:

- Leadership via a National Levee Safety Commission that provides for participating state levee programs, national technical standards, risk communication, and coordination of environmental and safety concerns;
- Strong levee safety programs in and within all states that, in turn, provide oversight and critical levee safety processes; and
- A foundation of well-aligned federal agency programs and processes.

For more information on the NCLS and its recommendations for a National Levee Safety Program, please visit: www.leveesafety.org.

In 1986, Congress required that local communities contribute a share of the cost of flood control projects constructed by USACE, including levees. These additional financial burdens on local communities made affordability of new levees and repairs of existing levees an emerging issue and began a shift from watershed-focused planning to individual projects focused on benefiting only the communities willing to share the project cost.

Meanwhile, the National Flood Insurance Program, established in 1968 to address the inability of the public to secure privately backed insurance for economic losses from flooding, designated the 1%-annual-chance event (“100-year flood”) as a special hazard zone, which would require the purchase of flood insurance for those holding federally backed mortgages and elevation of new structures above the 1% chance flood level. If that floodplain is protected by a levee constructed to withstand the 1%-annual-chance event, the mandatory flood insurance requirement and structure elevation requirement are waived. This policy led to political and financial pressure on communities to build their levees to the 1% standard, a dangerous adoption of an actuarial standard as a safety standard.

When combined, aging levees, increased development in the floodplain, and increasing frequency of flooding due to climate change point to an overall increase in the risk of flooding due to levee overtopping or failure. The question is not *if* a levee system will fail causing catastrophic damage, but *when* and *where* the next failure will occur.

The National Committee on Levee Safety

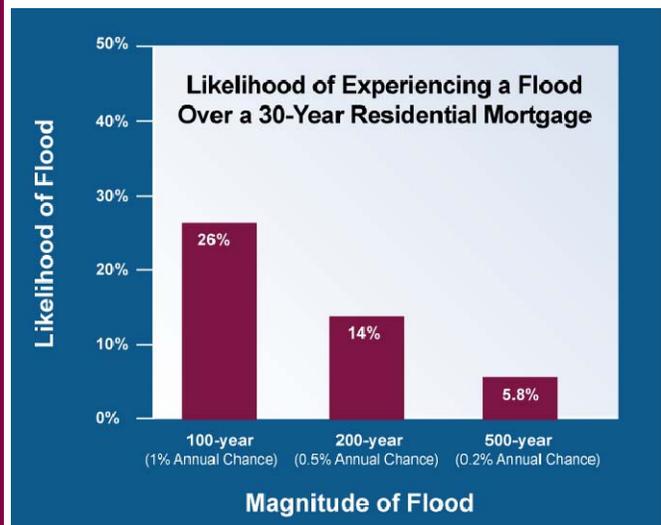
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The Committee is made up of representatives from USACE, the Federal Emergency Management Agency (FEMA), numerous state, regional, and local agencies, and the private sector. Committee members have expertise in engineering, law, public administration, and communication.

The Committee presented their findings and recommendations for a National Levee Safety Program in a draft Report to Congress in January 2009. Today, the Committee is continuing with its charge of developing a strategic plan for implementation of a National Levee Safety Program by coordinating with federal agencies to the extent possible under current authorities and resources.

Does a 100-Year Flood Only Happen Once Every 100 Years?

A 1%-annual-chance flood is sometimes referred to as the 100-year flood. This convenient term, however, has created a lot of misunderstanding. Many believe this means that a destructive flood will only occur every 100 years. In reality, it means there is a 1% chance every year that a flood of that magnitude or greater will occur, translating to a 26% chance that a flood of that magnitude or greater will occur during a typical 30-year mortgage.



Creating a National Levee Safety Program

The National Committee on Levee Safety recommended a National Levee Safety Program based on three central concepts:

- ❖ Leadership via a National Levee Safety Commission that provides for participating state levee programs, national technical standards, risk communication, and coordination of environmental and safety concerns.
- ❖ Strong levee safety programs in and within all states that, in turn, provide oversight and critical levee safety processes.
- ❖ A foundation of well-aligned federal agency programs and processes.

1. Comprehensive and Consistent National Leadership

Currently, responsibility for levee safety is often uncoordinated and incomplete, distributed across all levels of government (federal, state, regional, local) and housed in different agencies and functions within each level of government. This shared and diffused responsibility impedes development of comprehensive safety policies and programs, impairs ongoing coordination, and prevents a sustained focus on this issue. Effectively addressing levee safety across the country requires a strong, independent, national program that will integrate the diverse expertise from existing agencies at all levels of government and from the private sector.

A National Levee Safety Commission charged with identifying and communicating risks associated with levees, developing national safety standards, facilitating dialogue and research on important levee related topics (e.g., research and development, facilitating dialogue with environmental interests), providing technical materials and assistance to all levels of government, encouraging improved safety measures and programs through grants, and overseeing national and state levee safety program development and implementation activities is necessary to provide a coordinated and consistent National Levee Safety Program.

