Committee on Transportation and Infrastructure
U.S. House of Representatives
Washington, DC 20515

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November 15, 2019

SUMMARY OF SUBJECT MATTER

TO: Members, Subcommittee on Water Resources and Environment
FROM: Staff, Subcommittee on Water Resources and Environment
RE: Subcommittee Hearing on "Concepts for the Next Water Resources Development Act: Promoting Resiliency of our Nation's Water Resources Infrastructure"

PURPOSE

The Subcommittee on Water Resources and Environment will meet on Tuesday, November 19, 2019, at 10:00 a.m. in Room 2167, Rayburn House Office Building, to receive testimony related to the role of resiliency in the construction, and operation and maintenance of projects carried out by the U.S. Army Corps of Engineers (Corps). This hearing will be one of several related to the formulation of a new water resources development act (WRDA) for 2020.

BACKGROUND

U.S. Army Corps of Engineers: State of the Infrastructure

The Committee on Transportation and Infrastructure has jurisdiction over the Corps' Civil Works program. The Corps is the Federal government's largest water resources development and management agency and is comprised of 38 district offices within eight divisions. The Corps operates more than 700 dams; has constructed 14,500 miles of levees; and maintains more than 1,000 coastal, Great Lakes, and inland harbors, as well as 12,000 miles of inland waterways.[1]

Navigation was the earliest Civil Works mission, when Congress authorized the Corps to improve safety on the Ohio and Mississippi Rivers in 1824. Since then, the Corps' primary missions have evolved and expanded to include flood damage reduction along rivers, lakes, and the coastlines, and projects to restore and protect the environment. Along with these missions, the Corps is the largest generator of hydropower in the Nation, provides water storage opportunities to cities and industry, regulates development in navigable waters, provides disaster response and recovery during emergencies, and manages a recreation program. To date, the Corps manages nearly 1,500 water resources projects.

Role of Resiliency in Corps Planning and Operations

Most of the Corps' facilities and infrastructure was constructed in the early to mid-1900s. As a result, approximately 95 percent of the dams managed by the Corps are more than 30 years old, and half have reached or

[1] https://www.crs.gov/Reports/R45185#fn1.

exceeded their 50-year project lives.[2] The Corps' ability to manage its portfolio of aging infrastructure is coupled with the need to balance multiple authorized purposes and increased demands on the infrastructure. The Corps' infrastructure also faces new challenges in the frequency in which extreme weather events are occurring. How the Corps factors the frequency of extreme weather events and the role of resiliency in the operation, maintenance, and construction of its facilities is crucial both to the sustainability of the infrastructure as well as the Corps' ongoing responsibility to meet the authorized purposes of Corps projects.

In 2014, the Corps issued its USACE Climate Preparedness and Resilience Policy Statement, which declared that "it is the policy of USACE to integrate climate change preparedness and resilience planning and actions in all activities for the purpose of enhancing the resilience of our built and natural water-resource infrastructure and the effectiveness of our military support mission, and to reduce the potential vulnerabilities of that infrastructure and those missions to the effects of climate change and variability."[3] In 2016, the Corps further defined "resiliency" in its Resiliency Initiative Roadmap as "the concept to convey a holistic approach to addressing threats and uncertainty from acute hazards such as more frequent and/or stronger natural disasters, man-made threats, changing conditions from population shifts and climate change."[4] In this Roadmap, the Corps approaches resilience with four key actions: "prepare, absorb, recover, and adapt."[5]

Recent Reports, Trends, and Examples of Extreme Weather Events:

In 1990, Congress enacted the Global Change Research Act which requires Federal agencies to report to the President and the Congress (at least every 4 years) on "the findings of the Global Change Research Program and the scientific uncertainties associated with those findings," the "effects of global change on the natural environment, agriculture, energy production and use, land and water resources, transportation, human health and welfare, human social systems, and biological diversity," as well as "current trends in global change, both human-induced and natural, and project major trends for the subsequent 25 to 100 years."[6]

