

2017 University of Oklahoma International WaTER Conference
NCED Conference Center and Hotel, Norman, OK
September 18-20, 2017

A Decade of Progress – A Vision for the Future

Conference Program

Sunday, September 17, 2017 (Pre-Conference event)

Evening events:

6:30-9:00 pm Registration available (additional times: Monday from 7 a.m. - 2 p.m.; Tuesday from 7 a.m. - Noon)

7:30-9:15 pm Opening General Reception – meet, greet, and eat

Monday, September 18, 2017

7am-2:00 pm Registration available

8:30-9:00 am **ROOM M: Welcoming Remarks and Opening Session**

9:00-9:40 **ROOM M: Keynote Speaker 1 – Stephen Luby, Stanford University
2009 OU WaTER Prize Recipient**

9:50-10:50 Concurrent Oral Presentations – Group 1

Session 1: ROOM G/H: Assessment of WaSH and Health Interventions

[Moderator: TBA]

Analyzing the Combined Effect of Food Security and Water, Sanitation, and Hygiene on Child Linear Growth Failure

(Lee E. Voth-Gaeddert, Missouri University of Science and Technology, USA)

Impact of WASH on the Treatment of Severe Acute Malnutrition

(Nicolas Villeminot, Action Against Hunger NGO)

Impact of Sanitary Interventions and Piped Water Supply on Water Quality in an Open Defecation Free (ODF) Village in India

(Pranav Nagarnaik, NEERI, India)

Session 2: ROOM I: Global Challenges and Disruptions on Water Resources

[Moderator: TBA]

Water Allocation of South-to-North Water Diversion Project in Jiangsu Province, Eastern China

(Chunfen Zeng, Univ. of Oklahoma/Nanjing Univ., USA)

**Groundwater Fluctuation and the Sharp Increase of Seismicity in Oklahoma,
How GRACE Data Could Help**

(Zhen Hong, Univ. of Oklahoma, USA)

**Freshwater Availability: Rainfall Analysis for Pohnpei State, One of the Wettest
Places in the World**

(Shahram Khosrowpanah, University of Guam, Guam)

Session 3: ROOM J/K: Fluoride/Arsenic Mitigation Systems [Moderator: TBA]

**Assessment of Synthetic Hydroxyapatite (Fluorolith®) filter material for the
removal of Fluoride in Kenya**

(Nancy Wanjiku, Nakuru Defluoridation Company, Kenya)

**Efficiency of Synthetic Hydroxyl Apatite as Fluoride Removal Option from
Water in the Ethiopian Rift Valley**

(Esayas Samuel Mengesha, OSHO NGO organization)

**The Impact of Endemic Fluorosis on the Socio- Cultural Status of the Ethiopian
Rift Valley**

(Paulos Beyene, Ministry of Science and Technology, Ethiopia)

Session 4: ROOM L: Context and Capacity Building in WaSH [Moderator: TBA]

**Water Quality Time at Restoration Gateway: Education Toward Sustainable
Water Management for Northern Uganda**

(Stephanie Wong, Baylor University, USA)

Self-Supply Acceleration Activities in Ethiopia; Results and Lessons Learned

(Laura Brunson, Millennium Water Alliance, USA)

**Willingness-to-Pay for Water Resource Protection: Local Governance Could be
Determining Factor**

(Adam Keough, Harvard Extension School, USA)

10:50-11:20 Break

11:20-12:20 **GENERAL SESSION: ROOM M: Water Issues in Rural Oklahoma – Common
Challenges and Solutions with Emerging Regions (Jason Vogel, Oklahoma
Water Survey)**

Short presentations and panel discussion:

David Mercer (Oklahoma DEQ)

Ed Fite (Oklahoma Scenic Rivers Commission)

Bill Robison (City of Tulsa)

Shane Walker (University of Texas at El Paso, USA)

Pranav Nagarnaik (NEERI, India), and

Nancy Wanjiku (Nakuru Defluoridation Company Ltd., Kenya)

