WATER, FOOD, ENERGY AND CLIMATE
The University of North Carolina–Chapel Hill
April 16-18, 2018
The Water Institute at UNC

The Water Institute at UNC provides global academic leadership for sustainable management of water for health and human development. Based in UNC’s Gillings School of Global Public Health, one of the highest ranked public health schools, we work to solve the complex global water challenges through our four main strategic functions: research; teaching and learning; knowledge and information management; and networking and partnership development. We have seven focus areas to support these functions, which are: monitoring, valuation and learning for WaSH; WaSH governance; sanitation for the 21st century; adapting to water scarcity and climate change; drinking water for all; national and regional WaSH challenges in the U.S.; and the water-food-climate-energy nexus.

Through all our endeavors, we work toward improving access to safe water, sanitation and hygiene for all. We unite faculty, students, practitioners and policymakers around this common purpose on a local, national and international scale.

Securing Water for Food: A Grand Challenge for Development

Securing Water for Food: A Grand Challenge for Development helps farmers around the world grow more food using less water, enhance water storage, and improve the use of saline water and soil to produce food by ensuring that the entrepreneurs and scientists behind groundbreaking new approaches are getting the support they need to apply and expand their solutions around the world.

Since 2013, USAID, Sweden through the Swedish International Development Cooperation Agency (Sida), the Government of South Africa, and the Ministry of Foreign Affairs of the Kingdom of the Netherlands have invested $35 million and provided critical acceleration support to promote science and technology solutions that enable the production of more food with less water.
MONDAY, APRIL 16

7:30-8:30 a.m.
Breakfast and Registration
ATRIUM

8:30-8:45 a.m.
Opening of Conference
GRUMMAN AUDITORIUM

8:45-10:15 a.m.
Session 1
How a Nexus Approach Can Contribute to the Simultaneous Achievement of Multiple SDGs and Targets
GRUMMAN AUDITORIUM

10:15-10:45 a.m.
Coffee Break
ATRIUM

10:45-11:40 a.m.
Session 2
Nexus Challenges in the Urban Dimension
GRUMMAN AUDITORIUM

11:40 a.m. -1:00 p.m.
Oral Presentations
Migration and Mobility • SUNFLOWER
Food Security and Production • AZALEA
Sustainable Models • BELLFLOWER

1:00-2:30 p.m.
Lunch
TRILLIUM

2:30-4:00 p.m.
Session 3
Exploring Cross-Cutting Issues for the Nexus Themes
GRUMMAN AUDITORIUM

4:00-6:00 p.m.
Session 4
Nexus Partnerships: Sharing Experiences and Lessons Learned
GRUMMAN AUDITORIUM

6:00-7:00 p.m.
Poster Reception
ATRIUM

7:00-9:00 p.m.
Dinner
TRILLIUM

TUESDAY, APRIL 17

7:30-8:30 a.m.
Breakfast and Registration
ATRIUM

8:30-10:00 a.m.
Session 5
Building Resiliency in American Cities
GRUMMAN AUDITORIUM

10:00-10:30 a.m.
Coffee Break
ATRIUM

10:30-11:40 a.m.
Session 6
Increasing the Relevance of Science in Nexus Policy Making
GRUMMAN AUDITORIUM

11:40 a.m. -1:00 p.m.
Oral Presentations
Policy Interface and Frameworks • SUNFLOWER
Climate Change • AZALEA
Water • BELLFLOWER

1:00-2:30 p.m.
Lunch
TRILLIUM

2:30-3:45 p.m.
Session 7
Accessing Renewable Energy in a Water-stressed World
GRUMMAN AUDITORIUM

3:45-4:00 p.m.
Coffee Break
ATRIUM

4:00-5:00 p.m.
Session 8
The Role of Integrated Water Management and Sustainable Agriculture and Rural Development in an Urbanized World
GRUMMAN AUDITORIUM

5:00-6:00 p.m.
Oral Presentations
Building Resilient Cities • SUNFLOWER
Health • AZALEA
Water Infrastructure • BELLFLOWER
Community Outreach • REDBUD

6:00-7:00 p.m.
Poster Reception
ATRIUM
WEDNESDAY, APRIL 18

7:30-8:30 a.m.  
**Breakfast and Registration**  
ATRIUM

8:30-10:00 a.m.  
**Session 9**  
Funding the Nexus Approach in a Fair, Equitable and Green Economy  
**GRUMMAN AUDITORIUM**

10:00-10:30 a.m.  
**Coffee Break**  
ATRIUM

10:30-11:40 a.m.  
**Session 10**  
The Current State of Capacity Development for the Nexus  
**GRUMMAN AUDITORIUM**

11:40 a.m. -1:00 p.m.  
**Oral Presentations**  
Governance • **SUNFLOWER**  
Achieving the SDGs • **AZALEA**  
Sustainable Energy-Food-Water Models • **BELLFLOWER**

1:00-2:30 p.m.  
**Lunch**  
TRILLIUM

1:45-2:30 p.m.  
**Side Event**  
**SUNFLOWER**

2:30 p.m. until adjourned  
**Session 11**  
How Should the 2018 High-level Political Forum and the 2019 Heads of State Review of the SDGs Address the Nexus?  
**GRUMMAN AUDITORIUM**

SIDE EVENTS
Daily 1:45-2:30 p.m., during lunch break

MONDAY, APRIL 16

**Water-Power Nexus Toolkit: Tools for Engagement, Innovation and Financing**  
Convened by the University of Southern California  
**SUNFLOWER**

**UN-Water Synthesis Report**  
Convened by UN-Water  
**REDBUD**

**Coping with Water Scarcity in the Context of the Sustainable Development Goals**  
Convened by the Food and Agriculture Organization of the UN  
**AZALEA**

TUESDAY, APRIL 17

**How Can Good Governance Help Build Nexus Partnerships?**  
Convened by MSP Institute and Tellus Institute  
**SUNFLOWER**

**Securing Water for Food: A Grand Challenge for Development—Real World Solutions or Hype?**  
Convened by Securing Water for Food  
**REDBUD**

WEDNESDAY, APRIL 18

**Film and Discussion: What Comes Out Goes to the Government: Condominial Sewage in Brazil**  
Directed by Grace Beeler, North Carolina State University  
**SUNFLOWER**
MONDAY, APRIL 16

7:30-8:30 a.m.  **Breakfast and Registration**  
**ATRIUM**

8:30-8:45 a.m.  **Opening of Conference**  
**GRUMMAN AUDITORIUM**

Chair: Akinremi Bolaji, Minister Plenipotentiary Permanent Mission of Nigeria to the United Nations  
Conference co-directors:  
- Jamie Bartram, Director of The Water Institute at the University of North Carolina—Chapel Hill  
- Felix Dodds, Chair, UN 2011 Sustainable Societies: Responsive Citizens Conference

8:45-10:00 a.m.  **Session 1**  
How a Nexus Approach Can Contribute to the Simultaneous Achievement of Multiple SDGs and Targets  
**GRUMMAN AUDITORIUM**

Video message: Christiana Figueres, Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC) (2010-2016)  
Panelists:  
- Louise Karlberg, Centre Director, Stockholm Environment Institute  
- Naiara Costa, Head of the Secretariat for Together 2030  
- Alf Will, Deputy Director General at Department of Environmental Affairs, South Africa  
- Franz-B. Marré, Deputy Director General of Directorate 31 - Environment and Infrastructure, Bonn, Germany

10:15-10:45 a.m.  **Coffee Break**  
**ATRIUM**

10:45-11:40 a.m.  **Session 2**  
Nexus Challenges in the Urban Dimension  
**GRUMMAN AUDITORIUM**

Video message: Franziska Schreiber, Project Manager, Adelphi  
Chair: Akinremi Bolaji, Minister Plenipotentiary and Head of the Second Committee in the Permanent Mission of Nigeria to the UN  
Panelists:  
- Eugénie Birch, Nussdorf Chair for Urban Research, School of Design, University of Pennsylvania  
- Jeb Brugmann, Director, Solutions Development & Innovation, 100 Resilient Cities  
- Hoi-Fei Mok, ICLEI USA
## Oral Presentations

### Migration and Mobility

**SUNFLOWER**

- **Dynamically Modeling the Interconnections Between Demographics and the Water-Energy-Food-Climate Nexus**
  - Michael Tarbert, Mortenson Center in Engineering for Developing Communities

- **Understanding Consumption in Melbourne’s Multicultural Society**
  - Christina Ting, Swinburne University of Technology

- **Retention of Cameroonian Return Migrants and Development: Between Difficulties of Reintegration and Re-emigration**
  - Franck Aurelien Tchokouagueu, Green Horizon, University de Liège

- **Role of Heat Stress in Migration Decision: A Case Study of Faisalabad, Pakistan**
  - Muhammad Awais Umar, Sustainable Development Policy Institute, Islamabad, Pakistan

- **Illegal Migration and Climate Change in Senegal**
  - Arsen Feutoho, Ministry of Economy (Cameroon)

### Food Security and Production

**AZALEA**

- **Innovating the Future of Food: A Global Scan for the Innovations Needed to Transform Food Systems in Emerging Markets by 2035**
  - Chase Keenan, The Global Knowledge Initiative

