

Participants

Hoori Ajami, Professor, University of California, Riverside, USA

Newsha Ajami, Director, Urban Water Policy, Water in the West, Stanford University, USA

Kamal Azari, President, Foundation for Community Government & Entrepreneurship, USA

Christina Babbitt, Senior Manager, California Groundwater Program, Environmental Defense Fund, USA

Karen Bakker, Professor, University of British Columbia, Canada

Cheikh Becaye Gaye, Professor, University Cheikh Anta Diop, Senegal

Marcela Brugnach, Assistant Professor, University of Twente, The Netherlands

Ellen Bruno, Cooperative Extension Specialist, University of California, Berkeley, USA

Henrique Chaves, Professor, EFL, University of Brasilia, Brazil

Heather Cooley, Director of Research, Pacific Institute, USA

Russell Detwiler, Professor, University of California, Irvine, USA

Guillermo Donoso, Professor, Water Law and Management Center, Pontificia Universidad Católica de Chile, Chile

Maria Donoso, Director, International Programs for the Institute of Water and Environment, Florida International University, USA

James duBois, Senior Manager, Global Environmental Impact, Driscoll's, USA

Ashok Gadgil, Senior Faculty Scientist, Lawrence Berkeley National Laboratory, USA

Negin Hayatbini, PhD Candidate, University of California, Irvine, USA

Glenda Humiston, Vice President, University of California Division of Agriculture and Natural Resources, USA

Antonio Embid, Professor, Catedrático de Derecho Administrativo, Universidad de Zaragoza, Spain

Michael Kiparsky, Director, Wheeler Water Institute, University of California, Berkeley, USA

Nikahang Kowsar, Journalist, New Iran/GCCAC, USA

Tara Moran, Program Lead, Sustainable Groundwater, Water in the West, Stanford University, USA

Hamidreza Mosaffa, Visiting Researcher, UC Irvine, USA; PhD Candidate, Shiraz University, Iran

Jerry Reaugh, Water Consultant, J Lohr Vineyards and Wines, USA

Melissa Rohde, Groundwater Scientist, The Nature Conservancy, USA

Margaret Wilder, Associate Professor, University of Arizona, USA

Sonya Ziaja, Geographer, California Public Utilities Commission, USA

Speakers

Dora Carreón Freyre, Researcher, Universidad Nacional Autónoma de México

Alvar Closas, Acting Office Head, MENA Region, Int'l. Water Management Institute, Egypt

Helen Dahlke, Professor, Integrated Dept. of Land, Air & Water Resources, University of California, Davis, USA

Lucia De Stefano, Associate Professor, Complutense University of Madrid & Deputy Director, Water Observatory, Botín Foundation, Spain

Claudia Faunt, Supervisory Hydrologist, California Water Science Center, US Geological Survey, USA

Devin Galloway, Research Hydrogeologist, Water Mission Area, US Geological Survey, USA

Andrea Gerlak, Associate Professor, Udall Center, University of Arizona, USA

Steven Gorelick, Professor, Earth System Science, Stanford University, USA

Paul Hirt, Professor, School of Historical, Philosophical and Religious Studies, Arizona State University, USA

Rosemary Knight, Professor, Dept. of Geophysics, Stanford University, USA

Lenny Konikow, Emeritus Scientist, US Geological Survey, USA

Neno Kukuric, Director, Int'l. Groundwater Resources Assessment Centre, The Netherlands

Kaveh Madani, Reader, Imperial College London, United Kingdom

Aditi Mukherji, Theme Leader, Int'l. Centre for Integrated Mountain Development, Nepal

Debra Perrone, Professor, University of California, Santa Barbara, USA

Ingrid Verstraeten, Regional Science Advisor, US Geological Survey, USA

Yanxin Wang, Professor, China University of Geosciences, China

Advisory Committee

Ariel Dinar, Distinguished Professor, School of Public Policy, University of California, Riverside, USA

