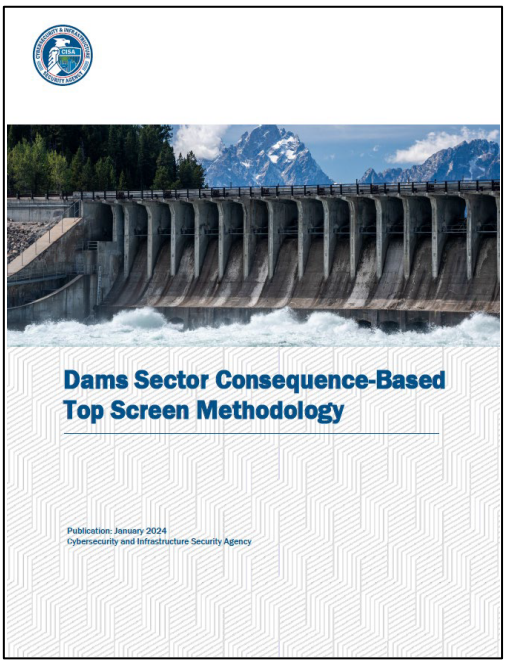
Dams Sector Consequence-Based Top Screen

OVERVIEW

The Dams Sector delivers critical water retention and control services in the United States, including hydroelectric power generation, municipal and industrial water supplies, agricultural irrigation, sediment and flood control, river navigation for inland bulk shipping, industrial waste management, and recreation. These economic and public safety benefits are also why the potential consequences associated with the failure, damage, or distruction of these facilities are significant in magnitude.

The Dams Sector Government Coordinating Council (GCC) and Sector Coordinating Council (SCC) under the Critical Infrastructure Partnership Advisory Council (CIPAC), jointly developed the Consequence-Based Top Screen (CTS) Methodology–a clear and consistent framework to identify and prioritize facilities with the potential to cause the most detrimental impacts in the event of a failure or disruption.



BENEFITS OF UTILIZING THE CTS METHODOLOGY

The CTS Methodology identifies critical, high-consequence facilities within a given portfolio whose failure or disruption are associated with the highest possible impacts when compared to other facilities within the portfolio. By focusing on potential consequences and separating the analysis from the threat and vulnerability components of the risk analysis process, the CTS allows the user to prioritize facilities, regardless of the hazard, to inform and support decisions regarding additional analysis and detailed studies.

This process can be especially helpful for an owner responsible for a large portfolio of dams, as resources can be focused on the higher priority facilities. In the case of an adversary looking for a target-rich environment, the CTS approach can help an organization reduce the scope of the threat by identifying those assets that could attract higher adversarial interest. For the emergency management community, the CTS results can inform security measures for facilities within a specific area that should receive particular attention because of their potential for significant impacts at the local and regional levels.

The process of identifying critical facilities and potential consequences through the CTS can be useful for a variety of sector stakeholders, including:

- Dam owners/operators
- Dam safety agencies
- Emergency management agencies
- Law enforcement
- Local and state governments

ABOUT THE CTS METHODOLOGY

Using three different types of consequence categories—human impacts, economic impacts, and impacts on mission critical functions—the CTS Methodology assumes a worst-reasonable case scenario to measure potential consequences from total destruction of or severe damage to the facility, regardless of whether the event triggering the incident is human-caused or natural. The three consequence categories are broken down further into 14 parameters--as seen in the figure below--of which the user provides three data points for each: the critical threshold, the maximum limit of impact and the parameter weight. These consequence estimates from the CTS Methodology constitute an upper limit to the potential impacts caused by severe damage or disruption to the facility and allow users to establish a baseline by which to compare different portfolio assets.

Consequence-Based Top Screen Consequence Categories	
Human Impact	
• Total population at risk within flood scenario inundation zone • Population at risk within 0 and 3 miles from the toe of the dam • Population at risk within 3 and 7 miles from the toe of the dam • Population at risk within 7 and 15 miles from the toe of the dam • Population at risk within 15 and 60 miles from the toe of the dam	
Economic Impact	
• Assessment Replacement Value • Remediation Cost • Business Interruption	
Impact on Critical Functions	
• Water Supply • Irrigation • Hydropower Generation	• Flood Damage Reduction • Navigation • Recreation

Because this methodology assumes a worst-reasonable case scenario, this scenario is not compounded or exacerbated by extreme events, acts of nature, or human error occurring at the same time. It is also important to note that the CTS Methodology does not consider the structural condition or vulnerability of the facility, nor does it address the likelihood of a natural hazard or human-caused incident triggering the worst-reasonable case scenario. Additional assessments and study would be needed to ascertain vulnerability, structural integrity, and likelihood of an incident.

This collaborative effort plays an essential role in supporting national and sector-wide initiatives aimed at improving the overall security and resilience of the Dams Sector. For more information on, or to access the CTS, please visit the Dams Sector CTS homepage.

For additional information, contact the Dams Sector Management Team at DamsSector@cisa.dhs.gov.