- 12:20-1:30 Lunch
- 1:30-2:10 **ROOM M: Keynote Speaker 2: Ben Fawcett, International Water Centre; Australia, 2011 OU WaTER Prize Recipient**
- 2:20-3:00 Concurrent Oral Presentations – Group 2

Session 5: ROOM G/H: Experience of NGOs and Charitable Organizations in WaSH
[Moderator: TBA]

Clean Water as a Correlate to Quality of Life: A Case Study in Rural Haiti

(Ian Davis, Clemson University, USA)

A Reflection on Activities of Non-Governmental Organizations (NGOs) and International Funding Agencies (IFAs) on Water and Sanitation in Some African Countries, 1990-2015

(Bolaji Sule, University of Ilorin, Nigeria)

Session 6: ROOM I: Food, Energy and Water Interface in Developing Regions
[Moderator: TBA]

Sustainable use of Piggery Waste in Micronesia

(Joseph D. Rouse, University of Guam, Guam)

Solar-Light Photocatalytic Reactors for Drinking Water Purification and Solar Photovoltaic Water Pumping in the Remote Mountain Area of Yunnan

(Jiaqiang Wang, Yunnan University, China)

Session 7: ROOM J/K: Fluoride/Arsenic Mitigation Systems [Moderator: TBA]

Porous Ceramics for Removal of Fluoride from Drinking Water

(Anisha Nijhawan, University of Oklahoma, USA)

Fluoride and Arsenic Uptake by Bone Char: Sorbent Characterization and Column Test Evaluation for Low-Cost Household Water Treatment Systems

(Maia Fitzstevens, North Carolina State University, USA)

Session 8: ROOM L: Groundwater Resources and Well-Drilling Challenges
[Moderator: TBA]

Enhanced Removal of Cadmium by Sawdust-Modified-Clay for use as a Landfill Liner to Minimize Groundwater Contamination

(Isaac Akinwumi, Covenant University, Nigeria)

GIS Mapping of Fluoride and Iron in Groundwater Sources and Identification of Suitable Sites for Rainwater Harvesting by using Geospatial Techniques for the Korba District, India

(Ashutosh Kumar Mishra, NEERI, India)

- 3:00-3:20 Break

3:20-4:00 Concurrent Oral Presentations – Group 3

Session 9: ROOM G/H: Experience of NGOs and Charitable Organizations in WaSH (cont) [Moderator: TBA]

Plumbing, Pollution and Power: How NGOs in India Make Private Acts Into Public Stories

(Jennifer Barr, Emory University, USA)

The ABCDs of Community Development

(Rod Beadle, Engineers In Action, USA)

Session 10: ROOM I: Food, Energy and Water Interface in Developing Regions (cont) [Moderator: TBA]

Use of Remote Sensing Products to Evaluate Hydrologic Response in Fragmenting Landscapes in East Africa

(William K. Blount, Colorado School of Mines, USA)

A Revised Water Scarcity Index for Africa Using Satellite Data

(Aondover Tarhule, University of Oklahoma, USA)

Session 11: ROOM J/K: Fluoride/Arsenic Mitigation Systems (cont) [Moderator: TBA]

A High-Capacity Chemically Activated Cow Bone and Monetite for Fluoride Impacted Drinking Water: Laboratory and Field-Scale Studies

(Teshome Lemma Yami, PhD, University of Oklahoma, USA)

Water sales, water jobs, and business models: Key tools to end the global arsenic and fluoride crisis

(Michael S. German, Lehigh University USA)

Session 12: ROOM L: Educational Initiatives in WaSH [Moderator: TBA]

GW2.0: A Continuously Updated, Freely Available, Online Hydrogeology Learning Resource

(David Bethune, University of Calgary, Canada)

Creativity in Water Development Projects: A new Approach to Creative Thinking

(Les Nunn, USA)

4:00-5:00 Poster Session/Social (and Ethiopian Coffee Ceremony)

