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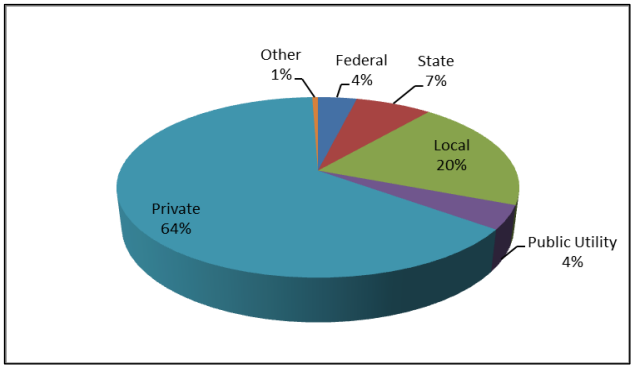
Dam Safety: Federal Programs and Authorities

According to the National Inventory of Dams (NID), there are more than 90,000 dams in the United States. Of these, about 4% are owned and operated by the federal government; the remaining 96% are owned by state and local governments, public utilities, or private companies (see **Figure 1**). Many of these dams were built more than 50 years ago. Recent events—including the evacuation of thousands of people in California due to structural deficiencies of the emergency spillway at Oroville Dam (a state-owned dam)—have led to increased attention on the condition of dams and the federal role in dam safety. This document discusses the U.S. dam inventory, safety repair estimates, federal dam safety efforts, and related issues for Congress.

Figure 1. Dam Ownership in the United States



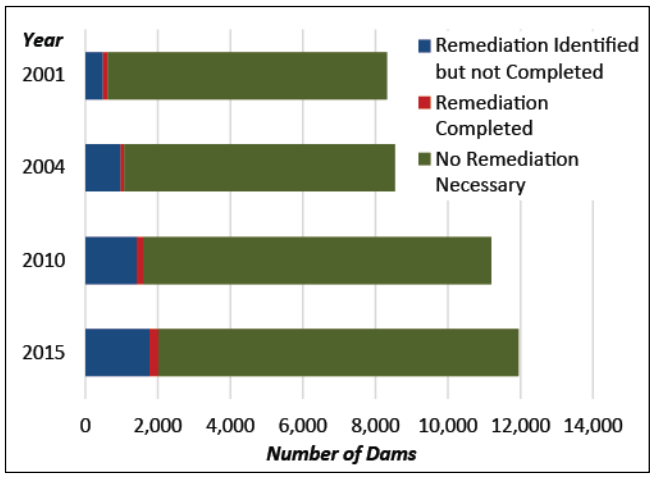
Source: National Inventory of Dams, 2017.

Inventory and Repair Estimates

The NID, maintained by the Army Corps of Engineers (Corps), catalogs information from 50 states, Puerto Rico, and federal agencies on most of the nation's substantial dams. Of the dams in the NID, about 17% (15,498) are classified as *high hazard* (i.e., the loss of at least one life is likely if the dam fails). The overall number of high-hazard dams has increased in the past decade, as has the number of dams in need of repair. In 2015, the NID listed about 1,780 state-regulated, high-hazard facilities with structural ratings of "poor" or "unsatisfactory," meaning they were in need of remediation (see **Figure 2**).

The Association of State Dam Safety Officials (ASDSO) estimates that state-regulated, high-hazard dams have repair needs of approximately $18.7 billion (overall needs for state-regulated dams are estimated at $60.7 billion). It is more difficult to track repair needs at nonfederal facilities with no reporting, and there is no comparable aggregate reporting on federal dam safety repair needs.

Figure 2. State-Regulated High-Hazard Dams



Source: CRS, using ASDSO and NID data.

What Is the Federal Role?

The federal dam safety approach can be divided into three categories: (1) support for state dam safety efforts; (2) support for federal dams; and (3) support for certain nonfederal dams.

Support for State Dam Safety

U.S. states (except Alabama) regulate dam safety for nonfederal dams. The owners of those dams are generally responsible for investing in the safety, rehabilitation, and repair of their dams; selected states provide a limited amount of assistance for these activities.

The main source of federal support is the National Dam Safety Program (NDSP), operated by the Federal Emergency Management Agency (FEMA). NDSP's primary aim is support for state dam safety agencies. NDSP activities include providing dam safety information resources and training, facilitating information exchanges, and supporting state dam safety programs with grant assistance. NDSP is supported by the National Dam Safety Review Board. The board consists of federal and state members, and it advises FEMA's administrator on national dam safety policy. Separately, the Interagency Committee on Dam Safety—chaired by FEMA and consisting of multiple federal agency members—serves as a forum for coordination of federal efforts to promote dam safety.

Another federal agency involved in safety measures for state and nonfederal dams is the Federal Energy Regulatory Commission (FERC), which issues licenses and preliminary permits for most nonfederal hydroelectric projects. These projects often include a dam whereby FERC officials review and inspect the dam regularly for safety reasons, among other things. Additionally, FERC has a dam safety

program that oversees approximately 2,523 dams, with 805 classified as high hazard.

