

**STATEMENT OF
THE AMERICAN SOCIETY OF CIVIL ENGINEERS
BEFORE THE
HOUSE TRANSPORTATION AND INFRASTRUCTURE COMMITTEE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
THE MISSOURI RIVER FLOOD:
AN ASSESSMENT OF THE RIVER MANAGEMENT IN 2011
AND OPERATIONAL PLANS FOR THE FUTURE
NOVEMBER 30, 2011**

Mr. Chairman and Members of the Subcommittee:

The American Society of Civil Engineers (ASCE) is pleased to provide this statement for the record on the Missouri River flood of 2011 and the condition of the nation's flood-control systems.

I. Flooding Remains America's Most Common Natural Disaster

Floods remain the most common form of natural disaster in the United States.¹ Determining the extent of flood damage in the U.S. remains an inexact science, however.

The available records of historical flood damage are inadequate for policy evaluation, scientific analysis, and disaster mitigation planning. There are no uniform guidelines for estimating flood losses, and there is no central clearinghouse to collect, evaluate, and report flood damage.²

¹ Xiong Yu and Yuewen Huang, *Sustainable Flood Risk Management: Lesson from Recent Cases*, in GEORISK 2011, 728 (American Society of Civil Engineers 2011).

² Roger A. Pielke Jr. et al., *Flood Damage in the United States-2003: a Reanalysis of National Weather Service Estimates 1* (2002), http://www.flooddamagedata.org/full_report.html (accessed Oct. 18, 2011).

Nevertheless, some estimates are available. “[D]espite extensive investment in flood-protection infrastructure, flood damage continues to increase. Flooding was estimated to have caused approximately \$50 billion [in damages] to the U.S. in the 1990s.”³

The trend has continued in the 21st century. According to the White House Web site, President Obama issued 154 disaster declarations between January and October 2011, almost all of them related to flood events of one kind or another. Several states suffered from repeated flooding this year and were the subject of more than one disaster declaration, sometimes within days or weeks of each other.⁴

The U.S. Army Corps of Engineers (USACE) has been combating floods for more than 80 years. Responding to the Great Flood of 1927, Congress directed the Corps in 1928 to undertake construction of the Mississippi River and Tributary (MR&T) flood-control project. To date, the project has cost \$10 billion, according to a USACE video.⁵ “Levees remain the system’s backbone,” says the video.

In April-May 2011 the Mississippi River experienced some of the greatest flooding since the 1920s and 1930s. In 2011, the Corps estimates that the flooding runoff in the Missouri River basin exceeded normal annual flood levels by 117 percent to 491 percent.⁶

II. Floodplain Management

ASCE supports protection of natural floodplains and the concept of building disaster resistant communities consistent with sustainable development and holding paramount the public’s safety, health, and welfare. ASCE urges governments at all levels to adopt proactive floodplain management policies, particularly in vulnerable coastal lowlands and river bottoms, and supports creative partnering between federal, state and local governments to adopt floodplain management policies and to fund the design and implementation of floodplain management policies and flood mitigation projects in a timely manner.

ASCE urges federal, state, and local governments to inform residents of communities in floodplains of the hazards associated with the development or major redevelopment of communities below sea level or in high-risk, flood-prone areas. Such development is

³ Yu and Huang, *supra* note 1, at 728 (quoting National Weather Service data).

⁴ White House, Search: Disaster Declaration 2011 (accessed Oct. 17, 2011). Missouri, Kansas, New York State, and Maryland, to name a few, all received multiple federal disaster declarations for flooding in 2011, for example. <http://www.whitehouse.gov/search/site/disaster%20declaration>. The president issued 140 disaster declarations for all of 2010 and 93 in 2009.

⁵ U.S. Army Corps of Engineers, STEMMING THE CHOCOLATE TIDE (undated video) (viewed Nov. 28, 2011), <http://www.youtube.com/watch?v=5-P IVLoDCs&feature=youtu.be>.

⁶ USACE, Operation Mighty Mo 1 (August 2011).

inherently unsustainable and puts the public at significant risk of loss of life and property. The multiple-use of flood prone areas and flood mitigation facilities should be pursued, including river restoration, wetland restoration, aquifer recharge, improvements in habitat, ecosystems, and water quality, recreation and open space use, and incorporation of floodplains into comprehensive watershed management programs.

Development and associated infrastructure in flood prone areas has increased rapidly as people are attracted to historically fertile floodplains and coastal areas. Even though the benefits of preserving the natural floodplains as flood storage areas and wildlife habitat have been recognized, the floodplains continue to be developed and new inhabitants are subjected to periodic flooding and related devastation, as shown by Hurricanes Katrina and Rita. People living and working in flood prone areas often have developed a false sense of security. Once a flood occurs, residents and businesses often expect government to reduce or eliminate the risk of flooding through large capital projects. These populations need the protection of an efficient floodplain management program implemented before the flood occurs. By recognizing the likelihood of future flooding and the beneficial aspects of the natural floodplain, areas can be protected and communities can become disaster resistant.

