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KRISTINA (TINA) CYDZIK, P.E., LEED AP
SENIOR MANAGING CONSULTANT
MANAGER OF CALIFORNIA OPERATIONS

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Ms. Kristina Cydzik is a Senior Managing Consultant at Engineering Systems Inc. (ESi) in the Civil, Structural, and Environmental Practice and is a licensed Professional Engineer in the states of Arizona, California, Colorado, Florida, Illinois, Missouri, New Mexico, Oregon, Texas, Washington, and Wyoming. Ms. Cydzik is specialized in Civil Engineering with a focus in water resources, hydrology, and hydraulics. She has extensive experience in the assessment and mitigation of natural hazards including analyzing the cause of damages, determining impacts to life and property, evaluating infrastructure design, preparing recommendations to reduce risks, and developing strategic plans for land and water management.

In a forensic capacity, Ms. Cydzik performs analyses of surface water, groundwater, water diversion, land use change, flooding, alluvial fan flooding, erosion and debris flows, post-wildfire watershed impacts, water availability and allocation, water consumption, and damages related to earthquakes and hurricanes. She also investigates the design, performance, and failure of infrastructure including dams, debris basins, flood control channels, roads and highways, storm drains, and sewers. Ms. Cydzik develops and applies appropriate state-of-the-art numerical models to evaluate various aspects of water resources, hydrology, hydraulics, and sediment transport.

To support strategic planning, Ms. Cydzik works with communities, government entities, and stakeholder groups to develop plans related to integrated water resources management, floodplain management, water rights, and local and/or international water rights. This work is informed by the results of analyses of surface water and groundwater resources within international or transboundary watersheds.

Areas of Specialization

Civil Engineering
Erosion, Sediment Transport, and Debris Flows
Hydrology & Hydraulics
Infrastructure Design & Planning
Surface Water & Groundwater Investigations
Water Resources Planning & Risk Analysis
Wildfire Watershed Impacts & Post-Fire Recovery

Education

M.S., Civil Engineering, University of California, Los Angeles, 2006
B.S., Civil Engineering, University of California, Los Angeles, 2005

Licensed Professional Engineer (P.E.)

State of Arizona	License No. 50940
State of California	License No. 74858
State of Colorado	License No. PE.0061214
State of Florida	License No. 91324
State of Illinois	License No. 062-070997
State of Missouri	License No. 2022032380
State of Nevada	License No. 030646
State of New Mexico	License No. 28043
State of Oregon	License No. 94419PE
State of Texas	License No. 133370
State of Washington	License No. 56521
State of Wyoming	License No. 18069

U.S. Green Building Council (USGBC)

Leadership in Energy and Environmental Design Accredited Professional (LEED AP)

Previous Experience

Prior to joining ESi, Ms. Cydzik worked as an independent consultant and as a Senior Engineer at Exponent Failure Analysis Associates. She has led distributed teams and served as a principal investigator for clients including those in the legal, insurance, government, and private sectors. While a graduate student, she was a research assistant and a teaching assistant at the University of California, Los Angeles.

Professional Associations and Affiliations

American Society of Civil Engineers, ASCE
American Geophysical Union, AGU
American Meteorological Society, AMS
International Water Resources Association, IWRA
Chi Epsilon, Civil Engineering Honor Society

Academic Honors

Undergraduate Edward K. Rice Award, Henry Samueli School of Engineering and Applied Science, UCLA
UCLA Department of Civil and Environmental Engineering Outstanding Bachelor of Science Student
Harbin Polytechnic Society Scholarship recipient
Applera Corporation Scholar
UCLA Alumni Scholar

Languages

Russian, Native Speaker
Italian and French, Beginner

Professional Training and Education

California Easements, Rights-of-Way, and Eminent Domain, Santa Ana, CA, February 2019
Water Laws and Regulations Seminar, San Diego, CA, April 2017
ASCE Post-Disaster Safety Assessment Program (SAP) Evaluator & Coordinator Training, Lakewood, CA, May 2016
Tufts University & Massachusetts Institute of Technology, The Water Diplomacy Program (5-day workshop), Cambridge, MA, June 2013
UCLA Extension, Technical Management Program (5-day workshop), Los Angeles, CA, March 2009
Harvard University, Program on Negotiation for Lawyers Beginning Negotiation Workshop (5-day workshop), Cambridge, MA, June 2008
ASCE HEC-RAS Training Workshop, Seattle, WA, October 2006
American Meteorological Society Summer Policy Colloquium, Washington, DC, June 2006