Support for Federal Dams

The federal government has statutory responsibilities for monitoring, upkeep, and repair of federally owned dams. The two main federal agencies that own dams are the Corps and the Bureau of Reclamation (Reclamation). Together, these agencies own 34% of federal dams, including many large dams:

- The Corps operates more than 700 dams, many upstream of or near urbanized areas. Although many Corps dams are designated as high hazard, no Corps dams are in danger of imminent failure. The Corps implements a dam safety program consisting of inspections and risk analyses for all Corps dams that indicate the level of investment needed. In FY2016, the Corps funded work on nine high-risk dams. In 2015, the Corps estimated that its total dam repair needs were in excess of $24 billion.
- Reclamation owns 476 dams in the 17 states west of the Mississippi River, and 366 of these dams are classified as high hazard. Reclamation's dam safety program provides for an inspection program and authorizes repairs to qualifying projects at Reclamation dams. In FY2016, Reclamation funded five dam safety construction projects.

The remaining dams are typically smaller dams owned by other agencies, including land management agencies (e.g., U.S. Fish and Wildlife Service), the Department of Defense, or the Bureau of Indian Affairs, among others. In overseeing these dams, federal agencies follow the Federal Guidelines for Dam Safety published by FEMA.

Support for Safety Investments and Repair of Certain Nonfederal Dams

A limited set of publicly owned, nonfederal dams are eligible for federal support. For instance, the U.S. Department of Agriculture (USDA) has authority under the Watershed Rehabilitation Program (P.L. 106-472, as amended) to provide financial and technical assistance for planning, design, and implementation of dam rehabilitation projects (including upgrading or removal). Eligible dams must have been built using selected USDA funds and must now pose a public health or safety concern. The program covers up to 65% of the total rehabilitation cost. Since the program was first authorized in 2000, Congress has appropriated more than $700 million for these rehabilitation projects.

The Corps Rehabilitation and Inspection Program (RIP, or the P.L. 84-99 program, a program used mainly for levees) also provides federal support for a few nonfederal dams that meet certain criteria (e.g., storage capacity for a 200-year flood event). RIP may provide assistance to flood control works if the facility is flood damaged. As part of RIP, the Corps periodically inspects participating facilities to ensure their owners are meeting the Corps' maintenance standards. Because annual appropriations for the RIP program are limited, major repairs under this authority sometimes are provided through supplemental appropriations acts.

New Authorities in the WIIN Act

The Water Infrastructure Improvements for the Nation Act (WIIN Act, P.L. 114-322), enacted in December 2016, authorized new support for dam rehabilitation efforts:

- Section 5006 authorized a FEMA grant program for rehabilitation of nonfederal, high-hazard dams. Grants under this section would go to states, with a cost share of 65% federal and 35% nonfederal. The bill authorized $10 million in appropriations for FY2017 and FY2018; $25 million for FY2019; $40 million in FY2020; and $60 million for FY2021-FY2026.
- Section 1177 authorized the Corps to provide funding for the rehabilitation of nonfederal, high-hazard dams constructed by the Corps prior to 1940 for flood control purposes. Cost sharing under this section is 65% federal, 35% nonfederal. The bill authorized $10 million per year in appropriations for FY2017-FY2026.
- Section 3101 established a program and funding for the repair of eligible projects at Bureau of Indian Affairs-owned dams. For each year from FY2017 to FY2023, the bill authorized $10 million in appropriations for low-hazard dams and $22.75 million for high-hazard dams.
- Section 1139 required the Corps to issue guidance clarifying certain federal dam safety project cost-sharing responsibilities for nonfederal project sponsors.

Issues for Congress

Events such as the near-failure of the spillways at Lake Oroville have further highlighted the issues and risks associated with dams near populated areas. Although the federal role in dam rehabilitation and repair traditionally has been focused on rehabilitation of federal facilities and support for state dam safety programs, some have argued for an increased federal role in nonfederal dam safety and rehabilitation. In particular, Sections 5006 and 1177 of the WIIN Act both authorized new support for nonfederal dam repair and rehabilitation efforts that would be a departure from the traditional federal role. The extent to which these authorities are funded remains to be seen.

Arguments for an increased federal role in nonfederal facilities may stem from one-time federal investment and/or licensing of these facilities and from the fact that states and facility owners may not be able to afford the dam safety costs on their own. Finally, many point to the potential for the loss of lives and large federal outlays in emergency spending that might be necessary if a dam failure were to occur. At the same time, safety and other reinvestment needs at aging federal facilities continue to be significant, and some call for increased funding to remediate these problems. How (or if) some or all these needs might be addressed within a broader infrastructure investment effort is an additional question that the 115th Congress may consider.

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