- **Impacts of Climate Change and Atmospheric Carbon Dioxide Concentrations on Nutrient Availability**
  - Robert Beach, RTI International

- **The Quantification of The Food Energy and Water Nexus and Cost Analysis Associated with Resource Consumption and Reduction within a Milk Processing Facility**
  - Carly Rain Adams, University of Nebraska–Lincoln

- **Fostering a Collaborative Stakeholder Platform to Evaluate the Safety and Sustainability of Using Oilfield-produced Water for Crop Irrigation**
  - Jennifer Hopnick Redmon, RTI International

- **Reconciling Irrigated Food Production with Environmental Flows for Sustainable Development Goals Implementation**
  - Jonas Jägermeyr, Potsdam Institute for Climate Impact Research
11:40 a.m. – 1:00 p.m. **Oral Presentations (cont.)**

### Sustainable Models

**BELLFLOWER**

Decision-making and the Food-Energy-Water Nexus in Phoenix, Arizona  
*Jaime Leah Jones*, Arizona State University

The Role of Vertical Hydroponic Wastewater Treatment Systems as a Part Sustaining the Food-Energy-Water Nexus of Small Island States  
*Dominic Clyde-Smith*, UCL

A Hydro-economic Modeling Approach to Quantify FEW Nexus Trade-offs of Alternative Water Infrastructure Development and Management Pathways in Pernambuco, Brazil  
*Justin Baker*, RTI International

---

1:00-2:30 p.m. **Lunch**

**TRILLIUM**

---

1:45-2:30 p.m. **Side Events**

**SUNFLOWER**

Water-Power Nexus Toolkit: Tools for Engagement, Innovation and Financing  
Convened by the University of Southern California

**REDBUD**

Coping with Water Scarcity in the Context of the Sustainable Development Goals  
Convened by the Food and Agriculture Organization of the UN

---

2:30-4:00 p.m. **Session 3**

**Exploring Cross-Cutting Issues for the Nexus Themes**

**GRUMMAN AUDITORIUM**

Chair: *Sarah Zoubek*, Associate Director, World Food Policy Center, Duke University

Video Message: *Achim Steiner*, UNDP Administrator

Panelists:
- **Mathew Kurian**, Academic Officer, Capacity Development and Governance Unit, United Nations University (UNU-FLORES), Dresden, Germany
- **Minu Hekmati**, Associate, MSP Institute - Multi-Stakeholder Processes for Sustainable Development
- **Sarah Evans**, Founder/CEO of Well Aware
Session 4
Nexus Partnerships: Sharing Experiences and Lessons Learned

GRUMAN AUDITORIUM

Chair: LOUISE KARLBERG, Stockholm Environment Institute

Panelists:
• ANJANETTE RAYMOND, The Ostrom Workshop, Indiana University, Bloomington
• BASSEL DAHER, RABI MOHTAR, EFSTRATIOS PISTIKOPOULOS and BRUCE MCCARRL, Texas A&M University, College Station
• MATHEW KURIAN, United Nations University, Dresden, Germany
• GRAHAM ALABASTER, UNHABITAT, Geneva, Switzerland (via Skype)

6:00-7:00 p.m. Poster Reception

ATRIUM

7:00-9:00 p.m. Dinner

TRILLIUM

Poster Presentations: Monday, April 16

Gender Vulnerability and Resilience to Climatic Variability Impacts Among Water-stressed Smallholder Agro-pastoralists in Nakasongola District, Uganda
GERALD ZIHEMBIRE AHABWE, Makere University

Effects of Flooding due to Climate Change on the Spread of Cholera in India
DIVYA SRIDHAR, George Washington University

The Power of Systems: A Collective Approach to Creating Value at the Nexus
KEVIN MEREDITH, The WESEE Collective

An Ecosystemic Approach for Planning and Evaluation of Public Policies, Research and Teaching Programmes
ANDRE FRANCISCO PILON, International Academy of Science, Health & Ecology, University of São Paulo

An Assessment Towards Building Resilience Through Ecosystem Based Approaches
YITBAREK TIBEBE WELDESEMAET, Environmental Society of Ethiopia

Rice Farmer Perception of Climate Change and Adaptation Strategies in the Ketu North District, Volta Region of Ghana
JACOB KOLLEH, Cuttington University

Planning for a Carbon Neutral Community, Wayanad, Kerala, India
NIDHIN DAVIS K, Thanal

Climate Variability and Change in East Africa: The Role of the Nexus Approach
SOLOMON GEBRECHORKOS, United Nations University and Technische Universite Dresden
### Poster Presentations: Monday, April 16 (cont.)

<table>
<thead>
<tr>
<th>Title</th>
<th>Author(s)</th>
<th>Institution(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deciding in the Dark: Public Information Gaps and their Impact on the Application of the Nexus Approach in Climate Change Decision-Making at the Regional Level in Semi-arid Brazil</td>
<td><strong>Gabriela Litre</strong>, Center for Sustainable Development, University of Brasilia (CDS-UnB)</td>
<td></td>
</tr>
<tr>
<td>Assessment of a Legislature-driven Intervention on Household Energy Access for Cooking in Kwara State of Nigeria</td>
<td><strong>Innocent Onah</strong>, Nasarawa State University, Keffi, Nigeria</td>
<td></td>
</tr>
<tr>
<td>Sustainable Development of Rural Settlements: A Holistic Approach Towards Revitalisation of Oliena’s Historic Center in Sardinia, Italy</td>
<td><strong>Negar Aliakbarshirazi</strong>, Politecnico di Milano</td>
<td></td>
</tr>
<tr>
<td>Gastrointestinal Pathogen Contamination of Infant Weaning Foods Investigation in Low-income Neighborhoods of Kisumu, Kenya</td>
<td><strong>Kevin Tsai</strong>, University of Iowa</td>
<td></td>
</tr>
<tr>
<td>Measuring the Environmental Impacts of Food Waste and Loss to Provide Guidance for Public and Private Action</td>
<td><strong>Sarah Zoubek</strong>, World Food Policy Center, Duke University</td>
<td></td>
</tr>
<tr>
<td>Food-Energy Synergies: Co-location of Solar and Agriculture</td>
<td><strong>Jordan Macknick</strong>, National Renewable Energy Laboratory</td>
<td></td>
</tr>
<tr>
<td>A Conceptual Framework to Link Drivers’ Food Choice to Sustainable Diets in the Rural-Urban Interface</td>
<td><strong>Gisella S. Cruz-Garcia</strong>, International Center for Tropical Agriculture</td>
<td></td>
</tr>
<tr>
<td>Assessing the Impact of 1.5°C and 2°C Warming on Crop Suitability over West Africa</td>
<td><strong>Temitope Egbebiyi</strong>, Department of Environmental and Geographical Science, University of Cape Town, South Africa</td>
<td></td>
</tr>
<tr>
<td>The Contribution of the Community Health Club Approach to Reduction of Hygiene-related Disease and Malnutrition: Case of Ruzizi District, Rwanda</td>
<td><strong>Amans Ntakarutimana</strong>, University of Rwanda</td>
<td></td>
</tr>
<tr>
<td>The Need to Fill the Gap Between Best Practices and Evaluative Strategies: Case of RCT and Process Evaluation in Rusizi District, Rwanda</td>
<td><strong>Amans Ntakarutimana</strong>, University of Rwanda</td>
<td></td>
</tr>
<tr>
<td>Dynamically Modeling the Interconnections Between Demographics and the Water-Energy-Food-Climate Nexus</td>
<td><strong>Michael Tarbert</strong>, Mortenson Center in Engineering for Developing Communities</td>
<td></td>
</tr>
</tbody>
</table>
7:30-8:30 a.m.  **Breakfast and Registration**  
**ATRIUM**

8:30-10:00 a.m.  **Session 5**  
**Building Resiliency in American Cities**  
**GRUMMAN AUDITORIUM**  
Chair: Hoi-Fei Mok, ICLEI USA  
Panelists:  
- Betsy Hodges, former Mayor of Minneapolis (2014–2018)  
- Baye Adofo-Wilson, former Deputy Mayor of Newark (2014–2017)

10:00-10:30 a.m.  **Coffee Break**  
**ATRIUM**

10:30-11:40 a.m.  **Session 6**  
**Increasing the Relevance of Science in Nexus Policy Making**  
**GRUMMAN AUDITORIUM**  
Chair: Lyn Ametewee, Fellow and Ph.D. candidate, Georgia State University  
Panelists:  
- Parfait M Eloundou-Enyegue, Professor and Chair, Department of Development Sociology, Cornell University  
- Jamie Bartram, Director of The Water Institute at UNC  
- Amollo Ambole, Design Researcher, University of Nairobi, Kenya
## Oral Presentations

### Policy Interface and Frameworks

**SUNFLOWER**

- **Food, Energy and Water Nexus Under Climate Change Impacts and Mitigation Policy: The Case of Brazil**
  - Yongxia Cai, RTI International

- **Intergenerational Dialogue: Enhancing the Science Policy Interface for our Shared Future**
  - Kimmy Pugel, UN Major Group for Children and Youth

- **The Nexus as Development Practice**
  - Mathew Kurian, United Nations University (UNU-FLORES), Germany

- **A General Analytical Framework to Address Food-Energy-Water Nexus Challenges in the Developing World**
  - Jennifer Hoponick Redmon, RTI International

### Climate Change

**AZALEA**

- **Trading Carbon for Water Through GHG Mitigation in the Land Use Sectors? Projecting Unintended Consequences of Asymmetric Mitigation Price Incentives in Agriculture and Forestry**
  - Sasha Naumenko, North Carolina State University

- **Climate Variability, Forecasts and Financial Management of Flood Risk**
  - Gonzalo Pizarro, UNDP

- **Implementation of Integrated Resource Assessments in Transboundary Contexts: The Syr Darya and Sava River Basins**
  - Eunice Ramos, KTH - Royal Institute of Technology, Sweden

  - Patience Mguni, Wageningen University Research

### Water

**BELLFLOWER**

- **Indicators for Good Solutions to Wicked Resource Nexus Problems**
  - Sabrina Kirschke, UNU-FLORES

- **Development of a Resource Allocation Management System for the Water-Energy Nexus in Brazil**
  - Theodoros Semertzidis, University College London

- **Data-driven Quantification of the Global Water-Energy-Food System**
  - Janez Susnik, IHE Delft Institute for Water Education
1:00-2:30 p.m.  **Lunch**

**TRILLIUM**

---

**Side Events**

1:45-2:30 p.m.

