

FRIEDMAN FAMILY VISITING PROFESSIONALS PROGRAM



Visit to University of California, Berkeley: March 12, 2021

This report summarizes the visit of **Dr. Faiz Makdisi** from Gannett Fleming, Inc., Oakland, CA, that took place at the University of California, Berkeley, on March 12, 2021.

ITINERARY OR AGENDA

Provide the itinerary of the visit. For example:

TIME:	ACTIVITY:
1:00 PM – 1:10 PM	Student Chapter President welcomes Visiting Professional.
1:10 PM – 3:00 PM	Guest lecture by Visiting Professional
3:00 PM – 3:30 PM	Informal meeting with department graduate students (soon to be graduating) for career guidance and with graduate students who share and discuss research projects to get insight and feedback from visiting professional.

STUDENT CHAPTER VISIT PLANNING COMMITTEE

LEAD ORGANIZER(S): Zorana Mijic, President, zorana.mijic@berkeley.edu

- Tali Feinstein, Vice President, talish@berkeley.edu
- Connie Chen, Treasurer, connie.chen@berkeley.edu
- Taylor Gater, Webmaster, taylor_gater@berkeley.edu
- Megan Vandervort, Volunteer (EERI Berkeley Student Chapter Member), mvandervort@berkeley.edu

VISITING PROFESSIONAL LECTURE OVERVIEW

This year's visit was virtual due to the COVID-19 pandemic. Dr. Makdisi began the presentation by introducing the EERI and its function as well as his involvement with the EERI. He then presented the Oroville Spillways Emergency Recovery Project to 30-40 attendees. Lessons learned from the viewpoint of a member of an independent Consultant Review Board were presented. The attendees posed questions at the end of the lecture and stayed for additional discussion after the lecture. The lecture was very insightful, interesting, and engaging.

Lecture Abstract

The lecture provided a description of the incident of slab failure of the control spillway chute at the Oroville Dam during the February 2017 spill that resulted in significant damage to the spillway channel, and erosion of its underlying foundation. This prompted the activation of the emergency spillway, with the potential for undermining the foundation of one of the spillway monoliths leading to an evacuation of close to 200,000 residents downstream of the dam.

The presentation described the postulated mechanisms of failure, a summary of the findings and conclusions of an Independent Forensic Team report that identified the factors that most likely contributed to the failure. The immediate recovery response program that included an expedited design schedule, an appointment of an

independent review board, interaction and coordination with the regulatory agencies, and selection and early engagement of a construction contractor was described. Elements of the design and reconstruction of both the control spillway chute and emergency spillway during two construction seasons were presented together with the lessons learned from this incident.

Professional Bio

Dr. Faiz Makdisi is a Senior Principal Engineer of Gannett Fleming in Oakland. Dr. Makdisi received his Bachelor of Engineering degree from the American University of Beirut, Lebanon, and his M.Sc. and Ph.D. degrees in Geotechnical Engineering from UC Berkeley. He has over 39 years of specialized experience in geotechnical and earthquake engineering. Dr. Makdisi has been actively involved in studies of the seismic behavior of earth and rock fill dams and embankments. He developed and published with the late Professor H. Bolton Seed widely used simplified procedures for estimating the dynamic response and permanent deformations in earth and rock fill dams. Recently, Dr. Makdisi has been involved in development of seismic design criteria, evaluation of seismic stability, and design of alternative remedial measures for more than 25 embankment dams. He has authored and co-authored many papers dealing with the seismic stability of dams and with various aspects of earthquake ground motions and seismic design criteria for critical facilities. He is a recipient of the 1977 Norman Medal award of the ASCE for the paper (co-authored with Seed, Lee and Idriss) on the analyses of the slides in the San Fernando Dams during the 1971 San Fernando earthquake. As a member of a team of Technical Advisors to the Los Angeles District, Corps of Engineers, on the design and construction of Seven Oaks Dam in California, Dr. Makdisi was a co-recipient of the U.S. Army Corps of Engineers, Chief of Engineers "Design and Environmental Honor Award for 2002." He is currently serving as a member of the Board of Consultants for Oroville Dam Spillway Restoration Project and the Director's Safety Review Board for Perris Dam, Castaic and Crafton Hills Dams, B. F. Sisk Dam, and five Delta Dams for the California Department of Water Resources, Division of Safety of Dams. Dr. Makdisi also served as a member of the Consulting Review Board for Conconully Dam, for the US Bureau of Reclamation. In 2017, Dr. Makdisi was awarded the Danny K. McCook Medal by Association of State Dam Safety Officials, for his lasting contributions to dam safety.

SUPPLEMENTAL ACTIVITIES

Discussion with Graduate Students

Dr. Makdisi stayed after the lecture to talk to graduate students. Students close to finishing their degree talked to Dr. Makdisi about their career plans and asked for his advice. Dr. Makdisi answered questions and shared his engineering/research experience. The students also had an opportunity to discuss their research projects with Dr. Makdisi to get his insights and feedback.

RESULTS, FEEDBACK AND LESSONS LEARNED

Dr. Makdisi's lecture was very interesting, engaging, and insightful. It contained different engineering (geological, geotechnical, and structural) and emergency management aspects. This year in general, the Chapter aimed to increase participation of geotechnical engineering students and reduce the disconnect between structural and geotechnical engineering. The Friedman Family Visiting Professional Program helped bring the Chapter closer to achieving that goal as both geotechnical and structural engineering student groups participated and had positive comments about the lecture. The students also benefited from the discussion with Dr. Makdisi.

The main challenge this year was the inability to have an in-person visit due to the pandemic. As a result, many typical activities (e.g., a tour of laboratories related to EERI disciplines) could not be held. The EERI Berkeley Student Chapter looks forward to the following:

- In-person visit

- Balance between structural and geotechnical earthquake engineering topics
- Participation by both geotechnical and structural engineering students regardless of Visiting Professional's educational background

ACKNOWLEDGEMENTS

The UC Berkeley EERI Student Chapter gratefully acknowledges the support of the Friedman Family for sponsoring the visit of Dr. Faiz Makdisi through their Friedman Family Visiting Professional Program endowment. The Chapter also acknowledges the UC Berkeley Student Opportunity Fund that was used to provide lunch for the students.

LIST OF ATTACHMENTS

Included at the end of this report are various attachments to supplement the information included above. A list of the attachments is included below:

- Item 1, professional slide show #1

EERI's Mission

EERI's mission is to reduce earthquake risk by:

1. Advancing the science and practice of earthquake engineering
2. Improving understanding of the impact of earthquakes
3. Advocating comprehensive and realistic measures for reducing earthquake effects

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- Item 2, professional slide show #2

