RISK ASSESSMENT

Risks associated with both high-flow events and extended droughts are of significant and growing concern in nearly all parts of the world. Communities are vulnerable not only to the direct impacts of flood and drought, but also to indirect impacts resulting from infrastructure failure. As a result, managers must regularly assess the safety and reliability of their systems and need tools that can help them quantify risk and prioritize capital improvements.

Our hydrologic risk assessment services support planning-scale decisions related to public safety, water security, dam safety, and capital improvement. We also perform dam failure consequence analyses that measure economic damage and loss of life through hydraulic modeling, flood mapping, and consequence tools.

Our experts are recognized leaders in advanced methods for probabilistic hydrologic risk assessment, and we apply similar approaches to assess long-term risk and vulnerability in water supply systems given highly uncertain future conditions.

Characterizing water-related risk to inform strategy and minimize adverse outcomes
FEATURED PROJECT
TVA Downstream Consequences Evaluation to Support Dam Safety Risk Assessment

Client: Tennessee Valley Authority (TVA)
Country: United States
Sector: Floods
Related Services: River Basin Operations

RTI has conducted downstream consequences evaluation for several large dams in the TVA system to support planning and decision making related to dam operations. The analysis has included unsteady HEC-RAS modeling (including 2D), evaluation of interim operational policies using RiverWare, and assessment of direct economic and life loss consequences through the development of HEC Flood Impact Analysis (HEC-FIA) and LifeSim consequences models.

ADDITIONAL RISK ASSESSMENT SERVICES

- Probabilistic flood hazards and drought analyses
- Dam failure consequence analyses of economic damage and life loss
- Rapid risk screening on large portfolio of dams
- Dam breach analyses and inundation mapping

- Probable Maximum Flood and Inflow Design Flood studies
- Development of flood maps for emergency action plans
- Analyses of water supply risks under deep uncertainty

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