

## Participants

**Awudu Abdulai**, Professor, University of Kiel, Germany

**Hoori Ajami**, Associate Professor, University of California, Riverside, United States

**Patricia Ávila García**, Researcher, Universidad Nacional Autónoma de México, Mexico

Marcela Brugnach, Professor, BC3 - Basque Centre for Climate Change, Spain

Julia Bucknall, Global Director, Environmental and Social Framework, World Bank, United States

**Theresa Jedd**, Environmental Policy Specialist, Technical University of Munich, Germany

**Nikahang Kowsar**, Editor-in-Chief and Host, Abangan, United States

**Soyoka Okamura**, Graduate Student, The University of Tokyo, Japan

**Manzoor Qadir**, Deputy Director, United Nations University, Canada

**Mendy Shozi**, Research Scientist, UKZN WASH R&D Centre, South Africa

**Katherine Vammen**, Co-Chair of Water Program, Inter-American Network of Academies of Sciences, Water Program (IANAS), Nicaragua

**Hope Zabronsky**, Academic Coordinator and Program Lead, California Institute for Water Resources, University of California, Agriculture and Natural Resources, United States

**Tingju Zhu**, Associate Professor, Zhejiang University, China

## Speakers

**Chérifa Abdelbaki**, Water Program Coordinator, Pan African University, Algeria

**Mahmood Ahmad**, Chief Technical Advisor, RIZQ knowledge Hub, Lahore and Bangkok, RIZQ Foundation, Pakistan

**Xanani Baloyi**, Programme Officer, Gender and Equality Focal Point, Stockholm International Water Institute, South Africa

**Henning Bjornlund**, Honorary Professor, Australian National University, Australia

**Nicholas Brozovic**, Professor, Daugherty Water for Food Global Institute, United States

**Kirsty Carden**, Associate Professor and Interim Director, Future Water Research Institute, University of Cape Town, South Africa

**Guillermo Donoso**, Professor, Water Law and Management Center, Catholic University of Chile, Chile

**Abdelmohssin El Mokaddem**, Assistant Professor, AIRESS-FGSES-Mohammed VI Polytechnic University, Morocco

**Raymond Boadi Frempong**, Postdoctoral Researcher, University of Bayreuth, Germany

**María García-Valiñas**, Professor, University of Oviedo, Spain

**Caroline Gelderblom**, Manager, Water Source Institutional and Financing Frameworks, World Wildlife Fund, South Africa

**Karabo Mokgonyana**, Advocate for Human Rights, Women in Water Diplomacy Global Network, South Africa

**Sylvester Mpanдели**, Professor, Water Research Commission, South Africa

**Grace Muinga**, Gender Specialist, Global Center on Adaptation, Kenya

**Daiju Narita**, Professor, University of Tokyo, Japan

**Linus Nyiwul**, Professor, Gettysburg College, United States

**Maria Cristina Rulli**, Professor, Water and Food Security, Politecnico di Milano, Italy

**Johannes Sauer**, Professor, Ag Production and Resource Economics, Technical University of Munich, Germany

**Getaw Tadesse**, Director, Department of Operational Analysis, AKADEMIYA2063, Rwanda

**Djiby Thiam**, Associate Professor, School of Economics, University of Cape Town, South Africa

**Chieko Umetsu**, Professor Emeritus, Graduate School of Agriculture, Kyoto University, Japan

**Sarah Ann Wheeler**, Professor, University of Adelaide, Australia

**Slim Zekri**, Professor, Natural Resource Economics, Sultan Qaboos University, Oman

## Advisory Committee

**Soroosh Sorooshian**, Forum Chair and Distinguished Professor, Civil & Environmental Engineering and Earth System Science, University of California, Irvine, United States

**Christina Babbitt**, Water Stewardship Senior Manager, Enterprise Sustainability, Starbucks, United States

**Lucia De Stefano**, Associate Professor, Complutense University of Madrid, Spain and Deputy Director, Water Observatory of the Botin Foundation

**Ariel Dinar**, Distinguished Professor Emeritus, School of Public Policy, University of California, Riverside, United States

**Qingyun Duan**, National Chair, Professor and Chief Scientist, College of Hydrology & Water Resources, Hohai University, China

**Alberto Garrido**, Professor, Agricultural and Natural Resource Economics, CEIGRAM, Universidad Politécnica de Madrid, Spain