**How Can Good Governance Help Build Nexus Partnerships?**
Convened by MSP Institute and Tellus Institute

**SUNFLOWER**

**Securing Water for Food: A Grand Challenge for Development— Real World Solutions or Hype?**
Convened by Securing Water for Food

**REDBUD**

---

2:30-3:45 p.m.  **Session 7**

**Accessing Renewable Energy in a Water-stressed World**

**GRUMMAN AUDITORIUM**

Chair: TBD
Panelists:
- Albert Butare, former Minister of Energy, Rwanda
- Catalina Spataru, Senior Research Associate, University College London Energy Institute (via Skype)
- Mark Howells, Chair of Energy Systems Analysis at the Royal Institute of Technology Sweden

---

3:45-4:00 p.m.  **Coffee Break**

**ATRIUM**

---

4:00-5:00 p.m.  **Session 8**

**The Role of Integrated Water Management and Sustainable Agriculture and Rural Development in an Urbanized World**

**GRUMMAN AUDITORIUM**

Video messages: Gilbert F. Houngbo, IFAD President (Chair of UN Water); Monique Barbut, Executive Secretary of the United Nations Convention to Combat Desertification (UNCCD)

Chair: Derek Osborn
Panelists:
- Louis Wertz, Communications Manager, EcoAgriculture Partners
- Riccardo Biancalani, FAO, Land and Water Division
- Verena Klinger-Dering, Counselor for Sustainable Development, Permanent Mission of Germany for the UN
- Aneta Nikolova, Environmental Affairs Officer and Engineer Environment and Development Policy Section, Environment and Development Division, UN ESCAP (via Skype)
Oral Presentations

**Building Resilient Cities**

**SUNFLOWER**

Cities Leading Through Energy Analysis and Planning  
Hoi-Fei Mok, ICLEI Local Governments for Sustainability

Land, Water, Food and Energy Sectors in Singapore: A Balancing Act  
Cecilia Tortajada, Institute of Water Policy, Lee Kuan Yew School of Public Policy, National University of Singapore

A Nexus Approach to Managing Rising Flood Risk  
Jeff Opperman, WWF

A Case for the Urban Nexus Approach: Integrating Resources to Make Asian Cities Resilient  
KK Philip Kang, United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP), Bangkok, Thailand

**Health**

**AZALEA**

Multi-solving at the Intersection of Health and Climate: Lessons from Case Studies  
Stephanie McCauley, Climate Interactive

Sociodemographic and Environmental Factors Related to Diarrheal Diseases in Children Under Five in Niger  
Franck Aurélien Tchokouagueu, Green Horizon, University de Liège

Time Series Study of Weather, Water Quality, and Acute Gastroenteritis at Water Safety Plan Implementation Sites in France and Spain  
Karen Setty, University of North Carolina–Chapel Hill

The Impact of Climate Change on the Transmission of Cholera Through Water and Sanitation  
Jonathan Farr, WaterAid

**Water Infrastructure**

**BELLFLOWER**

Integrating Spatial Variability of Water Resources in Long-term Power Infrastructure Planning: An Illustration from Ganga River Basin  
Bijon Kumar Mitra, Institute for Global Environmental Strategies

Water Management in Architecture: A Biomimetic Approach Towards Sustainability  
Natasha Chayaamor–Heil

The Contribution of a Major Urban Infrastructure Improvement Project to Reducing Water Deficits in Jordan  
Michelle Moffa, Duke University

Revisiting Watershed Management: A Water–Energy–Food Nexus Perspective on the Challenge of Eutrophication  
Ratna Reddy Vippala, Livelihoods and Natural Resource Management Institute
Community Outreach

**REDBUD**

A Long Slog: What a Ten-Year Hydroelectric Relicensing Process Demonstrates About Public Participation  
Heather Payne, University of North Carolina School of Law

Linking Social Equity to Decarbonization: Framing a “Technology Practice” for 21st Century Social Work  
R. Bong Vergara, Suzanne Dworak-Peck School of Social Work, University of Southern California

The Relationship Between Energy Availability and Environmental Health Conditions and Impacts on Health Service Delivery in Malawian Health-Care Facilities

Poster Presentations: Tuesday, April 17

Role of Heat Stress in Migration Decision: A Case Study of Faisalabad, Pakistan  
Muhammad Awais Umar, Sustainable Development Policy Institute, Islamabad, Pakistan

Water–Food–Energy Nexus Investigation for Human Development  
Korinus Waimbo, Centre for Water Systems, University of Exeter

Perceptions of Urban Streams as a Basis for a Social and Ecological Water–body Restoration  
Luisa Fernanda Roldan Rojas, Karlsruhe Institute of Technology

A Tool to Map the Urban Nexus: A Participatory Geographic Information System (PGIS) Approach for a Vulnerable Community in Brazil  
Carolina Monteiro de Carvalho, School of Public Health, University of Sao Paulo

The Nexus: Gaps and Solutions for Sustainable Development  
Jennifer Daw, National Renewable Energy Laboratory

Impacts of Anthropogenic Activities on Provision of Ecosystem Services in Kapingazi Catchment, Embu County, Kenya  
Burnice Karimi Ireri, Egerton University

Climate–Water Nexus: Impacts of the Paris Agreement on Transboundary River Basins  
Konuralp Pamukcu, University of Phoenix–Chicago

Pharmaceuticals in the Water Cycle as an Obstacle to a Circular Economy: The Economic and Environmental Potential of Ecological Sanitation  
Tuula Tuhkanen, University of Jyväskylä
<table>
<thead>
<tr>
<th>Title</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Role of the Water-Energy-Food Nexus in Implementing the Sustainable Development Goals in Morocco</td>
<td>Bassel Daher, Texas A&amp;M University</td>
</tr>
<tr>
<td>Energy Supply, Water Access and Socio-economic Profile of the Population of the Sub-São Francisco Hydrographic Basin</td>
<td>Vanina Zini Antunes De Mattos, UFRJ Coppe Ivig</td>
</tr>
<tr>
<td>Consumer Knowledge and Perceptions Regarding Recycled Irrigation Water: A Comparison Among Populations in the United States, Israel and the West Bank</td>
<td>Hillary Kelbick, Maryland Institute of Applied Environmental Health, University of Maryland</td>
</tr>
<tr>
<td>Climate Change—Water Runoff Relationship in a Tropical River Basin</td>
<td>P.P. Nikhil Raj, Center for Sustainable Future, Department of CEMS, Amrita University, Coimbatore, India</td>
</tr>
<tr>
<td>Proposal and Analysis on Water Intensity in Asia</td>
<td>Naoki Masuhara, The Research Institute for Humanity and Nature</td>
</tr>
<tr>
<td>Millennium Challenge Corporation’s Approach to the Water-Energy-Food and Climate Nexus</td>
<td>Colleen Naughton, Millennium Challenge Corporation/American Association for the Advancement of Science</td>
</tr>
<tr>
<td>Agricultural Adaptations to Climate Change: Farmers’ Perceptions of Nontraditional Water Sources for Irrigation</td>
<td>Rachel Rosenberg Goldstein, University of Maryland</td>
</tr>
<tr>
<td>Agroecology in the Cerrado: Water Footprint and Water Balance of Different Production Systems</td>
<td>Thomas Ludwigs, University of Brasilia</td>
</tr>
<tr>
<td>The Water-Energy-Food Nexus in Practice: Solar-Powered Irrigation</td>
<td>Riccardo Biancalani, FAO</td>
</tr>
</tbody>
</table>
7:30-8:30 a.m. **Breakfast and Registration**
ATRIUM

8:30-10:00 a.m. **Session 9**
Funding the Nexus Approach in a Fair, Equitable and Green Economy
GRUMMAN AUDITORIUM
Chair: **Elliott Harris**, Assistant Secretary General of UNDESA and Chief Economist
Panelists:
- **Paulina Murphy**, Head of International Government Engagement at Aviva
- **Simon Zadek**, Co-director, UN Environment Inquiry into the Design of a Sustainable Financial System (via Skype)
- **Charlie Atkins**, Founder, Pentathalos Eratosthenes, LLC