Floodplain management includes the operation of an overall program of corrective and preventive measures for reducing flood damage, including, but not limited to, emergency preparedness plans, flood control works, and floodplain management regulations. Methods for evaluating the benefits and costs of mixed systems allow for the consideration of both tangible and intangible benefits and costs and should permit formulating programs, including both structural and nonstructural elements, which provide the greatest return on society's investment.

III. Levee Safety

Because levees remain the major engineering tool in the fight against flooding and despite the lessons learned following massive levee failures in the wake of Hurricane Katrina in 2005, ASCE supports the enactment of federal and state legislation and regulations to protect the health and welfare of citizens from the catastrophic effects of levee failures. Congress should enact legislation to establish a national levee safety program that is modeled on the successful National Dam Safety Program.

The federal government must accept the responsibility for the safety of all federally funded and regulated levees. Similarly, state governments must enact legislation authorizing an appropriate entity to undertake a program of levee safety for non-federal levees. The act should require the federal and state governments to conduct mandatory safety inspections for all levees and establish a national inventory of levees. The National Flood Insurance Program should map all areas potentially flooded by a levee breach and identify these as special flood areas to better communicate risks and encourage affected property owners to seek appropriate protection.

There is no national safety program for federal or state levees. Many privately built levees are deeded to local governments or associations who do not maintain them or even

recognize the risks. There is no dependable catalog of the location, ownership, condition, or hazard potential of levees in the United States. Flooding from Hurricane Katrina, which devastated the city of New Orleans in August 2005, demonstrated the need for consistent, up-to-date standards for levees based upon reliable engineering data on their location, function, and condition.

The nation must use all the tools available to reduce damages from hurricanes and major storms. This means the use of structural methods, such as levees, floodwalls, and dams, but also non-structural approaches, such as flood-resistant design, voluntary relocation of homes and businesses from flood-prone areas, the revitalization of wetlands for storage, and the use of natural barriers to storm surges.

IV. Federal Investments Remain Below the Demonstrated Need

The Corps' civil works program remains chronically underfunded. Earlier this year, ASCE recommended a minimum appropriation of \$5 billion for the Corps of Engineers in FY 2012 to reverse the budget trajectory to ensure safe infrastructure and a sound economy. But the president proposed a budget of \$4.6 billion for all civil works programs, the House approved a budget of approximately \$4.3 billion and the Senate approved \$4.8 billion. These totals are inadequate and must be increased. Congress must augment civil works funding in FY 2012 and future years.

We are told the administration proposal would fund the operation and maintenance of more than 600 flood and storm damage reduction projects, 143 commercial coastal navigation projects, and 51 commercial navigation projects on the inland waterways, according to USACE statements. It also would fund construction of 90 projects where construction is already under way as well as two new construction starts.

The budget would fund 58 studies already under way and studies for four new starts. It will enable the Corps to process approximately 70,000 permit requests and to operate 75 hydropower plants with 350 generating units that produce about 24,000 megawatts per year. The budget will enable about 370 million outdoor recreational visits to Corps projects and will provide water supply storage for about 14 percent of the nation's municipal water needs.

Nevertheless, the president and Congress propose to reduce spending on critical Corps of Engineers infrastructure programs in FY 2012. The presidential budget and House and Senate levels are well below the enacted amount of \$5.445 billion in FY 2010, and they are approximately six percent below the FY 2011 budget level. These budget cuts must be reversed to ensure safe infrastructure and a sound economy.

In 2005, Hurricane Katrina vividly demonstrated the perils of relying upon poorly funded infrastructure to protect lives and property. An ASCE investigation (conducted on behalf of the Corps of Engineers) reported in 2007 that chronic under funding was one of the principal causes of the levee failures after Katrina.

Because of the congressional budgeting process, the stream of funding for the New Orleans hurricane protection system was irregular at best. If a project was not sufficiently funded, the USACE was often required to delay implementation or to scale back the project.

This push-pull mechanism for the funding of critical life-safety structures such as the New Orleans hurricane protection system is essentially flawed. The process creates a disconnect between those responsible for design and construction decisions and those responsible for managing the purse-strings. Inevitably, the pressure for tradeoffs and low-cost solutions compromised quality, safety, and reliability.

The project-by-project approach—in which projects are built over time based on the availability of funding—resulted in the hurricane protection system being constructed piecemeal with an overall lack of attention to “system” issues. The project-by-project approach appears to be associated with congressional limitations. The USACE was forced into a “reductionist’s” way of thinking: reduce the problem into one that can be solved within the given authority and budget. Focus only on the primary problem to be solved, inevitably making the issues of risk, redundancy, and resilience a lower priority.⁷

It is not clear how federal agencies like the Corps will continue to pay for essential infrastructure systems with greatly reduced appropriations. Enabling the eventual failure of the nation’s essential public infrastructure through arbitrary budget-cutting is deeply troubling. “Doing more with less” is a slogan that allows drastic budget cuts or the complete elimination of funding for critical flood-control programs, leaving the nation vulnerable to future catastrophic flooding.

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⁷ American Society of Civil Engineers, the New Orleans Hurricane Protection System 71-72 (2007).