**Andrea Gerlak**, Professor and Director, School of Geography & Development, University of Arizona, United States

**Glenda Humiston**, Vice President, University of California, Agriculture and Natural Resources, United States

**Helen Ingram**, Professor Emeritus, School of Social Ecology, University of California, Irvine, United States

**Benjamin J. Maddox**, Senior Vice President, Bank of America, United States

**Erik Porse**, Director, California Institute for Water Resources, University of California, Agriculture and Natural Resources, United States

**Ayman Rabi**, Executive Director, Palestinian Hydrology Group, Palestine

23-27 OCTOBER 2023  
CAPE TOWN, SOUTH AFRICA



**Rosenberg International Forum**  
on Water Policy

# WATER QUANTITY AND QUALITY MANAGEMENT, ECONOMIC PRODUCTION AND WELFARE IMPLICATIONS IN THE GLOBAL SOUTH



WE WOULD LIKE TO THANK THE SUPPORTERS OF THE 11TH BIENNIAL ROSENBERG FORUM



**UNIVERSITY OF CALIFORNIA**  
Agriculture and Natural Resources



**UNIVERSITY OF CAPE TOWN**  
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

ONSITE FORUM COORDINATORS: SHERRY COOPER & JULIA KALIKA

FIELD TOUR COORDINATOR: DJIBY THIAM

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Dear Participants:

On behalf of the Rosenberg Forum Advisory Committee, I welcome you to Cape Town, South Africa, for the 11th Rosenberg International Forum on Water Policy. The theme of this year's Forum is appropriately, **“Water Quantity and Quality Management, Economic Production and Welfare Implications in the Global South.”**

Given the various stresses on the availability of water resources (population growth, urbanization, migration and the hydro-climatic extremes among others), the theme of our forum and focus on issues of the global south is most timely.

The specific purpose of the first two days of the 11th Forum, as the title of the four sessions conveys, is intended to review 1) Innovation in Agricultural Water Quality and Quantity Management; 2) Adoption of Improved Agriculture Water Use Technologies and Practices and their positive and negative impacts on Societies, Economies and Policies; 3) the Positive and Negative Impacts of Water Productivity; and most importantly 4) Gender Issues. At this forum we have included a third day technical workshop focused on the theme: “Unpacking Water Management Complexity in the Global South.” It has been organized by Djiby Thiam, Ariel Dinar and Christina Babbitt and a number of technical papers from the Friday workshop will be published in a special issue of the *Journal of Applied Economic Perspectives and Policy (AEPP)*.

As is the Rosenberg Forum tradition, we will start the 11th Forum with a one-day field trip on Tuesday 24th of October, which has been arranged by our colleague and local co-organizer, Professor Djiby Thiam.

I extend my special thanks to the members of the Rosenberg Advisory Committee and Dr. Djiby Thiam of Cape Town University for the planning of the Forum and selecting a distinguished group of speakers and participants. 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. I welcome each of you to the 11th Forum.

Last but not least, in this Forum we will have a special tribute in honor of Mr. Richard Rosenberg, who sadly passed away in March of 2023. As a brief introduction, Mr. Rosenberg was an iconic figure in the global financial and banking industry. As an article in the New York Times on 15 March 2023 states about his influence in the banking sector, “He was named Chief Executive and Chairman in 1990 and soon turned Bank of America into the nation's second-largest bank.” At his retirement from Bank of America's presidency in 1996, the bank honored him through a generous gift to the University of California by creating the Rosenberg International Forum on Water Policy, which was one of Mr. Rosenberg's areas of interest.

I trust that you find the entire program rewarding and your stay in Cape Town pleasant.

Soroosh Sorooshian, Chair

## Meet and Greet Reception

### Monday, 23 October

17:00 **Welcome Reception** at the Protea by Marriott Hotel Cape Town Waterfront Breakwater Lodge

## Pre-Forum Tour

### Tuesday, 24 October

08:00 **Depart for Tour** from the Marriott  
Fulham Rd. Stormwater Pond, Weltevreden Valley, Mitchell's Plain  
Berg River Dam, Franschoek  
The Water Hub, Franschoek  
Rickety Bridge, Franschoek

16:00 Return to the Marriott

18:00 Depart for group dinner at GOLD Restaurant

## Forum

### Wednesday, 25 October

08:00 **Registration and Refreshments**

08:45 **Opening Ceremony: Welcome and Introductions**  
Soroosh Sorooshian, Chair

Suki Godman, Dean, Faculty of Commerce, University of Cape Town, South Africa

Djiby Thiam, Director, Water and Production Economics Unit, University of Cape Town, South Africa

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

### Keynote

09:30 **Will Africa's Farming Sector Survive Climate Change? Behavioral, Technological and Institutional Aspects** — Ariel Dinar