10:00-10:30 a.m. **Coffee Break**
ATRIUM

10:30-11:40 a.m. **Session 10**
The Current State of Capacity Development for the Nexus
GRUMMAN AUDITORIUM
Chair: **Akinremi Bolaji**, Minister Plenipotentiary and Head of the Second Committee in the Permanent Mission of Nigeria to the UN
Panelists:
- **Claudia Ringler**, Chair of the FE2W Network
- **Stefan Schweinfest**, Director, Statistics Division United Nations
- **Diego Rodríguez**, Senior Water Resources Management Specialist
### Oral Presentations

#### Governance

**SUNFLOWER**

Nexus Landscape Governance to Catalyze Implementation of the 2030 Agenda  
**Hannah Janetschek**, German Development Institute

Participatory Governance Mechanisms for the Nexus: A California Case-study  
**Vincent Virat**, Future Earth

**Jürgen-Friedrich Hake**, IEK-STE, Forschungszentrum Jülich

Relational System Analysis Applied to the Metabolic Pattern of Social-Ecological Systems: A Critical Appraisal of the WEF-Nexus Situation in the EU  
**Maddalena Ripa**, Autonomous University of Barcelona

#### Achieving the SDGs

**AZALEA**

Achieving the SDGs Through Climate Change, Agricultural Production and Trade Nexus  
**Yodit Balcha**, Economic Commission for Africa (ECA)

Using the DPSIR Framework to Evaluate Water-Energy-Food Nexus Linkages for the Achievement of SDGs in Zambezi River Basin Countries  
**Fortune Faith Gomo**

#### Sustainable Energy-Food-Water Models

**BELLFLOWER**

Energy-Water Microgrid Case Study at the University of Arizona’s BioSphere 2  
**AliceK Kandt**, National Renewable Energy Laboratory

Anaerobic Digestion of Curbside Organic Waste and Its Impact on New York City’s Food-Energy-Water-Climate Nexus  
**Vivek Pulikkal**, University of North Carolina–Charlotte

Sustainable Energy Generation Through Wastewater: A Case Study of the City of Lagos, Nigeria  
**Timothy Ajayi**, Ogun State Institute of Technology, Ibesa, Nigeria

Safe Use of Wastewater in Agriculture (SUWA): The Golden Example of Nexus Approach  
**Serena Caucci**, United Nations University

**Alison De Luise**, Penn Institute for Urban Research
Side Event
1:45-2:30 p.m.

Film: *What Comes Out Goes to the Government: Condominial Sewage in Brazil*

Since the 1980s Brazil has been experimenting with modifying engineering standards and using community labor to solve the problem of urban sanitation for neighborhoods which cannot be served by traditional piped sewage because of space and cost limitations. They have developed a system of “condominial sewage,” which has worked well in some places to address the problem. The technology has the potential to solve the sanitation woes of developing cities around the world. However, it has not been successful in all settings. This documentary film examines the successes and failures of the only two large scale citywide condominial sewage projects that have been attempted in Brazil: Salvador and Brasilia. The presentation includes an excerpt from the film, followed by a discussion.

Grace Beeler, North Carolina State University

Session II: Plenary Closure
2:30 p.m.

How Should the 2019 High-level Political Forum and the 2019 Heads of State Review of the SDGs Address the Nexus?

Grumman Auditorium

Chair: Albert Butare, former Minister of Energy, Rwanda

Presentation of the conference co-directors
Baye Adofo-Wilson  
Former Deputy Mayor, Newark

Baye Adofo-Wilson is of counsel to Rainone, Coughlin & Minchello law firm, focusing on urban redevelopment project management and New Jersey redevelopment law. BAW Development, his real estate development company, focuses on developing transformative, residential and mixed-use projects in urban transitional communities. His SuperNova Solar is a California-based solar company focused on solar development in low-income communities.

Previously, Adofo-Wilson was deputy mayor/director of Economic and Housing Development (EHD) for Newark, N.J. While at EHD’s helm, Newark had unprecedented development, including over $2 billion dollars of development, annually 2000 units of housing built, 3 million square feet of commercial development. Adofo-Wilson managed the development of two significant parks: Mulberry Commons, a three-acre park downtown, and Riverfront Park, a three-mile long park along the Passaic River. As the director of EHD, Adofo-Wilson managed the departments of housing, property management, real estate, economic development, planning, zoning and the office of sustainability.

Adofo-Wilson was a 2014–2015 Urban Design Critic at Harvard University Graduate School of Design and a member of the 2013–2014 Loeb Fellows class at Harvard’s Graduate School of Design. While at Harvard, he examined strategies and opportunities for reimagining and rebuilding low-income communities using sustainability, culture and real estate development as a model to spur economic development and increase local participation. He is a U.S. Army veteran, a graduate of Rutgers-Newark, Cornell University’s Masters in City and Regional Planning and the University of Pennsylvania Law School.

Amollo Ambole  
Design Researcher, University of Nairobi, Kenya

Amollo Ambole is passionate about the role of design thinking in socializing technologies for emerging economies. This interest is fueled by her background in industrial design and driven by her doctorate in Public and Development Management.

In early 2017, Ambole was one of the nine grantees of the LIRA 2030 Program that supports early-career researchers across Africa to carry out transdisciplinary studies on the energy-health-natural disasters nexus. In this regard, she is currently leading a multi-country study in Kenya, Uganda and South Africa, focusing on the energy-health nexus. The study examines how household energy systems in urban informal settlements can be re-designed and re-socialized to be healthier and more accessible. More importantly, the study aims to influence integrated policy formulations that can enable transformative change in the energy–health nexus.

Among her many accomplishments, Ambole is also an AfriCLP scholar (2018–2020) and was previously a TRECCAfrica scholar (2012–2016) and a World Social Science fellow (2014). Ambole has published several academic papers and popular science articles and participated in numerous international conferences and workshops.

Lyn Ametewee  
Fellow and Ph.D. Candidate, Georgia State University; Global Health and Social Development Consultant

Lyn Ametewee holds a BA Law with French, MA Criminology, LLM Corporate Finance and an MBA (Strategic Management) and has over 20 years of experience working as a lecturer, researcher and policy consultant in health, human rights and gender equality for vulnerable populations in the United Kingdom, Africa and the Caribbean. Her achievements include working as a consultant for the U.K. National Health Services, U.K. Cabinet Office, U.K. local governments, the United Nations Development Fund for Women (UNIFEM) Caribbean, Ghana Skills Development Fund (funded by the World Bank/DANIDA), Centre for Gender and Social Development at the Institute of Local Government Studies (Ghana), and as an adjunct lecturer at six universities in Ghana. Ametewee is a fellow and doctoral candidate in public health (epidemiology) at Georgia State University. Her research interests include obesity in Africa, Latin America and the Caribbean and using geographic information systems to research health risk factors for noncommunicable diseases.

Charlie Atkins  
Co-founder and Head, Eratosthenes, LLC

Charlie Atkins leads Eratosthenes, the global expert in the financial estimation, reporting and management of environmental risks and liabilities. Its mission is to improve the efficient environmental risk-adjusted allocation of capital by focusing on the intersection of climate change, decision analysis, and financial disclosure in order to build “climate resiliency” in corporate strategy and “climate efficiency” in capital markets. Using an approach similar to major ratings agencies, Eratosthenes makes analytical adjustments to accounting estimates of environmental liabilities reported by corporations based upon their own accounting disclosures on asset retirement obligations (AROs) and environmental remediation liabilities (ERLs). Their measures are more reflective of shareholders’ and creditors’ risks, rights, and benefits; enable more meaningful peer and period-over-period comparisons; and facilitate more robust financial forecasts. They also illuminate the global scale of
Riccardo Biancalani has a master’s degree in Tropical Agronomy, with focus on soil science, irrigation and agricultural economics. He has 30 years of experience in land management, assessment of water and soil resources and land use planning. His work has focused mostly on land and water management, environmental data collection and management, policy support and methodological development. He has worked in more than 20 countries on four continents in development projects at grassroots level as well as in national and global projects. He has actively contributed to the indicators process of the UNCCD, and has been involved at the early stages in the preparation of the SDG indicators for land and water. Biancalani has also worked in the preparation of the FAO database on greenhouse gas emissions, focusing on the emissions from organic soils.

Presently, Biancalani is working at FAO on the assessment and monitoring of the SDG indicators on water resources, particularly water stress and water use efficiency, in the context of the GEMI initiative coordinated by UN-Water. His expertise has been built working in the private sector, NGOs and, since 2000, with FAO. He is author of 45 publications.

Monique Barbut
Executive Secretary of United Nations Convention to Combat Desertification (UNCCD)

Monique Barbut, Under Secretary-General of the United Nations and Executive Secretary of the United Nations Convention to Combat Desertification (UNCCD), has over 30 years of experience in sustainable development, international diplomacy, governance and finance. From 2006 to 2012, she was the Chief Executive Officer and Chairperson of the Global Environment Facility (GEF) and Vice President at the World Bank. Prior to that she was a Director at the United Nations Environment Programme (UNEP), preceding which she oversaw diverse functions in the French international development system, ranging from aid evaluation to serving as Executive Director of Agence Française de Développement. She played a key role in the 1992 Rio Earth Summit finance negotiations and the GEF’s creation thereafter.

