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America's Crumbling Infrastructure: $ 36.2 Billion Needed to Fix Nation's Dams; $10.1 Billion for 'Most Critical' Structures

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According to the American Society of Civil Engineers (ASCE), our nation's infrastructure is falling apart. Nowhere is the deterioration of our infrastructure more apparent than in our nation's dams.

In response to these concerns, the Association of State Dam Safety Officials (ASDSO) has compiled state and national estimates of the cost of dam rehabilitation. In the coming year, ASDSO will ask Congress to establish a national dam financing solutions program.

A nine-member task committee of ASDSO has concluded that the cost of upgrading or repairing all of our nation's non-federal dams would exceed $36 billion.

The committee's report, *The Cost of Rehabilitating Our Nation's Dams: A Methodology, Estimate and Proposed Funding Mechanisms*, states that almost one-third of this amount — $10.1 billion — is needed for the nation's most critical dams, those whose failure would cause loss of human life. The states currently regulate more than 10,000 of these "high-hazard-potential" structures, and this number is increasing.

ASCE's *2003 Progress Report for America's Infrastructure*, released in September, judged dams as being in worse condition than reported two years ago. As dams merited a grade of 'D' on the *2001 Report Card for America's Infrastructure*, their continued deterioration is valid cause for concern, if not alarm.

In the past two years, at least 21 dam failures have occurred in the U.S. The May 2003 failure of Silver Lake Dam, in Michigan's Upper Peninsula, caused the failure of downstream Tourist Park

Dam and the evacuation of more than 1,800 people in the city of Marquette. The failures resulted in more than $100 million in damage, including about $10 million damage to utility facilities, $4 million in environmental damage and $3 million to roads and bridges. Twenty homes and three businesses were damaged or destroyed. The We Energies power plant, which generates half the electricity produced in the Upper Peninsula, was flooded, causing the closure of two nearby iron mines, and the layoff of about 1,100 mine workers for several weeks, until the power plant was repaired. The mine owner estimated that the shutdown cost the local economy about $1 million a day.

Also in May, several dams failed in North Carolina, causing the evacuation of approximately 75 homes and damages estimated at $12 million. The state is spending nearly $5 million to rebuild the Hope Mills dam, which provides a critical stream crossing.

For the past 20 years, ASDSO has worked to prevent such calamities. The Association has been instrumental in the passage of dam safety legislation in the U.S. and in the establishment and strengthening of state dam safety programs. However, ASDSO has long recognized that financial constraints on dam owners limit the effectiveness of state programs.

Well over 50 percent of U.S. dams are privately owned; state and local governments, federal agencies and utilities own the remainder. Most dam owners are not wealthy and even those who possess considerable financial resources are often overwhelmed with the staggering costs of dam maintenance, repairs and upgrades.

“Maintain ‘em or drain ‘em,” a motto adopted by the National Park Service Dam Safety Program, aptly expresses the dam owner’s dilemma. Faced with the choice of repairing or upgrading a dam, or the less expensive option of draining a lake, many owners choose the latter course; however, where dams provide drinking water or flood control, dam removal may not be a viable alternative.

The loss of a reservoir of any size often has negative economic and social impacts on local communities that have depended upon the impoundments created by dams for water supply, recreation and flood control. The function of flood control has become increasingly important in recent years, as more and more development has occurred in historic floodplain areas protected

by dams. As these dams deteriorate, they should be fixed or replaced, as dam removal leaves property in downstream floodplains highly vulnerable to flooding.

Dam owners faced with either option—dam repair or dam removal—often need financial assistance. In order to estimate the magnitude of this need, ASDSO established a nine-member task committee to develop a reliable estimate of the national cost of dam rehabilitation.

The committee's intensive two-year, peer-reviewed study considered the number of state-regulated dams, the size of the dams, the costs of deferred maintenance (any maintenance activity that does not require formal engineered plans or the approval of a professional engineer), the cost of engineering evaluation and design, the cost of rehabilitation (whether repair, replacement or removal) and the cost of increasing storage capacity or structural upgrades. Estimates do not include costs for administration of a funding mechanism; nor do they take into account the increasing number of high-hazard-potential dams.

The task committee has recommended the creation of a national dam rehabilitation loan program. ASDSO has worked with lawmakers to draft legislation that provides funding for repairs to high-hazard-potential dams and is currently seeking a sponsor for the legislation.

Commented ASDSO Legislative Chairman, Brad Iarossi, "Congress just approved a bill that allocates $18.6 billion toward infrastructure investments in Iraq, including $125 million for dam construction and repair. Is America's infrastructure less of a priority? Our lawmakers should also be concerned with the poor condition of U.S. infrastructure, which currently threatens our safety and well-being."

The ASDSO report notes that many states cannot afford to wait for a national funding program; thus, it provides guidelines for establishing state revolving loan funds for dam rehabilitation, repair and removal. Any future federal loan programs could then supplement these state funding mechanisms. Funding programs for dam repairs now exist in fewer than a dozen states, but ASDSO is working to improve this situation.

On November 4, New Jersey voters approved a dam rehabilitation funding bill that provides $15 million to pay for state projects and $95 million in low-interest loans to private and municipal dam owners. John Moyle, Manager of the New Jersey Dam Safety and Flood Control Section,

noted, “Having an effective program requires not only staff and a strong enforcement program but also a dam repair funding mechanism for dam owners. The funding mechanism is a win-win situation since it provides assistance to the owners, stimulates the economy by providing jobs and protects our citizens from potential dam failures.”

Raul Silva, co-chair of the ASDSO task committee, applauds the New Jersey initiative, and hopes that federal lawmakers will take the cue.

“When public safety is an issue, the federal government often takes a proactive approach to repairing other elements of the national infrastructure,” emphasized Silva. “Unfortunately, dams have not gotten this kind of comprehensive attention, maybe because they’re usually built in out-of-the-way locations and they’re not something that people actually see and use directly in their daily lives. But the benefits that dams provide are tangible and the risks posed by dams that are not properly maintained and repaired are real.”

“For a long time, we in the profession have said that inspections alone are not enough to make dams safe; that dam owners facing expensive maintenance and repairs need financial help. Now, for the first time, we have a realistic answer to the question, how much will it take to fix the problem?” said Silva.

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The Association of State Dam Safety Officials is a national, non-profit organization dedicated to improving dam safety through research, education, and communication.