Dan Dooley, Principal, New Current Water and Land, LLC, USA

Alberto Garrido, Professor, Universidad Politécnica de Madrid, Spain

Helen Ingram, Professor Emerita, University of California, Irvine, USA

Doug Parker, Director, California Institute for Water Resources, Division of University of California, Agriculture and Natural Resources, USA (ex officio)

Ayman Rabi, Executive Director, Palestinian Hydrology Group, Palestine

Soroosh Sorooshian, Forum Chair; Distinguished Professor, Civil & Environmental Engineering and Earth System Science Depts.; Director, Ctr. for Hydrometeorology & Remote Sensing, University of California, Irvine, USA

OCTOBER 7-10, 2018
SAN JOSE, CALIFORNIA, USA



SUSTAINABLE GROUNDWATER MANAGEMENT: THE PATH FORWARD

TENTH BIENNIAL ROSENBERG INTERNATIONAL FORUM ON WATER POLICY



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FIELD TOUR COORDINATOR: JAMES DUBOIS

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Dear Participants:

On behalf of the Rosenberg Forum Advisory Committee, I welcome you to San Jose, California, USA, for the 10th Rosenberg International Forum on Water Policy. The theme of this year's Forum, **Sustainable Groundwater Management: The Path Forward**, contrasts with the focus of earlier Forums on water policy and management problems.

The specific purposes of this Forum are to: 1) underscore the extent to which the problem of quality and the over-exploitation of groundwater resources is no longer exclusive to the drier regions of the world and it has become a global issue, and 2) discuss the challenges of developing and implementing policies for long-term sustainability of groundwaters in the context of an integrated water resources management approach. Development of sound groundwater management strategies requires: i) relevant and useful information using all the technological advances which allow the monitoring and modeling of groundwater systems, and ii) effective decision support system which allows development of sound policy options to address regional and global water scarcity challenges.

The formal sessions will be preceded by a day-long field trip to the Driscoll's operations in Watsonville. The program itself includes sessions on review of the state of the groundwater conditions and challenges at both global and regional scales, review of the state-of-the-art of observation and modeling tools, perspectives of next generation of scientists in addressing future water challenges, and the role of groundwater as an element of the hydroclimatic system.

The principal sponsors of the this Rosenberg Forum are the University of California, Division of Agriculture and Natural Resources, Bank of America, The Water Foundation and Driscoll's. I extend special thanks for continuous support of Forum planning efforts to James duBois, Driscoll's and my colleague Dr. Doug Parker for coordinating the tour. I extend my gratitude to Ms. Sherry Cooper and her team for their remarkable efforts in the overall organization and logistical arrangements for the participants of the Forum. Last but not least is my personal appreciation to Henry Vaux, the Chair Emeritus of the Forum for his mentoring and advice to me. I trust that you will find the sessions rewarding and your stay in San Jose, California, pleasant. I welcome each of you to the 10th Forum!

Meet and Greet Reception

Sunday, October 7

- 3:00 PM Registration in the Everis Anson Parlor
- 5:00 Meet and Greet Reception on the Westwood Patio
- 6:30 Dinner in the Silver Creek Dining Room

Pre-Forum Field Trip

Monday, October 8

- 6:30 AM Breakfast in the Silver Creek Dining Room
- 8:00 Load and Depart for Tour Sponsored by Driscoll's - meet near hotel's reception
- 4:00 Return to Dolce Hayes Mansion
- 6:30 Buffet Dinner in the Silver Creek Dining Room

Forum

Tuesday, October 9

- 7:00 AM Breakfast in the Silver Creek Dining Room
- 8:30 Opening Ceremony
Soroosh Sorooshian, Chair

Welcome

Glenda Humiston, Vice President
University of California, Division of
Agriculture and Natural Resources

Keynote

- 9:15 Groundwater: Making Invisible Visible -
Neno Kukuric, Director, Int'l. Resources
Assessment Centre
- 10:00 Break



Sustainable Groundwater Management: The Path Forward

October 7-10, 2018, San Jose, California, USA

Tuesday, October 9 (cont'd.)