Jamie Bartram
Director, The Water Institute at UNC–Chapel Hill

Jamie Bartram works at the interfaces of water (including sanitation and hygiene) and health —especially the links between science, policy and practice, in both developing and developed countries. His interests include technologies for urban sanitation renewal; management systems for drinking-water safety and rural drinking-water supply; emerging issues (including water scarcity and climate change) and their impacts on system sustainability; health system activities on water and sanitation; and sector capacity issues such as monitoring, the costs and impacts of interventions and effective regulation and financing. He is author of more than 80 academic papers; author or editor of 49 books and author of more than 50 book chapters.

Riccardo Biancalani
Project Coordinator, Food and Agriculture Organization of the United Nations

Eugénie L. Birch FAICP, RTPI (hon) is a founding co-director of the Penn Institute for Urban Research, as well as co-editor of Penn Press’s The City in the 21st Century series and the SSRN Urban ejournal. Her recent publications include Slums: How the Informal Real Estate Markets Work (University of Pennsylvania Press, 2016) and “More than window dressing? Stakeholders and partnerships in the New Urban Agenda” in URBANET (January 2018). A New Yorker, Birch has served on the New York City Planning Commission and on the jury for the World Trade Center site design. She served on the Barcelona Smart City and Expo awards jury for several years. She has also served as chair, UN-HABITAT’s World Urban Campaign (2014–2016); as president, General Assembly of Partners (2015 to present), and as a member of the U.S. delegation to Habitat III.

Birch holds a doctorate and a master’s degree in urban planning from Columbia University.

Akinremi Bolaji
Minister Plenipotentiary and Head of the Second Committee in the Permanent Mission of Nigeria to the United Nations

Akinremi Bolaji joined the Diplomatic Service of Nigeria in 1993 after a stint in the private and media sectors. His foreign service training traversed both Nigerian and Indian Academy. He is a multilateralist diplomat and has served in the Embassy of Nigeria in Addis Ababa.

He served as the Chief Protocol Officer in the Office of the Vice President of the Federal Republic of Nigeria. Before his posting to New York he was the Deputy Director & Head of Policy Planning Division as well as Head Crisis Management and Public Communications Division Spokesperson of the Ministry of Foreign affairs of Nigeria. He is a political economist skilled in protocol, event planning and management and project design.
Jeb Brugmann
Director, Solutions Development & Innovation, 100 Resilient Cities

For more than 30 years, Jeb Brugmann has worked with municipalities in more than 30 countries to establish new practices for local sustainability, resilience and pro-poor development. In the 1980s, he played a national coordinating role in the establishment of the original U.S.-wide Sanctuary Cities movement. In 1989/90, he founded ICLEI-Local Governments for Sustainability. As ICLEI Secretary General from 1990–2000, he built the worldwide organization and established and secured national government and United Nations endorsement for the worldwide Local Agenda 21 initiative and the 500+ city Cities for Climate Protection campaign.

As an economist and market analyst, in 2004 Brugmann co-founded The Next Practice (TNP) business innovation consultancy with C.K. Prahalad. As managing partner, he lead company projects with corporate clients to develop their “base of the pyramid” products and business lines. Major client initiatives included the design and introduction by bp of the first smokeless biomass stove solution for millions of households in India and Vietnam; and the small farmer extension and direct market access support service of Thomson Reuters, called Reuters Market Light.

Brugmann is a senior associate with the University Cambridge Institute for Sustainability Leadership and has been a speaker, university lecturer and workshop leader internationally. He authored the BMZ/GIZ/ICLEI report “Operationalizing the Urban NEXUS” (2014). His most recent book is Welcome to the Urban Revolution: How Cities Are Changing the World.

Albert Butare
Former Energy Minister of Rwanda, Co-chair of the 2011 Bonn Nexus Conference

Albert Butare is currently Chief Executive Officer of Fatracs Co. Ltd. Prior to that, he served as Minister of State in charge of Energy, Communication and Water in the Republic of Rwanda, was the Academic Deputy Vice-Chancellor of the Kigali Institute of Science and Technology, and represented the Government of Rwanda in international climate change discussions. He was the co-chair of the 2011 Bonn Nexus Conference and 2014 Chapel Hill Conference Speaker.

Naiara Costa
Head, Secretariat for Together 2030

Naiara Costa leads the International Secretariat of Together 2030, a civil society network that promotes and tracks progress on the implementation and inclusive accountability of the 2030 Agenda and the SDGs. She was the advocacy director of Beyond 2015, a global civil society campaign. Prior to that, she worked as an advisor on Gender, Social and Economic Rights at the Permanent Mission of the United Kingdom in New York as well as a development advisor at the UK Department for International Development (DFID) in Brazil.

Costa has served the UN for more than a decade, working as a National Programme Officer at UNAIDS. She has also served the government of Brazil as an advisor at the Presidency of the Republic (National Anti-Drugs Secretariat) and the Ministry of Finance. Costa worked as UN Public Affairs and Policy Advisor for the World Animal Protection. She holds a master’s in International Relations from the University of Brasilia (Brazil) and an MBA on Projects from Getulio Vargas Foundation.

Bassel Daher
Research Associate, Texas A&M University’s Water-Energy-Food Nexus Research Group; Coordinator, Water-Energy-Food Nexus Initiative

Bassel Daher’s work focuses on policy-oriented research in natural resource management, environmental sustainability and resource security. He is particularly interested in developing water-energy-food nexus solutions that respond to biophysical, socioeconomic, governance and financing constraints at multiple scales, and in the context of the Sustainable Development Goals. Daher has expertise in water-energy-food nexus analytics and the development of resource allocation assessment tools. His focus lies in developing analytics to catalyze dialogue, and improve cooperation, between cross-sectoral stakeholders.

He was recently selected as one of eight young water professionals globally to serve on the Young Scientific Committee of the 2016 Stockholm World Water Week. Daher has contributed to multiple chapters of the UN Global Sustainable Development Report, co-authored a report on “Renewable Energy and the Water, Energy, and Food Nexus” for the International Renewable Energy Agency (IRENA). Daher has contributed to or authored more than 15 journal articles, book chapters, and policy briefs relating to the interconnected water-energy-food securities and nexus assessment tools, including with Chatham House and Water International. He was a recipient of the Montgomery Award in 2017, in recognition of major contributions to the academic opportunities and quality of life of his fellow graduate students at Texas A&M University. He currently serves as Vice President of the Texas Chapter of the American Water Works Association.
Sarah Evans began her professional life as a securities lawyer but launched her career in international development as the founder of Well Aware, an Austin-based nonprofit working with impoverished communities to establish safe and sustainable water infrastructure as a foundation for prosperity. Through this work, her team-building and her dedication to realistic solutions, Evans has become a subject-matter expert and has published several articles on international development, nonprofit management, women’s issues and water system success on various platforms; including Forbes, MariaShriver.com, Wandering Educators and Stilettos on the Glass Ceiling, among others. Features about her and her work have been seen in The New York Times, People.com, USA Today and many others.

Evans is a member of the Forbes Nonprofit Council, Water Experts, the Truman National Security Project, the Entrepreneurs Organization, and the Austin Network for International Impact Professionals. She is a co-producer of the Well Aware mini-documentary, Well Aware World, and she has spoken at Lincoln Center for the Women in the World Summit New York City, at the Montage in Beverly Hills for the Environmental Media Association’s Summit in L.A., and various other industry events.

The success of Well Aware led to Sarah’s creation of Well Beyond, a company being termed the “Geek Squad” of global water.

Felix Dodds
Co-director, 2018 Nexus Conference; Chair, UN 2011 Sustainable Societies: Responsive Citizens Conference

Felix Dodds is a Senior Fellow at the Global Research Institute, a Senior Affiliate at The Water Institute at the University of North Carolina–Chapel Hill, and an Associate Fellow at the Tellus Institute. He was co-director of the 2014 Nexus Conference on Water, Food, Energy and Climate. Dodds was the Executive Director of Stakeholder Forum for a Sustainable Future from 1992-2012. He played a significant role in promoting multi-stakeholder dialogues at the United Nations and proposed to the UN General Assembly the introduction of stakeholder dialogue sessions at the United Nations Commission on Sustainable Development.

Christiana Figueres
Former Executive Secretary UNFCCC & Convenor, Mission 2020

Christiana Figueres is a world authority on global climate change and was the Executive Secretary of the UNFCCC from 2010-2016. She is currently Vice-Chair of the Global Covenant of Mayors for Climate and Energy, ClimateWorks Board Member, World Bank Climate Leader, Senior Fellow for Conservation International, ACCIONA Board Member, The B Team Leader, WRI Board Member, Economic Council member for the Rockefeller Foundation Economic Council on Planetary Health, Leadership Council Member for The Global Alliance for Clean Cookstoves, and Mission2020 Convenor.