Positions Held

Engineering Systems Inc., Irvine, CA
Senior Managing Consultant, 2022 – Present

Senior Consultant, 2014 – 2021

Independent Consultant, Irvine, CA
2013 – 2014

Exponent, Irvine, CA
Senior Engineer & Engineer, Civil Engineering Practice, 2008 – 2013

Exponent, Menlo Park, CA
Engineer & Associate, Civil Engineering Practice, 2006 – 2008

University of California, Los Angeles, CA
Research Assistant, 2005

Teaching Experience

Teaching Assistant, UCLA Department of Civil & Environmental Engineering, CEE 157L Hydrologic Design Laboratory, Winter 2006

Peer Reviewer

Journal of Hydrologic Engineering, ASCE
National Science Foundation

Selected Project Experience

Wildfire Damage Assessments & Pre-Fire Planning

Principal investigator performing assessments of debris flow, flooding, erosion, and other property damages sustained as a result of rainfall events, debris removal, and reconstruction efforts following numerous wildfires in the states of California, Colorado, Texas, Utah, and Washington. Assessed watershed conditions, extent of wildfire damage, and origin and composition of debris as well as land use and land management strategies. Developed damage mitigation strategies, repair plans, and cost estimates for engineering works based on field surveys at individual properties and within the affected watersheds. Estimated debris production volumes using various methodologies including USGS regression equations, U.S. Army Corps of Engineers (USACE) Debris Method, Los Angeles County Sedimentation Manual guidance, and other accepted methodologies from the literature.

As it relates to damage mitigation, Ms. Cydzik has consulted with clients regarding pre-fire planning and post-fire damage prevention measures that encompass land and vegetation management, structure management, utilities (primarily electricity and water), and materials selection for temporary and permanent structures.

Water and Land Resources Planning & Management

Project task manager of a multi-million dollar planning study for the development of a national water and land resources investment strategy for a client in the Middle East. Responsible for organizing a three-year stakeholder engagement process. Implemented a systematic way of comparing alternative development scenarios, coordinating and interacting with diverse stakeholder groups, and producing visual and written communication tools to illustrate outcomes of plan alternatives. Through the stakeholder engagement process, reached consensus regarding long-term water resources management strategies introducing water use efficiencies across multiple sectors (i.e., agricultural, municipal, and industrial) and developing a suite of policy and institutional measures to support sustainable water resources management.

Prepared a national strategy for water and land resource development. Managed a multi-disciplinary and distributed team of subcontractors, prepared technical reports and guiding documents, and delivered technical presentations to the client and stakeholders. Project involved collaborating with an international team of engineers and scientists and extensive international travel in Europe and the Middle East. Co-author of the resulting 20-year national investment strategy including surface water and groundwater management strategies.

International Water Resources Management & Water Rights

Co-author of an international watercourse negotiation strategy based upon the principles of international water law and environmental law. Conducted a review of international water treaties and prepared a comprehensive database of international water laws and regulations and water quality standards relevant to the watercourses under study.

Assessment of Groundwater Management in the Los Angeles Basin

Performed research and analysis of historical groundwater data and fluxes within the Los Angeles Basin, including assessment of groundwater management strategies.

Infrastructure Design Review

Conducted third-party reviews of hydrology studies and infrastructure design to assess assumptions, basis of design, and construction of water management systems.

Investigation of Storm Drain System Performance

Performed investigations of street drainage and storm drain systems during storm events at various locations in the western United States. The studies included analysis of historical aerial photography, topographic maps, LiDAR data, engineering drawings and plans, design assumptions, meteorological conditions, and manmade influences in the subject drainage areas. Hydrologic and hydraulic computations were performed to assess the performance of the systems for different storm events.

Assessment of Sanitary Sewer Performance

Investigated a sanitary sewer system to analyze its design, history, operations and maintenance, and performance. The project tasks included analyzing sewer line video inspection data, reviewing historical building permits and site development plans, analyzing engineering plans and documents, reviewing sewer maintenance records, and preparing maps and graphical exhibits.

Floodplain Management

Performed a screening level analysis of scour velocities and erosion potential in a river and its adjacent marsh environment to understand the potential for the creation of erosional or depositional areas based on known particle sizes and Federal Emergency Management Agency (FEMA) estimates of typical discharge velocities in the area.

Involved in a hurricane-induced flood mapping study for the State of Hawaii encompassing the six major islands of Hawaii: Kauai, Lanai, Maui, Molokai, Hawaii (the Big Island), and Oahu. Representative historical tropic storms and hurricanes were selected from the Eastern and Central North Pacific Basin Hurricane database of the National Hurricane Center. The historical storms were used to generate a series of hypothetical storms. Historical and hypothetical storm tracks were modeled using the Advanced Circulation Model (ADCIRC), and the Empirical Simulation Technique (EST) was applied to probabilistically model the coastal storm surge along the southern extents of the islands of interest.

