

GREGORY B. BAECHER, PHD NAE Dist.M.ASCE

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Dr. Baecher is Glenn L Martin Institute Professor of Engineering at the University of Maryland. He works principally in risk management and resilience of civil infrastructure. He has been involved in several enterprise risk management efforts including the (US) Interagency Performance Evaluation Taskforce on Hurricane Katrina, the Natural and Chronic Risk assessment for the Panama Canal Authority (ACP), and the Joint (hydropower) Industry Project on Spillway Safety. He has co-authored 16 National Academy studies on risk management in federal practice including those on Mt St Helens, the National Bio-Ag Defense Laboratory at Manhattan KS, the Department of Homeland Security's approach to risk analysis, and a review of the Risk Assessment Bulletin of the Office of Management and Budget. He has served on many consultant panels for major dam safety reviews including the Federal Tri-Agency review, and he has authored six books and 250+ publications on these topics.

PROJECTS RELEVANT TO ASSET RISK MANAGEMENT

2024- Canadian Energy Association systems engineering for hydropower operations safety
2024- NIST geotechnical uncertainties associated with the Surfside FL Condominium collapse
2019- California Department of Water Resources, Aqueduct Subsidence consulting board.
2021-2023 USACE-FEMA, Seminal Concepts in the National Flood Insurance Program training.
2021-2024 Bureau of Reclamation, Seminal Concepts in Risk, senior risk cadre training.
2020-2021 Uniper Energy, Stockholm, International Asset Safety Audit committee.
2019-2023 TransAlta Generation, Calgary, Asset Risk Management Program, consulting board.
2019-2020 USACE-USBR-FERC, Tri-Agency Review of Federal Dam Safety Risk Methodologies.
2019-2020 CEATI, Research needs for floating debris management at dams.
2017-2020 US Army Corps of Engineers, Seminal Concepts in Risk, senior risk cadre training.
2017-2019 US Nuclear Regulatory Commission, State of Practice in Hydropower Risk Analysis.
2014-2019 ICOLD, Committee to Update Bulletin 130, Risk analysis in dam safety management.
2011-2016 Panama Canal Authority. Development of enterprise risk management guidance.
2011-2011 FEMA, Review and Evaluation of the National Dam Safety Program.
2008-2015 BC Hydro, Ontario Power Generation, Elforskl, USACE. Joint industry study on operational risk.
2007-2013 US Army Corps of Engineers, LRD Development of risk-screening tools.
2006-2012 Ontario Ministry of Natural resources: Risk-based dam safety regulations.
2006-2010 US Army Corps of Engineers, NAE Multi-year project on asset risk management practices.
2006-2008 California Department of Water Resources, Delta Risk Management Study, consultant panel.
2001-2006 FEMA, Assessing the Adequacy of the National Flood Insurance Program 1% Flood Standard.

NATIONAL ACADEMY (NASEM) REPORTS ON RISK MANAGEMENT

1. NRC, *2018-2020 Assessment of the Army Research Office*, NASEM, DC 2021.
2. NRC, *Assessing the Risks of Unmanned Aircraft Systems (UAS)*, NASEM, DC 2018.
3. NRC, *Long-term Management of the Spirit Lake & Toutle River System*, NASEM, DC 2017.
4. NRC, *Coastal Risk Reduction*, NASEM, DC 2014.
5. NRC, *Evaluation of the Updated Site-Specific Risk Assessment for the National Bio- and Agro-Defense Facility in Manhattan, Kansas*, NASEM, DC 2012.
6. NRC, *Corps of Engineers Water Resources Infrastructure: Deterioration, Investment, or Divestment?* NASEM, DC 2012.
7. NRC, *National Water Resources Challenges Facing the U.S. Army Corps of Engineers*, NASEM, DC 2011.
8. NRC, *A review of the Department of Homeland Security's approach to risk analysis*, NASEM, DC 2010.
9. NRC, *A Review of the Proposed Revisions to the Federal Principles and Guidelines Water Resources Planning Document*, NASEM, DC 2010.

10. NRC, *Scientific Review of the Proposed Risk Assessment Bulletin from the Office of Management and Budget*, NASEM, DC 2007.
11. NRC, *A review of the OMB's proposed risk analysis guidelines*, NASEM, DC, 2007.
12. NRC, *Load and Resistance Factor Design (LRFD) for Deep Foundations*, NCHRP 507, NASEM, DC 2004.
13. NRC, *A review of the EPA water security research and technical support action plan: Parts I and II*, NASEM, DC, 2003.
14. NRC, *Analytical methods for water resource project evaluation*, NASEM, DC, 2003.
15. NRC, *Making the nation safer: The role of science and technology in countering terrorism*, NASEM, DC, 2002.
16. NRC, *Risk analysis and uncertainty in flood damage reduction studies*, NASEM, DC, 2000.