During her tenure at the UNFCCC, Figueres brought together national and sub-national governments, corporations and activists, financial institutions and communities of faith, think tanks and technology providers, NGOs and parliamentarians, to jointly deliver the historic Paris Agreement on climate change, in which 195 sovereign nations agreed on a collaborative path forward to limit future global warming to below 2°C. The agreement was in force within less than a year, breaking a UN record. For this achievement she has been credited with forging a new brand of collaborative diplomacy.

In addition to her remarkable diplomatic achievements over the past 20 years, Figueres served as Director of Renewable Energy in the Americas and in 1995 founded the nonprofit Center for Sustainable Development of the Americas, which she directed for eight years.

Elliott Harris
Assistant Secretary-General for Economic Development and Chief Economist, Trinidad and Tobago

Elliott Harris brings over 25 years of international experience in the fields of international economics and development policy analysis, coupled with knowledge of the United Nations system, multilateral and interagency coordination processes. He has extensive experience in the design of macroeconomic policies and its application as a central instrument for the reduction of poverty and for resilient and sustained economic development. His work in the field of economics also focuses on the macroeconomic linkages with global social and environmental policies.

Prior to his appointment, Harris served as Assistant Secretary-General and Head of the New York Office of the United Nations Environment Programme (UNEP) from 2015. He joined UNEP’s Senior Management Team in 2013 as Director of the New York Office and Secretary to the Environment Management Group.

Prior to joining UNEP, Harris began his career in the International Monetary Fund (IMF) in 1988, where he worked in the African Department and the Fiscal Affairs Department. In 2002 he became an Adviser in the Policy Development and Review Department, and was
appointed in 2008 as Special Representative to the United Nations, in addition to serving as Assistant Director of the Strategy and Policy Review Department.

Harris holds a Bachelor of Science degree in German and political science and an advanced degree in economics. He was awarded an Advanced Studies Certificate in international economics and policy research from the Institute of World Economics in Kiel, Germany.

**Minu Hemmati**
Founder, Multi-Stakeholder Processes for Sustainable Development

Minu Hemmati is a psychologist with a doctorate in organizational and environmental psychology. Since 1998, she has been working as an independent consultant with NGOs, governments, international organizations, women’s networks, corporations and research institutions. In 2016, she co-founded the MSP Institute eV, an international charitable association based in Berlin, Germany, working on multi-stakeholder processes for sustainable development.

Hemmati’s work includes designing, facilitating and coaching change processes that use dialogue and multi-stakeholder partnerships; leadership development; training and teaching; and research and advocacy on participation and on gender issues.

Hemmati has broad experience with multi-stakeholder processes at all levels; facilitating a diversity of meeting formats for small and large groups; international policy making on sustainable development and related issues; local and national level implementation; and evaluation in the field. She has published two books, co-authored another and written over 50 articles, book chapters and reports.

Hemmati is a Senior Fellow of EcoAgriculture Partners and a co-founder of GenderCC—Women for Climate Justice. She serves on the Jury of Swiss Re’s International ReSource Award. She was instrumental in setting up the SEED Initiative, co-coordinated the Stakeholder Implementation Conference, and recently led the Climate Dialogue project.

**Betsy Hodges**
47th Mayor of Minneapolis

In Betsy Hodges’ former role as mayor of Minneapolis (2014–2018), she focused on three clear goals: running the city well, growing a great city and increasing equity. Her priorities were ensuring the city works well for everyone and that all people can contribute to—and benefit from—the growth and prosperity of Minneapolis.

Some of Mayor Hodges’ key initiatives included: her Cradle to K Cabinet, creating a Zero Waste Minneapolis, improving police-community relations, and helping small businesses thrive.

Prior to becoming mayor, Hodges served on the Minneapolis City Council for eight years. On the council, she served as chair of the Ways and Means/Budget Committee and the Intergovernmental Relations Committee. One of her major accomplishments was leading the fight to reform a broken closed-pension system that served neither the pensioners nor taxpayers well, which helped avert a $20 million increase in the property tax levy in 2012.

**Mark Howells**
Editor-in-Chief, Energy Strategy Reviews; Department of Energy Technology, KTH Royal Institute of Technology, Stockholm, Sweden

Mark Howells directs the division and holds the chair of Energy Systems Analysis (KTH-dESA) at the Royal Institute of Technology in Sweden, and is an Honorary Affiliate Professor at the University of Technology in Sydney. His group leads the development of some of the world’s premier open source energy, resource and spacial electrification planning tools. He has published in Nature Journals, coordinates the European Commission’s think tank for Energy, is regularly used by the United Nations as a science-policy expert, and is a key contributor to UNDESA’s “Modelling Tools for Sustainable Development Policies.” His division contributes to efforts for NASA, IRENA, ABB the World Bank and others. Prior to joining KTH-dESA he had an award winning career with the International Atomic Energy Agency. Howells’ graduate and post-graduate studies were undertaken at the University of Cape Town, South Africa. Within that time he was an international research affiliate at Stanford’s Program on Energy and Sustainable Development and represented the World Energy Council’s student program.

**Gilbert F. Houngbo**
President, International Fund for Agricultural Development

Gilbert F. Houngbo is the sixth President of the International Fund for Agricultural Development (IFAD). He is also chair of UN-Water, the UN’s coordination mechanism on water and sanitation.

Born and raised in rural Togo, Houngbo has spent more than 30 years working to improve the lives of some of the world’s most vulnerable people. He previously served as Deputy Director-General of the International Labour Organization, where he led field operations in more than 100 countries. From 2008 to 2012, he was Prime Minister of the Republic of Togo. He has also held numerous leadership positions at the United Nations Development Programme (UNDP) including as Assistant Secretary-General, Assistant Administrator of the UNDP and Director of UNDP’s Regional Bureau for Africa.
Louise Karlberg
Director, Stockholm Environment Institute USA

Louise Karlberg has over 15 years of professional experience in a broad range of topics from local level studies on agricultural water management interventions to global water assessments. Several of her projects have investigated resource requirements and constraints for agricultural transformation and energy transitioning in sub-Saharan Africa to support planning and policy making. Her projects have predominantly been located in low-income countries, combining numerical modelling with participatory methods.

Karlberg holds a master’s in systems ecology from Stockholm University, and a doctorate in land and water resources engineering from the Royal Institute of Technology (KTH), Sweden. She has published over 40 scientific papers, book chapters, reports, briefs and popular science articles.

Verena Klinger-Dering
Counsellor for Sustainable Development at the Permanent Mission of the Federal Republic of Germany to the United Nations

Prior to her current role, Verena Klinger-Dering served as policy officer for the German Ministry for Environment, Nature Conservation and Nuclear Safety (BMU) in public relations, international coordination, nature conservation policy, EU environmental policies and global water policy. While at BMU, her priorities were the promotion of international water cooperation and the mainstreaming of water issues into global initiatives and programs, i.e., the promotion of the water-energy and food security nexus in the follow-up process to the Bonn 2011 Nexus Conference. She also contributed to the works of the German Government on the Sustainable Development Goal on Water and Sanitation (SDG6), its indicator framework and the promotion of partnerships between the German Environment Ministry and the UN to facilitate the implementation of the water-related goals and targets of the 2030 Agenda.

Klinger-Dering also served as the Permanent Representation of Germany to the European Union in Brussels, where she worked on environmental policies, legislative initiatives and strategies at the EU level and on international environmental agreements from 2008 to 2012.

Klinger-Dering has a master’s degree in modern languages from the University of Heidelberg. In addition to German, she speaks English, French, Portuguese and some Italian.

Mathew Kurian
Academic Officer, Capacity Development and Governance Unit, United Nations University (UNU-FLORES), Dresden, Germany

In collaboration with UNHABITAT, Mathew Kurian is responsible for the development, pilot-testing and validation of a monitoring methodology for Sustainable Development Goal (SDG) target 6.3, which is carried out as part of the UNU-FLORES Nexus Observatory, a flagship initiative focused on using data to bridge gaps between science and development practice that was launched at the 2017 Dresden Nexus Conference in collaboration with GIZ. In 2015 Kurian served on the United Nations Department for Economic and Social Development (UN-DESA) expert group on the Sustainable Development Goals (SDG).

Kurian has also served in an advisory role for the Directorate General of International Cooperation (DGIS) of the Netherlands and the department of rural water supply of the Government of India. He has previously held faculty positions at University College London (UCL), UK and UNESCO-IHE, Delft, and has worked with The World Bank and the Consultative Group on International Agriculture Research (CGIAR) in Sri Lanka, Laos and Ethiopia.

Franz-B. Marré
Head of Division (Water, Urban Development, Mobility), German Federal Ministry for Economic Cooperation and Development

Franz Marré joined the Federal Ministry for Economic Cooperation and Development (BMZ) in 1989 after having studied law in Bonn. Since 2014 he has served as head of the division responsible for Water, Urban Development and Mobility, which also includes waste management and cross-sectoral issues (the “Nexus”).

Prior positions in the BMZ include the Infrastructure division (which he led), the Southeast Asia section (cooperation of the German Post-Tsunami reconstruction assistance in the Indian Ocean), the Organisation division, the Latin America desk (desk officer for Peru, Ecuador and Colombia) and private sector cooperation.