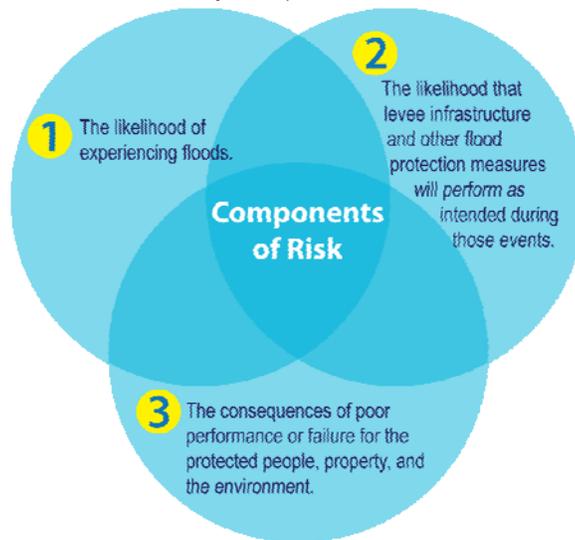
2. Strong Levee Safety Programs in All States

The cornerstone of an effective National Levee Safety Program is effective state programs following a consistent set of national safety standards and mitigation protocols. States are well positioned to provide assistance and oversight to local levee owners/operators, and coordinate activities in a systems approach among entities within and among states; they already have such roles with regard to other elements of infrastructure and the environment. State levee safety programs will allow for a degree of variation and tailoring, meeting local needs and circumstances, rather than a national, one-size-fits-all approach.

Twenty-three states have an agency with some responsibility for levee safety. Although this is a first step toward ensuring strong levee safety programs in all states, the Committee found the roles and resources of existing state programs to be widely variable. To support the establishment and maintenance of state levee safety programs that meet a minimum safety standard, the National Committee on Levee Safety has proposed a new levee safety grant program to assist states in achieving strong levee safety programs and a National Levee Rehabilitation, Improvement, and Flood Mitigation Fund to address both structural and nonstructural levee rehabilitation needs.

The Components of Risk

Our understanding of future risks associated with levees comes from how the three major components of risk combine.



Levee Safety on Tribal Lands

Federally recognized tribes represent sovereign entities within the United States, and different tribes, as with different states, will have different capabilities in implementing levee safety programs. Nevertheless, it is essential that efforts be made to ensure that people living on or near tribal lands also will benefit from levee safety programs, and it is the intent of the NCLS that levee safety programs be established by tribes as well.

3. Alignment of Existing Federal Programs

To ensure that investments in our nation's levees and programs to protect the people who live behind them are effective, all federal programs that impact community and individual behavior in leveed areas should be aligned toward the same goals of risk reduction, developing resilient and reliable levees, and protection of human life and property. Federal agencies with expertise are called upon to provide technical or programmatic guidance, assistance, support, and applicable training in the development and implementation of a National Levee Safety Program. Federal agency adherence to levee safety standards, such as a *National Levee Safety Code* once it is developed, is important to promote nationwide consistency in important technical standards.

All federal programs that significantly impact governmental and individual decision-making in leveed areas must be aligned toward the goal of reliable levees, an informed, involved public, and shared responsibility for protection of human life and mitigation of public and private economic damages.

Except for a few cases where new authorities might be called for, federal agencies could use their existing authorities to perform these activities.

What's Next?

Federal agencies, such as USACE and FEMA, are implementing portions of the Committee's recommendations for a National Levee Safety Program under current authorities. For example, FEMA has worked to clarify and communicate more clearly its terminology in response to the Committee's recommendation that the term "levee certification" used by the National Flood Insurance Program be changed (e.g., to "compliance determination") to explain that the process does not imply a guarantee or warrantee of the levee's condition. USACE is moving forward with developing a Hazard Potential Classification System and Tolerable Risk Guidelines for federal levees; the Committee hopes that these efforts will be a solid foundation for the national standards it has recommended.

To create a comprehensive and effective National Levee Safety Program, some elements of the Committee's recommendations will require Congressional authorization and funding. The Committee will support legislative efforts to implement its recommendations, and will continue to engage with the federal, state, local, regional, and tribal governments, levee owners and operators, environmental groups, and technical associations to share the findings and recommendations from their Report and continue the dialogue on levee safety.

For More Information

Additional information about levee safety and related issues can be found online.

The National Committee on Levee Safety, including their draft Report to Congress: <http://www.leveesafety.org/>

The Federal Emergency Management Agency's Levee System Information for Stakeholders: www.fema.gov/plan/prevent/fhm/lv_intro.shtm

The National Flood Insurance Program's FloodSmart website: www.floodsmart.gov

American Society of Civil Engineers "So, You Live Behind a Levee": <http://content.asce.org/ASCELeveeGuide.html>

American Society of Civil Engineers Infrastructure Report Card on Levees: www.infrastructurereportcard.org/fact-sheet/levees