Post-Earthquake Hazard Analysis and Mitigation

Performed field reconnaissance in Sichuan, China to evaluate the damage following the May 12, 2008 magnitude 7.9 Wenchuan Earthquake. Investigated the natural hazards (e.g., "quake lakes" formed by landslide dams, avalanches, debris flows, landslides, fault displacements, and liquefaction) that contributed to the destruction.

Floodplain Hazard Analysis and Development Planning

Performed hydrologic and hydraulic analyses to identify flood hazard conditions at an undeveloped property to support land planning and identification of development constraints at a residential and commercial development near the Coachella Valley in Southern California. Assessed the flood conditions associated with the Ordinary High Water Mark (OHWM) as well as the 100-year and regional Standard Project Flood (SPF) conditions.

Alluvial Fan Flooding

Provided technical consulting to the California Governor's Alluvial Fan Task Force to develop guidelines for hazard mitigation for projects sited near or on alluvial fan landforms to facilitate sustainable development. Prepared presentations for the task force plenary sessions to describe the history of alluvial fan flooding incidents and the development of policies and guidelines. Co-authored chapters of the California Governor's Alluvial Fan Task Force Model Ordinance, including the Task Force Findings and Recommendations and the Integrated Approach to Sustainable Development on Alluvial Fans.

Water Resources Investigation in a Possible Wetland

Performed long-term water balance calculations to explore the water availability at an arid region coastal site for purposes of determining whether favorable conditions exist to support a wetland based on minimum water availability criteria. Evaluated long-term rainfall data, soils data, historical aerial photographs, topographic maps, runoff, and evaporation conditions at the site to formulate conclusions.

Assessment of Application of USGBC LEED NC Criteria

Principal investigator for a confidential engagement related to the assessment of a designer's performance in providing consulting services for a building design involving a

potential US Green Building Council (USGBC) Leadership in Environmental and Energy Design (LEED) Certification for New Construction. The building failed to earn a certification; responsible for identifying why it failed to achieve the certification. Developed alternative remedies for how the building could achieving certification as an existing building using LEED 2009 Operations and Maintenance criteria.

Publications and Presentations

Cydzik, K, Adapting to Climate Change and Thinking Beyond Resilience in the Construction Industry, 2022 Fall Meeting, ABA Forum on Construction Law, Memphis, TN, September 28-30, 2022.

Shrestha PL, Shaller PJ, Doroudian M, **Cydzik, K**. Evaluating sediment dynamics in waterways. Proceedings, 10th International Conference on Scour and Erosion (ICSE-10), pp. 237-250, October 18-21, 2021 (Virtual).

Shaller, P.J., Doroudian, M., **Cydzik, K.,** Shrestha, P. Construction, Operation, and Failure of Ka Loko Dam, Kauai, Hawaii. Association of Engineering Geologists 2020 Annual Meeting, Dams and Levees Lesson Learned Symposium, Part 1. September 17, 2020.

Cydzik K, Shaller P, Doroudian M, Jirschefske J. July 2019 Ridgecrest Earthquake Sequence: Observations from a Post-earthquake Reconnaissance. White Paper. Irvine, CA. December 2019.

Cydzik, K., Shaller, P.J., Shrestha, P., and Doroudian, M. Post-fire planning, policy, and natural hazards mitigation: lessons learned during recovery from wildfires in the state of California, USA, 2015-2019. American Geophysical Union 2019 Fall Meeting, San Francisco, CA. December 9-13, 2019.

Cydzik K., Wildfires: Planning, Response, and Recovery. Dealing with Natural Disasters, Here Comes the Flood (of Legal Issues), 2019 Annual Meeting, ABA Forum on Construction Law, Hollywood, FL, April 24-27, 2019.

Cattarossi, A, Mastrocola, P, Cattarossi, E, **Cydzik, K.** Loss and Recovery of the Garden of Eden: A Decade of Planning for Sustainable Restoration and Conservation of the Landscape and Environment of the Mesopotamian Marshes of Southern Iraq. International Federation of Landscape Architects, 53rd IFLA World Congress, Torino, Italy, April 20-22, 2016.

Wade RL, Jokar A, **Cydzik K**, Dershowitz A, Bronstein R. Wildland fire ash and particulate distribution in adjacent residential areas. Int. J. Wildland Fire. 2013. Published Online 26 August 2013.