Session 1: Policy Issues

Session Chair: Helen Ingram

- 10:30 AM Opportunities and Challenges in Groundwater Policy and Governance—Andrea Gerlak, Udall Center, University of Arizona
- 10:55 USGS Global Engagement in Groundwater Resources: The Science, Resource Management, and Policy Nexus—Ingrid Verstraeten, US Geological Survey

Roundtable Discussion

- 11:20 Lunch in the Silver Creek Dining Room

Session 2: Review of the State-of-the-Art

Session Chair: Ayman Rabi

- 1:30 PM The Hidden Hazard of Deep Groundwater Arsenic—Steven Gorelick, Stanford University
- 1:55 Land Subsidence Hazards Challenge Groundwater Sustainability in Many Inland and Coastal Aquifer Systems—Devin Galloway, US Geological Survey
- 2:20 Groundwater Depletion and Its Implications for Sustainable Groundwater Management—Lenny Konikow, US Geological Survey
- 2:45 Roundtable Discussion
- 3:15 Break

Session 3: Review of the State-of-the-Art

Session Chair: Soroosh Sorooshian

- 3:45 Geophysical Imaging of Groundwater Systems—Rosemary Knight, Stanford University

- 4:10 California Climate, Groundwater, and Their Interrelated Future—Claudia Faunt, California Water Science Center, US Geological Survey

Roundtable Discussion

- 4:35 Adjourn
- 5:30 Welcome Reception in the Eagle Rock followed by Dinner in Orlo's Restaurant
Companions are invited to attend as the Forum's guests.

Wednesday, October 10

- 7:00 AM Breakfast in the Silver Creek Dining Room

Session 4: Case Studies

Session Chair: Ariel Dinar

- 8:45 Groundwater Management Through Electricity Reforms: Case Studies from Three States in India—Aditi Mukherji, Int'l. Centre for Integrated Mountain Development
- 9:05 Safe and Sustainable Groundwater Supply in China—Yanxin Wang, China University of Geosciences
- 9:25 Iran: Food Self-Sufficiency or Groundwater Bankruptcy?—Kaveh Madani, Centre for Environmental Policy, Imperial College London
- 9:45 Regulating Groundwater Uses In Spain: A Long-Distance Race—Lucia De Stefano, Complutense University of Madrid, Water Observatory of the Botín Foundation

Clarifying Questions

- 10:05 Break

Roundtable Discussion

- 10:45

- 12:00 PM Lunch in Silver Creek Dining Room - Recognition of Richard Rosenberg's Legacy

Session 5: Case Studies

Session Chair: Alberto Garrido

- 1:15 Will We Get to "Safe Yield?" Embracing and Dodging Groundwater Sustainability in Arizona—Paul Hirt, Arizona State University
- 1:35 Groundwater Management Paradigm Shift in Mexico: Urban Areas Growing vs. Land Subsidence—Dora Carreón Freyre, Universidad Nacional Autónoma de México
- 1:55 Roundtable Discussion
- 2:30 Break

Perspectives on the Future from Next Generation of Scientists

Panel Chair: Newsha Ajami

- 3:00 Groundwater Wells and Withdrawal Management in the Western USA—Debra Perrone, University of California, Santa Barbara
- 3:25 Groundwater Recharge Using the Agricultural Landscape—Helen Dahlke, University of California, Davis
- 3:50 Groundwater Governance, Policy and Regulation in the Arab World: A Reviewed Paradigm—Alvar Closas, Int'l. Water Management Institute
- 4:15 Discussion and Observations from New Participants
- 5:00 Observations from the Session Chairs
- 5:15 Closing Remarks
Soroosh Sorooshian
- 5:30 Adjourn to Closing Reception