

Water Resources: An Investment in Protecting Property and Lives



The nation's waterways provide water supply, goods movement, flood control, electric power, and recreation. America has made a substantial investment in the construction of dams, levees, and pumping stations to render these benefits as well as protect communities and agricultural land from the effects of floods.

Ports & Waterways

U.S. ports and waterways are essential to the transportation of the growing amount of goods produced and used by America's agricultural sector, industries, and consumers. The inland waterways system is a key component of the nation's freight transportation network and includes about 12,000 miles of commercially navigable channels and some 240 lock sites. America's "marine highways" move commerce to and from 38 states, from Canada to the Gulf, from the Atlantic almost to the Rockies and also in the Pacific Northwest.

Every year, about 624 million tons of waterborne cargo travels the inland waterways, a volume equal to about 14 percent of all intercity freight. This commerce has an overall value of about \$70 billion, substantially contributing to America's economic strength. Waterways transport more than 60 percent of the nation's grain exports, about 22 percent of domestic petroleum and petroleum products, and 20 percent of the coal used in electricity generation. Barges are ideal for hauling bulk commodities and moving over-size equipment.

The annual traffic on America's inland navigation system, including the Mississippi River from Minneapolis to the Gulf of Mexico, the Ohio River and its navigable tributaries, the Gulf Intracoastal Waterway, and the Columbia-Snake River system, carries the equivalent of 58 million truck trips each year. Hypothetically, if current waterway freight traffic were to be diverted to the nation's highways, heavy truck traffic on Interstate highways between cities would nearly double. The impact on urban Interstate highways through cities would be more severe. It is difficult to appreciate the carrying capacity of a barge until one understands how much tonnage a single barge can move. A standard dry cargo barge can move as much cargo as 70 trucks or 16 rail cars. For example, one loaded covered hopper barge carries enough wheat to make almost 2.5 million loaves of bread. A loaded tank barge carries enough gasoline to satisfy the annual demand of about 2,500 people. If the current waterway freight traffic were diverted to rail, the tonnage on the nation's railroad system would increase by nearly 25%. The burden would not be evenly distributed; a heavier burden would be placed on the Eastern U.S. railroads, already operating at near capacity.

Flood Control

In 2005, Hurricanes Katrina and Rita devastated the Gulf Coast. In 2008, the Midwest experienced one of the most devastating floods in this nation's history. While these are rare events, they are ones that demonstrate the crucial role that water resources projects play in minimizing the effects of such flooding. At the federal level, the U.S. Army Corps of Engineers (USACE) constructs and manages the nation's major flood control facilities. They include 383 major lakes and reservoirs and 8,500 miles of levees, preventing \$14.6 billion in flood damage annually.

Our nation invests an average of \$5 billion annually in preserving and enhancing water resources infrastructure. USACE flood control projects have prevented an estimated \$706 billion in damages. While a number of proposals have surfaced to reduce federal involvement in flood control, it is well established that \$8.25 in flood damage prevention has been achieved for each \$1 dollar of flood control invested - a sound return on the government's investment. In addition, operations and maintenance work provides an average of \$14.10 return for every dollar invested, and in the Mississippi Valley and Tributary System, more than \$24 in damages is saved for each dollar spent.

Improving Our Environment

While our freight transportation system promotes economic development and national security, freight movements affect traffic congestion, air quality, energy usage, pavement and roadbed deterioration, and public safety.

- Moving Freight on America's Rivers is the Most Energy-Efficient Mode of Surface Transportation. Moving America's coal, grain, petroleum and chemical products, iron and steel, aggregates, and containers on the nation's navigable rivers is the most energy-efficient way to transport freight. Barges can move 1 ton of cargo 576 miles for the same amount of fuel as it takes a rail car to carry the same amount of cargo 413 miles, and a truck to haul it 155 miles.
- Moving Cargo on America's River System Generates Fewer Emissions than Rail or Truck. The Environmental Protection Agency's MOBILE6 model estimates mobile source emission factors for several hazardous air pollutants in grams per vehicle mile traveled. These air pollutants include hydrocarbons (HC), carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM), and Carbon Dioxide (CO2). The emission comparison between inland towing, rail, and truck transportation shows that fewer emissions are generated by moving products on America's inland navigation system.

WRC Recommends:

To complete ongoing infrastructure projects in a timely and efficient manner and to prevent future costly repairs by adequately addressing the existing backlog of deferred critical maintenance, we must increase funding for the U.S. Army Corps of Engineers' Civil Works program to at least \$7.0 billion for FY 2010. In subsequent years, annual increases of at least \$400-600 million are required to keep the Civil Works program on schedule and save the nation the costs of paying for more expensive "crisis" repairs in the future.

Dam Safety

Dams are a critical part of the nation's infrastructure and provide vital benefits such as flood protection, water supply, hydropower, irrigation and recreation. A dam failure can result in severe loss of life, economic disaster and extensive environmental damage. The number of dams in the United States has risen to over 85,000 with an average age of 51 years. They are a vital part of our nation's infrastructure - providing essential benefits. These daily benefits, however, are inextricably linked to the potential harmful consequences of a dam failure; and as the dams continue to age and development below dams increases, dam safety must be addressed by policy-makers at the federal, state and local levels.