Rabi H. Mohtar
Dean, Faculty of Agricultural and Food Sciences, American University of Beirut

In addition to his position as Dean at the University of Beirut, Rabi H. Mohtar is also TEES Research Professor, departments of Biological and Agricultural Engineering and Zachry Civil Engineering at Texas A&M University, where he founded the Water-Energy-Food Nexus Initiative and serves as an advisor to its Energy Institute. Mohtar was founding executive director of the Qatar Environment and Energy Research Institute (QEERI), Qatar Foundation. He is adjunct professor at Texas A&M-Qatar and at Purdue University, where he was the inaugural director of Global Engineering Programs and co-founded the Division of Environmental and Ecological Engineering.

Mohtar’s research focuses on developing analytic frameworks linking science and policy toward enabling better decisions for a more sustainable future. Mohtar’s groundbreaking work includes: pedostructure characterization of the soil-water medium, nontraditional water use for agriculture, and applications for sustainable, integrated water management. Mohtar is a Governor of the World Water Council, a Senior Nonresident Fellow at OCP Policy Center, a Fellow of the American Society of Agricultural and Biological Engineers (2018), and a Distinguished Alumnus of the American University of Beirut.

Hoi-Fei Mok
Program officer, ICLEI USA

Hoi-Fei Mok provides technical support and research around greenhouse gas inventorying, climate action planning, and ClearPath software training. Mok coordinates the U.S. Department of Energy’s Cities Leading through Energy Analysis and Planning (Cities-LEAP) Program for data-driven approach to evaluating drivers of change in energy use and greenhouse gas emissions. Mok also brings environmental justice and community organizing experience to ICLEI and is currently managing partnerships with local environmental justice organizations in California.

Before joining ICLEI, Mok worked with the City of Emeryville, California, on developing its climate action plan 2.0, updating its greenhouse gas inventory, and implementing a diversity of climate and sustainability initiatives as the CivicSpark AmeriCorps 2015–16 fellow. Mok’s interdisciplinary background includes work with the Resilient Communities Initiative, an environmental justice coalition in the Bay Area; substantial ecological field research in Costa Rica, Tibet, and Australia; and community organizing experience with various social justice organizations in Australia and the Bay Area.

Mok holds a doctorate from the University of Melbourne, Australia with a dissertation on the feasibility of wastewater reuse for agricultural irrigation and a bachelor’s degree in biochemistry with honors from Wellesley College.

Pauliina Murphy
Head of International Government Engagement, Aviva

Pauliina Murphy is an experienced government relations professional covering global and national level policy and regulatory making environments. She specializes in financial services, developing public policy and stakeholder engagement strategies to influence and effect change. She leads Aviva’s global sustainable finance advocacy programme, working with the UN, OECD and other multi-lateral institutions.

Murphy joined Aviva following the merger with Friends Life, where she was head of public affairs. Prior to this, she spent three years as group head of public affairs at RSA Insurance Group, a global general insurer. She co-founded PubAffairs, the award-winning network for the public affairs, government relations, policy and communications industry in the UK, with over 4,500 members.

Aneta Nikolova
Environmental Affairs Officer and Engineer, Environment and Development Policy Section, Environment and Development Division, UN ESCAP

Aneta Slaveykova Nikolova has rich professional experience in sustainable development policy analysis, development and advocacy, as well as capacity development, institutional strengthening and technical assistance to developing countries and countries with economies in transition in Europe, Africa, and Asia and the Pacific. Nikolova has a broad educational background with degrees in Scientific Information Management, Hydrogeology and Engineering Geology (Engineer) and European Politics and Administration.

Nikolova has been leading a regional capacity development programme on green growth since 2005 when the approach was adopted at the 5th Ministerial Conference on Environment and Development for Asia and the Pacific (March 2005) till 2014, and lead a team that developed two e-learning courses, including the Low Carbon Green Growth delivered through a blended on-site/online training of trainers programmes.

The ESCAP methodology for training of trainers’ courses is embedded in all current and forthcoming e-learning courses available on the Knowledge Hub of the SDG Help Desk Sustainable Development (https://sdghelpdesk.unescap), which is being developed by a team Nikolova leads.

Nikolova champions an integrated approach to the implementation of the SDGs and has led the development of ESCAP methodology for integration of the SDGs into national planning. The methodology using systems thinking approach was developed initially for assessment of the interlinkages between SDG 6 on water and sanitation and the other 16 SDGs at the target level. The analytical framework was applied in three pilot countries—Sri Lanka, Tajikistan and Fiji—and is being introduced in Vietnam and Pakistan.
Caleb Otto  
Former Permanent Representative of Palau to the United Nations  

Caleb Otto is a former diplomat, a human rights and sustainability advocate, public health physician and health administrator. During his time as Palau’s Permanent Representative to the United Nations (2013–2017), he was known as an outspoken advocate for climate action, oceans, mental health and well-being, the human right to water, human rights of indigenous people, tobacco control, and breastfeeding.

During the intergovernmental negotiations for Agenda 2030, in partnership with the Pacific Small Island Developing States “Troika,” Otto pushed hard for a stand-alone goal on oceans. He often led the Palau delegation to climate change negotiations and with AOSIS pushed for the 1.5°C limit from pre-industrial levels and also a leading advocate for “loss and damage” provisions within the Paris Agreement.

Prior to his UN appointment, Otto served as Director of the Palau Conservation Society, where he participated in development of a “score card” for monitoring community-based marine protected areas. He was Chairperson of the Health and Education Committee of the Palau Senate and Director of Public Health. He is active in community affairs and works as an international consultant.

This semester Otto is teaching Global Governance based on the UN Frameworks, especially the 2030 Agenda for Sustainable Development and, with his wife, Judy Otto, also teaches Global Health and Human Rights at Roanoke College, as a Copenhaver Scholar-in-residence.

Anjanette Raymond  
Director, Ostrom Workshop on Data Management and Information Governance; Associate Professor, Department of Business Law and Ethics, Kelley School of Business, Indiana University; Adjunct Associate Professor of Law, Maurer Law School (Indiana)  

Anjanette (Angie) Raymond is a prolific writer on the subjects of international data and information governance, international commercial law, international commercial arbitration, online dispute resolution and international secured transactions in such publications as the Harvard Negotiation Law Review, Cardozo Journal of Conflict Resolution, Journal of Dispute Resolution, Wisconsin Law Review, Northwestern Journal of Technology and Intellectual Property, and the American Review of International Arbitration. Raymond is currently one of the U.S. National Consultant delegates to UNCITRAL reporting on the Electronic Commerce related issues and has previously attended the United Nations Commission on International Trade Law Online Dispute Resolution Working Group, NonGovernmental Organization (Institute of International Commercial Law (IICL)) and was the former research assistant to the US delegate to UNCITRAL and the reporter for the revision of the sales and leases articles of the Uniform Commercial Code.

Claudia Ringler  
Chair, FE2W Network  

Claudia Ringler was appointed Deputy Division Director of IFPRI’s Environment and Production Technology Division in 2011. From 1996 until her current appointment, she served in various other research positions in that division. She currently co-leads the Institute’s water research program and is also a basin theme leader in the CGIAR Research Program on Water, Land and Ecosystems.

Ringler received her doctorate in agricultural economics from the Center for Development Research, Bonn University, Germany, and her master’s degree in international and development economics from Yale University. Her research interests are water resources management—in particular, river basin modeling for policy analysis and agricultural; and natural resource policy focused at sustainable agricultural productivity growth. Over the last several years she has also undertaken research on the impacts of global warming for developing country agriculture and on appropriate adaptation and mitigation options. Ringler has field experience across Asia, sub-Saharan Africa and Latin America. She is currently a member of the Scientific Steering Committee of the Global Water Systems Project (GWSP). She has more than 80 publications in the areas of water management, global food and water security, natural resource constraints to global food production, and on synergies of climate change adaptation and mitigation.

Mark Ritchie  
President and CEO, Minnesota World’s Fair Bid Committee  

Mark Ritchie leads the effort in the United States to organize a World Expo focused on SDG #3: good health and well-being. Ritchie served as Minnesota’s Secretary of State from 2007 until his retirement in 2015. In this role, he was a champion for making Minnesota an international leader in the promotion of the Global Goals for Sustainable Development.

Ritchie served as president of the National Association of Secretaries of State in 2009.

In the 1980s Ritchie co-founded the Minneapolis-based Institute for Agriculture and Trade Policy. In 1994, he co-founded Yale’s Global Environment &Trade Study to research the linkages between international trade and sustainable resilience. He served on the U.S. government’s Trade and Environment Policy Advisory Committee and was part of the official delegations of the U.S. Trade Representative’s Office to the founding of the World Trade Organization in Singapore in 1996.
Diego Rodríguez
Senior Water Resources Management Specialist, World Bank

Diego Rodríguez is currently based in the World Bank’s office in Mexico City, where he is responsible for the coordination, strategic dialogue, formulation and supervision of lending operations, and the design and implementation of sectoral, policy, and analytical studies. He currently leads a regional (Latin America) Initiative titled “From Waste to Resource: Why and How Should We Invest in Wastewater?”

