

Who is Watching Our Infrastructure?

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On August 31, 2005, a day after Hurricane Katrina moved past New Orleans, the nation was shocked by the sight of that city slowly going under water, as levees that had been guarding the city for decades collapsed and let in the waters of Lake Pontchartrain, claiming hundreds of lives and entire neighborhoods. More recently, much of downtown Bristol, Rhode Island, was inundated with several million gallons of sewage because aging pumps at the wastewater treatment facility failed. In Taunton, Massachusetts, more than 2,000 residents were evacuated as a 173-year-old dam began to fail and threatened to send a wall of water through the middle of town. These examples reflect growing

problems in maintaining and modernizing our nation's water infrastructure and presage a crisis of great magnitude—a threat that seems to be routinely ignored.

No great nation has flourished in the absence of a strong water infrastructure to provide for the health and welfare of its citizens and support its economy. Where nations have failed, the lack of attention to infrastructure has been a major contributor to the decline. For much of the latter half of the 20th century, the United States relied on the work of the previous fifty years to sustain much of its water infrastructure. It was the forethought of early 20th century leaders that brought us far-reaching municipal water systems, flood control and navigation structures, and hydropower dams. Other than a

brief spurt of efforts to improve water and wastewater plants in the seventies, much of the nation's water infrastructure has seen minimal major maintenance or needed upgrades in the last fifty years. The time is rapidly approaching when the bills will come due and the nation will have to choose either immediate expenditure for rehabilitation and modernization or face even higher costs of dealing with multiple failures of life-sustaining systems. Yet, today, we have no vision of how to deal with this challenge.

In 1998, in its first assessment of the nation's infrastructure, the American Society of Civil Engineers (ASCE) graded our water infrastructure at a 'C' level and recommended immediate attention to the maintenance and upgrade of shortfalls. Now, eight years later, ASCE grades it at



The road across Jones Tract in the Sacramento-San Joaquin Delta was wiped out when a levee failed for no known reason in June 2004. (Source: California Department of Water Resources.)

the 'D' level and sees it going down (see page 18). In 2002, an EPA "Gap Analysis" reported a significant shortfall in funding for repairs and upgrades to water and wastewater treatment systems. At about the same time, the U.S. Army Corps of Engineers (ACE) reported that its aging waterways infrastructure was facing a growing number of lock and dam closures for repairs, decreased system performance, and costly delays for waterways users. Funding for ACE and Bureau of Reclamation operation and maintenance activities has been in a steady decline.

The December 2005 failure of controls that regulate flows from a pumped storage reservoir in Missouri, which led to failure of its dam and near loss of life in homes below it, was illustrative of the 3,500 dams across the country that are rated as potentially unsafe. Following Katrina, attention focused on the condition of the nation's levees. Early reports exposed the fact that levees of unknown condition may be providing dubious protection in many urban areas; nationally, levees are not inventoried or assessed for their condition.

What Happened?

Why has this situation developed? The lack of attention to infrastructure can be attributed to several factors:

The nature of bureaucracies: Maintenance and upgrades can be too easily deferred in bureaucratic systems. When a shortfall in an agency's budget results from unexpected expenses or shifts in priorities, funds for maintenance and upgrades are easy targets. "What can go wrong in this short time? No one notices a one- or two-year delay." Unfortunately, even if nothing happens, seldom are the "borrowed" funds replaced and, as a result, a backlog of maintenance is created.

Inadequate budgeting: Budgeteers are equally prone to inadequately funding program maintenance and upgrades over the long term. Without strong pressure to keep maintenance and upgrades fully funded, it is too easy to give the resources to other "more essential" or "more visible" activities.

Lack of awareness: The public is unaware of the problem. Statistics about an infrastructure maintenance backlog fall below the public's radar screen. When information does appear, it is often lost in the plethora of information that deluges the public and decision-makers. Even when nongovernmental organizations raise the issue of infrastructure to senior decision-makers and legislative officials, they are too frequently given only cursory attention.

Unless action is taken by the present generation, the successes of the past may be lost and the hopes for the future may not be realized.

Things change: Changing conditions can cause current infrastructure to no longer perform or serve its original purpose. Upstream development may hinder the ability of flood control structures to safely pass the flood for which they were designed. Levees sized to meet the floods of the mid-20th century may be inadequate in 2006. Climate change may produce conditions that substantially change the operation of irrigation and hydropower systems. Water treatment facilities designed in the 1970s may be unable to easily handle new or emerging contaminants.

What Can Be Done?

The Bush Administration and Congress, in close cooperation with state and local officials, need to develop a vision for maintaining and periodically upgrading our infrastructure, determine the division of responsibilities among levels of government, and agree on a clearly articulated funding program to carry this out. In developing this funding profile, decision-makers must develop innovative approaches ranging from improved methods of direct federal, state, and municipal support, to development of a national investment corporation, as recently proposed by Felix Rohatyn and Warren Rudman and the Center for Strategic and International Studies' Commission on Public Infrastructure.

A committee of the National Research Council also recently suggested that we seek regional solutions to these infrastructure challenges.

Within our federal and states agencies, we need advocates for our infrastructure systems. At the federal level, political leaders typically want to decide what programs will be supported and frown on campaigning by agencies in support of particular programs. Those who advocate more mundane activities such as infrastructure maintenance and upgrading are not seen as team players, yet informed advocacy is essential.

We must hold elected officials responsible not only for the day-to-day operations of the infrastructure they supervise but also for the long-term viability of these systems. Approaches that focus only on actions that will take place during their term of office cannot be considered acceptable.

In the past, the United States invested heavily in its water infrastructure. Those who came before us sought to provide both for their own needs and the needs of future generations. Unless action is taken by the present generation, the successes of the past may be lost and the hopes for the future may not be realized.

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