Cydzik K, Shaller PJ, Wren JR, Hamilton D. Post-Fire Watershed Response Following the 2009 Station Fire in Southern California, USA. Proceedings, World Environmental and Water Resources Congress, Palm Springs, CA, May 22-26, 2011.

Cydzik K, Hamilton D, Stenner H, Cattarossi A, Shrestha PL. Reconnaissance following the May 12, 2008 M7.9 Wenchuan Earthquake, Sichuan, China. Abstract, World Environmental and Water Resources Congress, Palm Springs, CA, May 22-26, 2011.

Shrestha PL, Lenaburg RT, Scheffner NW, Rezakhani M, Hamilton D, **Cydzik K.** Storm surge study of the Hawaiian Islands using the EST method. Proceedings, World Environmental and Water Resources Congress, Palm Springs, CA, May 22-26, 2011.

Shaller PJ, **Cydzik K**, Wren J, Hamilton D, Shrestha, PL. A case study of the fire-flood sequence in Southern California. Presentation, Wildland Fire Litigation Conference, San Diego, CA, April 15-17, 2011.

Cydzik K, Hamilton D, Stenner H, Cattarossi A, Shrestha PL. Natural hazard public policy implications of the May 12, 2008 M7.9 Wenchuan earthquake, Sichuan, China. American Geophysical Union 2009 Fall Meeting, San Francisco, CA, December 14–18, 2009.

Cydzik K, Shrestha PL, Hamilton D, Rezakhani M, Scheffner NW, Lenaburg RT. Numerical modeling to support floodplain mapping in coastal areas. American Geophysical Union 2009 Fall Meeting, San Francisco, CA, December 14–18, 2009.

Cydzik K, Hogue TS. Modeling postfire response and recovery using the Hydrologic Engineering Center Hydrologic Modeling System (HEC-HMS). JAWRA 2009; 45(3):702–714.

Cydzik K. Careers in water resources engineering. Presentation to the UCLA Department of Civil & Environmental Engineering CEE 157L – Hydrologic Analysis and Design, Los Angeles, CA, March 3, 2009.

Shrestha PL, Hamilton DL, **Cydzik K**, Wardak S, Jordan N, Shaller PJ, Doroudian M. Flood hazard analysis and mitigation. Proceedings, International Conference on Water, Environment, Energy and Society (WEES-2009), New Delhi, India, January 12–16, 2009.

Murillo B, Wardak S, Hamilton DL, Shrestha PL, **Cydzik K**, Doroudian, M. Sedimentation analysis for existing and proposed development conditions. Proceedings, International Conference on Water, Environment, Energy and Society (WEES-2009), New Delhi, India, January 12–16, 2009.

Lenaburg RT, Scheffner NW, Shrestha PL, **Cydzik K**, Rezakhani M, Hamilton DL. EST-based tropical storm flood mapping of the Hawaiian Islands. Proceedings, An International Perspective on Environmental and Water Resources, Bangkok, Thailand, January 5–7, 2009.

Stenner H, Hamilton D, **Cydzik K**, Cattarossi A, Mathieson E. Landslides and quake lakes from the M7.9 China earthquake—Are Californians in the same boat? 3rd Conference on Earthquake Hazards in the Eastern San Francisco Bay Area, October 24, 2008.

Hamilton D, **Cydzik K**, Stenner H, Cattarossi A. May 12, 2008 M7.9 Wenchuan earthquake, August 2008 field trip to Sichuan, China. Presentation during bi-monthly Exponent internal John Osteraas Group meeting, via WebEx, September 29, 2008, and October 6, 2008.

Stenner H, Hamilton D, **Cydzik K**, Cattarossi A. Landslide hazards of the M7.9 Wenchuan, China earthquake and geologists' role in response. Annual Association of Engineering and Environmental Geologists, New Orleans, LA, September 19, 2008.

Wardak S, Murillo B, Hamilton D, Shrestha PL, Doroudian M, **Cydzik K**, Medellin J, Shaller PJ. Sedimentation analysis in an open channel network for existing and proposed development conditions. ASCE-EWRI World Environmental & Water Resources Conference, Honolulu, HI, May 12–16, 2008.

Shrestha PL, Hamilton D, Jordan N, Lyle JE, Doroudian M, Shaller PJ, Wardak S, **Cydzik K**, Medellin J. Inland flood hazard analysis and mitigation. ASCE-EWRI World Environmental and Water Resources Conference, Honolulu, HI, May 12–16, 2008.

Shrestha P, Hamilton D, Lyle J, Doroudian M, Shaller P, **Cydzik K**. Analysis of flood hazards for a residential development. ASCE World Environmental and Water Congress, Tampa, FL, May 15–19, 2007.