At the global level, Rodríguez leads the Thirsty Energy Initiative on the quantification of water and energy nexus trade-offs where he is working in South Africa, China and Morocco. He also leads the team responsible for formulating and implementing the decision tree framework for incorporating climate uncertainty into water resource planning and investment project design and is currently engaged in Kenya, Indonesia and Mexico. He is also providing technical support to operational teams in the economic analysis of water infrastructure with an emphasis on the application of decision-scaling and decision-making under uncertainty methods. He has been working on water resources, water supply and sanitation for over 25 years.

Rodríguez holds a bachelor’s in economics from the University of Maryland, a master’s in applied economics from Virginia Tech, and a doctorate in water resource economics from the University of Groningen in the Netherlands.

Franziska Schreiber
Project Manager, Adelphi

Franziska Schreiber coordinates the urban transformation work of Adelphi, a think tank based in Germany. The focus of her work includes international negotiation processes relevant to cities, urban governance and integrated planning. She is the author of various studies, articles and policy papers, and is developing diverse dialogue formats for political processes.

Schreiber has advised a number of international and national clients on the Habitat III process and urban development issues, including the Cities Alliance, the German Federal Ministry for Economic Cooperation and Development (BMZ), and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

On behalf of GIZ, she recently developed and tested a modular structured urban nexus training toolkit to be rolled out in cities in South and Southeast Asia. The training addresses the whole spectrum of designing, planning and implementing Urban Nexus initiatives. It also links the Urban Nexus with global agreements, such as the New Urban Agenda, the Paris Climate Agreement and the SDGs, and thus positions the approach in the context of an international reference system.

Stefan Schweinfest
Director, Department of Economics and Social Affairs, UN Statistics Division

Stefan Schweinfest joined the UN Statistics Division in 1989 and has been in his current position since 2014. He has worked in various areas such as national and environmental accounting, statistical capacity building programmes, and indicator frameworks. He was responsible for external relationships of the division, both with member countries as well as with international partner organization. In this context, he has been the substantive Secretary of the United Nations Statistical Commission since 2002.

Schweinfest has also been the Secretary of the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM). He was closely involved since the beginning in the establishment of the UN-GGIM programme and acted as the key liaison between the Division and the United Nations Economic and Social Council during the negotiations of the United Nations resolution that formally launched UN-GGIM in 2011.

Catalina Spataru

Catalina Spataru specializes in whole energy systems dynamics modeling, with particular interest to resource nexus and sustainability. She developed the integrated dynamic assessment model for resource nexus (IDA3) to assess trade-offs and sustainability under different climate change scenarios in Brazil, Egypt, Jordan, and MINT countries. She is the author of Whole Energy System Dynamics: Theory, Modeling and Policy, published by Routledge (2017) and co-editor of the Routledge Handbook of the Resource Nexus (2017). She leads various research projects funded by industry; teaches MSc/Mres students – being the module leader of Metrics, Modeling and Visualisation of the Resource nexus and supervises Ph.D. students in topics related to governance of the resource nexus, metrics, urban development, islands.

She is the regional representative of the IEEE Women in Power (Region 8 –Europe).

Achim Steiner
Administrator, UN Development Programme (UNDP)

Over nearly three decades, Achim Steiner has been a global leader on sustainable development, climate resilience and international cooperation, working to champion sustainability, economic growth, and equality for the vulnerable. At the same time, he has been a vocal advocate for the Sustainable Development Goals.
Prior to joining UNDP, he was Director of the Oxford Martin School and Professorial Fellow of Balliol College, University of Oxford. He was also the Executive Director of the United Nations Environment Programme (2006–2016), the Director-General of the United Nations Office at Nairobi, Director General of the International Union for the Conservation of Nature, and Secretary General of the World Commission on Dams.

Elizabeth Thompson
Former UN Assistant Secretary General and Coordinator for Rio+20

Elizabeth Thompson has been a Senior Advisor to Sustainable Energy 4 ALL. She is now a consultant, lawyer, speaker, motivator and has published two books, Make Yourself Happy (2016) and From Rio+20 to the New Development Agenda (2013, co-author).

Thompson is also a former Minister for Energy and Environment of Barbados. She was a member of Parliament for 14 years and at various times held responsibility for the ministries of Housing, Health, Physical Development and Planning. Her political career in Barbados also included serving in the Senate. In 2008, her work in environment, climate change and sustainable development was recognized with the UN’s prestigious Champion of The Earth Award. She has spoken on panels or given lectures at Harvard, Yale, Colombia, St. Georges University, the University of the West Indies and the University of Waterloo. Her career has spanned law, policy making, journalism and consultancy.

Thompson holds a Masters of Laws (LLM) from the Robert Gordon University, Scotland, a Masters of Business Administration MBA) with distinction, from the University of Liverpool, UK, a Bachelor of Laws (LLB) from the University of the West Indies and an LEC from the Hugh Wooding Law School. Additionally, she is qualified in arbitration and alternative dispute resolution.

Louis Wertz
Communications Manager, EcoAgriculture Partners

Louis Wertz has led communications and outreach for EcoAgriculture Partners since 2013, working on collaborative initiatives to advance sub-national strategies for sustainable development including the Business for Sustainable Landscapes action agenda, The Little Sustainable Landscapes Book, and The Landscape Approach For Sustainability in African Agribusiness. He is the managing editor of the EcoAgriculture Partners blog, and co-leads the communications working group of the Landscapes for People, Food and Nature Initiative, coordinating the initiative’s web presence, media outreach and publication production.

Wertz holds a bachelor’s degree in journalism from Northwestern University and a master’s in world heritage Studies from the Brandenburg Technical University in Cottbus, Germany, where he focused on integrated approaches for managing world heritage sites.

Before starting at EcoAgriculture Partners, he completed a full season of work on an organic vegetable farm and apple orchard in majestic Mendocino County, California.

Alf Wills
Deputy Director General, Sustainable Development and Climate Change, Department of Environmental Affairs, South Africa

Alf Wills focuses on developing South Africa’s policy, legislation and implementation programs for a transition to a just, inclusive, job-creating, low-carbon, climate-resilient and environmentally sustainable development pathway. From 2002 to 2015, he served as lead negotiator and coordinator for South Africa on: International Climate Change agreements and cooperation partnerships; Biodiversity and Marine Multi-lateral Environmental Agreements; International Chemicals and Waste Management agreements; International Sustainable Development agreements; International Environmental Governance, including Global Environment Facility; UNFCCC Financial Mechanism; UNEP Governing Council; engagements in the G8, G20, IBSA, OECD, World Bank, African and other international and regional environmental governance arrangements; African and Bilateral environmental cooperation.

In 2011 Wills served as chief negotiator for climate change as South Africa was hosting the UN Climate Change negotiations (COP 17 and CMP 7).

Simon Zadek
Co-director, UN Environment Inquiry into Design Options for a Sustainable Financial System; DSM Senior Fellow and Visiting Professor at Singapore Management University

Simon Zadek has just completed his role as a Senior Advisor on Finance in the Executive Office of the UN Secretary-General, based in New York. He is on the Advisory Board of the leading sustainability investment fund, Generation Investment Management.

Over the last period, he has had roles including Visiting Fellow at the Oxford Martin School of the University of Oxford, a Visiting Scholar at Tsinghua School of Economics and Management in Beijing, Senior Fellow at the Institute and the International Institute of Sustainable Development, and Distinguished Senior Fellow of the Academy of Business in Society.

Prior to these roles, Zadek was Senior Fellow at the Global Green Growth Institute, Senior Visiting Fellow at Harvard’s J.F. Kennedy School of Government, Senior Fellow at the Centre for International Governance Innovation, Visiting Professor, Copenhagen Business School, and Honorary Professor at the University of Southern Africa.

He founded and was until 2009 Chief Executive of the international think tank AccountAbility and before that Development Director
of the New Economics Foundation, founding Chair of the Ethical Trading Initiative and on the founding Steering Committee of the Global Reporting Initiative.

Zadek publishes extensively: his book *The Civil Corporation* was awarded the Academy of Management’s prestigious Best Book on Social Issues in Management. He advises companies worldwide on sustainability issues, and until recently lived in China.

Zadek has a doctorate from the University of London, a master’s from the London School of Economics, and a bachelor’s from the University of Bristol, all in economics.

**Sarah Zoubek**  
*Associate Director, World Food Policy Center, Duke University*

Sarah Zoubek is an experienced research analyst, project manager, and strategy consultant whose work has concentrated on food production value chains and producer incentives for sustainable business practices.

She is also director of the Duke Food Working Group, whose goal is to foster collaboration between departments on food-related research. She has served as the lead organizer for the University Food Course and Intro to Sustainable Food Systems courses at Duke.

Her previous work includes identifying potential levers to aid adoption of sustainable practices within the Iowa corn and Brazilian beef value chains, designing economic case studies featuring Midwestern producers who successfully employ soil health practices, and aiding the launch of a nationwide soil health campaign.

Zoubek earned a master’s degree in environmental management at Duke University’s Nicholas School of the Environment in 2013. Prior to her graduate studies, she worked at New York Sun Work, a nonprofit organization that teaches environmental science through the lens of sustainable food production. She also holds a bachelor’s in English from Yale University.