



Consequence-Based Top Screen

Considering the large number of assets within the Dams Sector, a clear and consistent strategy is needed to identify the subset of high-consequence facilities and conduct a systematic sector-wide prioritization.

Development

The Consequence-Based Top Screen (CTS) methodology was developed jointly by the Dams Sector Coordinating Council (SCC) and Dams Sector Government Coordinating Council (GCC), under the auspices of the Critical Infrastructure Partnership Advisory Council (CIPAC). The Dams Sector established a joint GCC/SCC Top Screen Workgroup to oversee the development and implementation of the CTS methodology.

Purpose

The purpose of the CTS methodology is to identify critical facilities within the Dams Sector (i.e., those high-consequence facilities, the failure or disruption of which could be potentially associated with the highest possible impact among sector assets). By focusing on potential consequences and decoupling the analysis from the threat and vulnerability components of the risk process, the CTS approach can serve as an effective all-hazards preliminary prioritization scheme. In the case of human threats represented by an intelligent and adaptive adversary, it would be practically impossible to conduct in-depth vulnerability evaluations of all assets in a target-rich

environment such as the Dams Sector. In this case, the CTS approach can effectively reduce the size of the problem by identifying those assets that could potentially attract higher adversarial interest.

The prioritization information obtained from the CTS process can support decisions regarding the need for additional analyses and detailed studies. For example, in the case of an owner responsible for a large portfolio of dams, those facilities identified as high-consequence assets through the CTS process could be assigned higher priority for conducting detailed risk assessments. The results from the CTS process could also effectively inform decision-makers about facilities within a specific area that should receive particular attention from the emergency management community because of their potential for significant impacts at the local and regional levels.

Implementation

The CTS is implemented as a collaborative effort within the CIPAC framework. It is supported by a user-friendly, web-based tool that allows users to consider different consequence categories.

CTS Consequence Categories	
Human Impact	
<ul style="list-style-type: none"> ▪ 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	
<ul style="list-style-type: none"> ▪ Asset Replacement Value ▪ Remediation Cost 	<ul style="list-style-type: none"> ▪ Business Interruption
Impact on Critical Functions	
<ul style="list-style-type: none"> ▪ Water Supply ▪ Irrigation ▪ Hydropower Generation 	<ul style="list-style-type: none"> ▪ Flood Damage Reduction ▪ Navigation ▪ Recreation

The analysis is based on a “worst reasonable case scenario,” which represents a condition of total or extremely severe damage to the facility, but considering that the situation is not simultaneously compounded or exacerbated by concurrent extreme events, freak acts of nature, or human error. It is important to note that the screening criteria do not consider the structural condition or vulnerability of the facility nor do they address the likelihood of the natural hazard or manmade incident triggering the

worst reasonable case scenario. Therefore, the resulting consequence estimates should constitute a reasonable upper bound to the potential impacts associated with severe damage or disruption to the facility, regardless of the triggering event.

Effective implementation of the CTS methodology will allow the Dams Sector to establish a common baseline to consistently quantify different types of consequence elements (human health, economic, and mission disruption), leading to a sector-wide prioritization framework that facilitates comparison of consequence information within the sector. It will also assist in identifying the appropriate contact information for critical facilities to support effective and direct communication in case of natural hazards, threat stream data, or other urgent notifications.

This Dams Sector collaborative effort will play an essential role in supporting national and sector-wide initiatives aimed at improving the overall protection and resilience posture of the sector.

For Additional Information
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