10:00 **Session 1: Innovation in Agricultural Water Quality and Quantity Management**  
Session Chair: Ariel Dinar

10:05 **Digital Technology as a Solution to Address Negative Impact of Climate Change on Women's Agricultural Participation in Sub-Saharan Africa** — Karabo Mokgonyana

10:30 **Break**

10:55 **Case Study: Wastewater Reuse for Agriculture as an Adaptation Measure to Water Scarcity and Climate Change: Algerian Experience** — Chérifa Abdelbaki

11:20 **Case Study: Where the World is Going With Focus on Technological and Climate Smart Ag Technology** — Mahmood Ahmad

# Water Quantity and Quality Management, Economic Production and Welfare Implications in the Global South

23-27 October 2023, Cape Town, South Africa

11:45	<b>Case Study: Advances in Water Research: Enhancing Sustainable Water Use in Irrigated Agriculture in South Africa</b> — Sylvester Mpandeli	09:50	<b>Water Allocation and Trade-Offs Between End-Users</b> — Maria Cristina Rulli	09:45	<b>Quality of Tap Water and Demand for Bottled Water in Tunis</b> — Slim Zekri
12:10	<b>Discussion</b>	10:15	<b>Discussion</b>	10:15	<b>Assessing the Efficiency of Residential Water Demand: The Role of Information</b> — María García-Valiñas
12:45	<b>Lunch</b>	10:50	<b>Break</b>	10:45	<b>Mineral Extraction and Water Security</b> — Raymond Boadi Frempong
14:15	<b>Session 2: Considerations For Widespread Adoption of Improved Agriculture Water Use Technologies and Practices: Social, Economic and Policy Barriers</b> Session Chair: Andrea Gerlak	11:20	<b>Session 4: Gender Issues</b> Session Chair: Djiby Thiam	11:15	<b>Lunch</b> <b>Climate Change Induced Water Scarcity Risks</b>
14:20	<b>Adoption of Improved Water Technology in Agriculture: Drivers and Barriers</b> — Johannes Sauer	11:25	<b>Exploring the Intersection of Water, Agriculture, and Gender: Perspectives and Implications</b> — Grace Muinga	11:50	<b>Approaches to Resilience-Based Urban Water Governance in South Africa - What Role Does Gender Play?</b> — Kirsty Carden
14:45	<b>Institutional and Policy Related Challenges that Limit the Adoption of Improved Agricultural Water Use Technology and Practice: Enhancing Rainfed Agricultural Systems in the Zambezi Watercourse</b> — Xanani Baloyi	11:50	<b>Approaches to Resilience-Based Urban Water Governance in South Africa - What Role Does Gender Play?</b> — Kirsty Carden	12:00	<b>Hydro-Economic Modelling of Water Scarcity and Quality in the South African Region of the Limpopo River Basin</b> — Daiju Narita
15:10	<b>Strategies to Foster the Implementation of Policy on the Ground: Regional Water Partnerships and Capacity Building</b> — Caroline Gelderblom	12:15	<b>Discussion</b>	12:30	<b>Do Zambian Farmers Manage Climate Risks?</b> — Chieko Umetsu
15:35	<b>Break</b>	12:45	<b>Lunch</b>	13:00	<b>Measuring the Resilience of Farms to Water Scarcity</b> — Johannes Sauer
16:05	<b>Discussion</b>	14:15	<b>Key Lessons from the Forum and Main Take Aways</b> Moderated by: Christina Babbitt and Ayman Rabi	13:30	<b>Break</b> <b>Innovations and Policy Interventions</b>
17:00	<b>Adjourn</b>	16:00	<b>Adjourn</b>	13:30	<b>Break</b>
		17:00	<b>Depart for dinner at Durbanville Hills</b> <b>Richard Rosenberg Remembrance</b>	13:45	<b>Innovation and Water Productivity: Empirical Evidence from Water-Related Patents</b> — Linus Nyiwul

## Technical Workshop

### Friday, 27 October

### Unpacking Water Management Complexity in the Global South

07:30 **Refreshments**

07:55 **Opening Statement** — Djiby Thiam, Ariel Dinar and Christina Babbitt

### Irrigated Agriculture

08:00 **Irrigation-as-a-Service for Smallholder Farms** — Nicholas Brozovic

08:30 **Small-Scale Irrigation Potential in Niger and Burkina Faso** — Getaw Tadesse

09:00 **Combining Social Institutions and Technological Solutions for Sustained Change in Water User Behaviour within Small-Scale Irrigation in Sub-Saharan Africa** — Henning Bjornlund

09:30 **Break**

### Urban and Mining Sectors