Historically, some of the largest disasters in the United States have resulted from dam failures. In 1889, 2,209 lives were lost when the South Fork Dam failed above Johnstown, Pennsylvania. The 1928 St. Francis Dam failure killed 450. During the 1970s, the failures of the Buffalo Creek Dam in West Virginia, Teton Dam in Idaho and the Toccoa Falls Dam in Georgia collectively cost 175 lives and more than \$1 billion in losses.

While the recent passage of the National Dam Safety Act of 2006 (Public Law No: 109-460), which provides funding through grants, has improved state dam safety programs, it does not provide funding for needed repairs.

There is still an alarming lack of public support and education about the need for proper maintenance and repair of dams. Although it is an issue that affects the safety of millions of people who could be living and working in the path of a dam failure, unless a dam fails, dam safety is not usually in the public view.

The Association of State Dam Safety Officials (ASDSO) estimates that \$36.2 billion is needed to rehabilitate dams across the nation, based on the current national inventory of non-federally owned dams. The estimate does not include costs for administration of a funding program, nor does it take into account the fact that the number of high hazard potential dams is increasing.

ASDSO estimate that \$10.1 billion is needed to address the most critical dams that pose a direct risk to human life should they fail. Needed repairs to publicly owned dams are estimated at \$5.9 billion.

WRC Recommends:

FEMA's National Dam Safety Program should be fully funded, and Congress and the Administration should explore a program to rehabilitate the nation's dams to ensure public safety.

Water Supply

The Bureau of Reclamation has played an important role in the development of the 17 western states over the past one hundred years. Reclamation's history of accomplishment includes marvels of engineering and construction which supply critical water and power to the now-vibrant Western United States. While these Reclamation structures stand as icons of rock-solid stability and constancy, the agency itself has experienced constant change.

In recent years, the role and budget of the Bureau has been sharply reduced. To be adequately prepared for the challenges of the 21st Century, it is essential that Reclamation thoroughly examines its core capabilities in a number of key areas, as well as its ability to respond in an innovative and timely manner to emerging needs. This effort is a significant opportunity to position Reclamation for excellence in managing its future as a citizen-centered agency that delivers optimum value to its stakeholders. The Reclamation community recognizes the need for change, and the agency's employees are fully capable of carrying it out.

WRC Recommends:

In order to meet the increasing needs of growth and the economy of the West, the water recycling program and the rural water program of the Bureau should be fully funded each year with a stronger

overall emphasis on drought contingency planning. A minimum of \$1 billion annually is needed to address the overall aging infrastructure and construction needs of the Bureau's Water and Related Resources program.

Clean Water

The nation has staggering needs for clean drinking water and wastewater treatment infrastructure. The U.S. Environmental Protection Agency's Clean Water and Drinking Water Gap Analysis found a \$535 billion gap between current spending and projected needs for water and wastewater infrastructure over 20 years.

Not meeting the investment needs of the next 20 years risks reversing the environmental, public health, and economic gains of the last three decades:

- In 1972, between 30 and 40 percent of surface waters monitored met water quality goals. Now, between 60 and 70 percent of waters meet their goals and support basic uses such as fishing or swimming.
- More people than ever have access to wastewater treatment facilities. In 1972, only 141.7 million people were served by wastewater treatment facilities, and only 60 percent of those people were served by secondary treatment or better. Today, 223 million people (over 1.5 times as many as 35 years ago) are served by wastewater treatment facilities; nearly 99 percent of those people are served by secondary treatment or better.

Improving Our Environment

Investments in water and wastewater systems pay substantial dividends not only to our economy, but to public health and the environment as well. It is well documented that wastewater treatment plants prevent billions of tons of pollutants each year from reaching America's rivers, lakes, and coastlines. In so doing, they help prevent water-borne disease; make our waters safe for fishing and swimming; and preserve our natural treasures such as the Chesapeake Bay, the Great Lakes, and the Colorado River.

WRC Recommends:

Congress has cut funding to the Clean Water and Safe Drinking Water State Revolving Loan Fund (SRF) program in recent years and should restore its funding level to a minimum of \$1.35 billion. Further, Congress should maintain funding for the Safe Drinking Water SRF program to a minimum of \$850 million. Even with these historical funding levels, the SRFs are significantly under funded. With annual appropriations for the SRF programs diminishing year after year, WRC supports creation of a long-term, sustainable, off-budget source of funding for water infrastructure such as a trust fund to finance construction and maintenance of this critical environmental infrastructure. Establishing a stable revenue stream to supplement federal funds helps guarantee funding for critical needs.

*The **Water Resources Coalition** was established in 2007 to promote the development, implementation and funding of a comprehensive national water resources policy. With member organizations representing state and local governments, conservation, engineering and construction, ports, waterways and transportation services, the Coalition works to ensure that a comprehensive, national water resources policy is developed, implemented and funded to provide a sustainable, productive economy; a healthy aquatic ecology; and public health and safety. For more information, visit the Water Resources Coalition Web site at www.waterresourcescoalition.org.*