Four of these reports, called National Climate Assessments, have been issued pursuant to the Global Change Research Act – the most recent of which was issued in 2018[7] (and slightly revised in 2019[8]). This report highlights recent trends with extreme weather events in the United States, including prolonged periods of excessively high temperatures, heavy precipitation, and in some regions, severe floods and droughts.[9] In addition, this "Fourth National Climate Assessment" highlighted how the intensity, frequency, and duration of Atlantic hurricane activity has substantially increased since the 1980s, including the number of strongest (Category 4 and 5) storms during this period.[10]

More recently, according to the National Oceanic and Atmospheric Administration (NOAA), the first eight months (January to August) of 2019 were the wettest on record for the nation.[11] Most of the precipitation fell within the Missouri, Mississippi, and Arkansas Rivers watershed, when a March 2019 "bomb cyclone" rain event in the Midwest resulted in massive flooding in the Missouri River Basin. At least 32 levee systems were overtopped or completely under water and, at last count, the Corps had discovered 114 breach sites in these systems.[12] While the flooding subsided, plains snowmelt added more water to the system. In April 2019, the Corps deployed six vessels

[2] See https://www.nap.edu/read/13508/chapter/3.
[3] See https://www.usace.army.mil/corpsclimate/Climate_Preparedness_and_Resilience/.
[4] https://www.publications.usace.army.mil/Portals/76/Publications/EngineerPamphlets/EP_1100-1-2.pdf?ver=2017-11-02-082317-943.
[5] See Id.
[6] See Pub. L. 101-606.
[7] See https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf.
[8] See https://nca2018.globalchange.gov/downloads/NCA4_Errata_09October2019.pdf.
[9] See https://nca2014.globalchange.gov/highlights/report-findings/extreme-weather.
[10] See id.
[11] https://www.noaa.gov/news/january-through-august-was-wettest-on-record-for-us.
[12] https://www.epw.senate.gov/public/_cache/files/3/3/3340ee0b-51ad-40d4-8a06-ea79491dde63/F631CE8BBCD6E3B31B0DB99C44DD65CD.u.s.-army-corps-testimony-04.17.2019.pdf.

in the Southwest Pass at the mouth of the Mississippi River to expedite dredging in the Gulf of Mexico in preparation for the additional water flow.

The extreme hydrologic events during the first eight months of 2019 continued at record-breaking levels as the water flowed downstream. For example, the December 2018 to August 2019 period is now the longest known flood of record for the Lower Mississippi River. In addition, the Corps has had to utilize the Bonnet Carre Spillway in Louisiana to relieve flooding impacts on the Lower Mississippi basin. The Corps' recent use of the Spillway is notable for several reasons. First, its most recent opening in May 2019 is only the 13th time the spillway has been used since its construction in the 1930s. Second, its use in 2018 and 2019 marks the first time the spillway has been used in consecutive years, as well as the first time the spillway has had more than one opening in a single year (Feb-April and May-July 2019).[13] The Mississippi River in Baton Rouge had a record of 211 days above flood stage for most of 2019, easily breaking the previous record set by the Great Flood of 1927 (of 135 days).[14]

Stakeholder Perspective: Army Corps and Resilient Infrastructure

As noted above, the Corps has constructed and continues to operate and maintain critical flood control, navigation, and environmental restoration projects throughout the Nation. However, several notable climatic events, such as the hurricane seasons of 2005 (Katrina and Rita), 2012 (Superstorm Sandy), and 2017 (Harvey, Irma, and Maria), and the Midwest flooding of 2018 and 2019, have highlighted the challenges of continuously operating Corps projects at their authorized purpose when faced with extreme weather events.

This hearing is intended to examine how concepts of resilience are incorporated in the planning, design, construction, and operation and maintenance of existing projects, and how the Corps' existing infrastructure is managed both to address authorized purposes as well as meet potential future extreme hydrologic conditions.

[13] https://www.mvn.usace.army.mil/Missions/Mississippi-River-Flood-Control/Bonnet-Carre-Spillway-Overview/Spillway-Operation-Information/.
[14] https://www.weather.gov/lix/ms_flood_history.

WITNESSES

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