BOOKS

1. Baecher, G.B., *Small data: the power of Bayesian thinking*, (in press).
2. Hartford, D.N.D., Baecher, G.B., Zielinski, P.A., Patev, R.C., Ascila, R., and Rytter, K., *Operational safety of dams and reservoirs*, Thomas Telford, Ltd., London, 400pp, 2016.
3. Makhutov, N. and Baecher, G.B. (Eds.), *Comparative Analysis of Technological & Sociological Consequences of Terrorism (NATO Science Series)*, IOS , Amsterdam, 2012.
4. Frolov, K. and Baecher, G.B. (Eds.), *Protection of Civil Infrastructure from Acts of Terrorism (NATO Science Series)*, Kluwer Academic Publishers, Dordrecht, 2006.
5. Hartford, D., and Baecher, G.B., *Risk and Uncertainty in Dam Safety*, Thomas Telford, Ltd., London, 416pp., 2004.
6. Baecher, G.B., and Christian, J.T., *Reliability and Statistics in Geotechnical Engineering*, John Wiley and Sons, London and New York, 605pp., 2003.

GOVERNMENT SERVICE

Science Advisory Board, Chair, The Water Institute of the Gulf, Baton Rouge, LA, 2011-2020. Coastal Master Plan Science and Engineering Board, State of Louisiana, 2009-2011.
 Sub-Committee on Planetary Protection, Science Mission Directorate, NASA, 2007-2012.
 Chairman, Committee on Geotechnical and Geological Engineering, National Research Council, DC, 2006-2009.
 Member, Board on Earth Science and Resources, National Research Council, DC, 2006-2009.
 Member, Water Science and Technology Board, National Research Council, DC, 2000-2008.
 Member, Board on Infrastructure and the Constructed Environment, National Research Council, DC, 2001-2005.

EMPLOYMENT

1995- University of Maryland, College Park, Maryland; Glenn L. Martin Institute Professor of Engineering, and former Chair
 1988-1995 ConSolve Incorporated, Lexington, Massachusetts, Chief Executive Officer 1975-1988; Massachusetts Institute of Technology, Cambridge, Massachusetts, Tenured Professor of Civil Engineering
 1980-1981 Technical University Munich, Germany, Visiting Professor
 1974-1975 International Institute for Applied System Analysis, Laxenburg, Austria, Rockefeller Foundation Post-Doctoral Fellow
 1972-1980 US Army, Corps of Engineers; Captain USAR, Active duty 1972-73, Active Reserves 1973-1980

EDUCATION

1972 PhD, Geotechnical Engineering, Massachusetts Institute of Technology
 1970 MSc, Geotechnical Engineering, Massachusetts Institute of Technology
 1968 BSCE, Civil Engineering, University of California, Berkeley.

AWARDS

- 2024 Hagler Institute for Advanced Study Faculty Fellow, Texas A&M University
- 2023 Anwar Wissa Memorial Lecture, ASCE Geo-Institute of Florida
- 2023 41st Distinguished Lecture Series, UC Berkeley Department of Civil and Environmental Engineering
- 2021 Distinguished Member, ASCE
- 2021 57th Terzaghi Lecture Award, Geo-Institute of ASCE, Dallas
- 2019 27th Buchanan Lecture, Texas A&M University, College Station
- 2017 2nd Lacasse Lecture of GEOSnet, ASCE, Denver.
- 2015 GEOSnet Distinguished Achievement Award for contributions to reliability
- 2014 UC Berkeley Civil Engineering Academy of Distinguished Alumni
- 2012 Panamanian National Award for Science and Technology Innovation
- 2010 Harleman Lecture, Pennsylvania State University, State College.
- 2007 Commander's Award for Public Service, HQ US Army Corps of Engineers
- 2006 US National Academy of Engineering
- 1996 Thomas A Middlebrooks Award American Society of Civil Engineers
- 1991 State-of-the Art Award American Society of Civil Engineering
- 1974 Rockefeller Foundation Post-Doctoral Fellow
- 1969 NSF Graduate Fellowship