5:00-5:45 K-12 Contest Awards Ceremony

5:45 Ethiopian Coffee Ceremony

Evening free for networking and socializing

Tuesday, September 19, 2017

7:00-Noon Registration available

9:00-9:40 am **ROOM M: KEYNOTE SPEAKER 3: Ada Oko-Williams; WaterAid, London, 2013 OU Water Prize Recipient**

9:50-10:50 Concurrent Oral Presentations – Group 4

Session 13: ROOM G/H: Groundwater Resources and Well-Drilling Challenges

[Moderator: TBA]

Creating Small Capacity, Safe Water Wells in Bedrock Using Low-Cost Portable Gasoline Powered Drills

(John Cherry, University of Guelph, Canada)

Low-Cost Methods of Accessing Groundwater in Mountainous Developing Communities: Dominican Republic

(Monica C. Resto, Mercer University, USA)

Tracking Nitrate Sources in Groundwater and Associated Health Risk for Rural Communities in the White Volta River Basin of Ghana Using Isotopic Approach

(Gibrilla Abass, Ghana Atomic Energy Commission, Ghana)

Session 14: ROOM I: WaSH Technological Innovation and Design [Moderator: TBA]

Development and Assessment of a Comprehensive Flash Flood Risk Indicator Classification Scheme in of Flash Flood Disaster

(Meihong Ma, University of Oklahoma, USA)

Clean India Mission: Conundrum of Accelerating Toilet Construction and “Improving” Water Quality

(Pranav Nagarnaik, NEERI, India)

How High Can a Manually Operated Suction Pump Lift Water? A Theoretical and Laboratory Assessment

(Katherine Marshall, Mercer University, USA)

Session 15: ROOM J/K: Fluoride/Arsenic Mitigation Systems [Moderator: TBA]

Selecting Technologies to Utilize Impaired Source Waters: A Case Study

(Zaid Chowdhury, Garver, USA)

Studies on Analysis of Fluoride in Water and Food and Its Impact on Human Health in Fluorosis Endemic Area of Chandrapur District, Maharashtra state, India

(Varsha Dhurvey, Nagpur University, India)

Investigating Key Indicators Impacting Plate Health, Aluminum Generation, and Fluoride Treatment in Electrocoagulation Defluoridation Treatment Systems

(Mayuri Jain, NEERI, India)

Session 16: ROOM L: Global Challenges to Water Resources [Moderator: TBA]

Response of Nile River Flow to Climate Change

(Emad Hasan, University of Oklahoma, USA)

Forecasting and Communicating Water-Related Disasters in Africa

(Race Clark, University of Oklahoma, USA)

Drinking water quality and environmental sanitation in parts of Jos, Nigeria

(Daniel Dabi, University of Jos, Nigeria)

10:50-11:20 Break

11:20-12:30 pm Concurrent Oral Presentations – Group 5

Session 17: ROOM G/H: Water Resiliency and Water Reuse/Challenges in Rural U.S.

Settings (Networked and Non-networked) [Moderator: TBA]

Mini-Plenary - Systems Analysis and Planning for Inclusive Development

(Afreen Siddiqi, MIT, USA)

Spicewood Beach – Update on an Innovative and Collaborative Solution to Drought Response and Resiliency in Central Texas

(Ed Yanoshita, Corix, USA)

Private Domestic Well use in the United States

(James W. Weaver, USA)

Session 18: ROOM M: Creating Sustainable WaSH Systems [Moderator: TBA]

Mini-Plenary - SDG6.1-Affordable Water for All-Why Support to Self-supply is Essential

(Sally Sutton, Rural Water Supply Network, United Kingdom)

Exploring the Potential for Social Marketing in Accelerating Self-Supply Water System

(Michael MacCarthy, Mercer University, USA)

The Role of the Circuit Riders in Sustaining Rural Water Systems in Honduras

(Peter Rogers, Georgia Southern University, USA)

Session 19: ROOM J/K: WaSH Technological Innovation and Design [Moderator: TBA]

Mini-Plenary - Development of a Novel Point-of-Use Water Treatment

Technology: Inspiration to Commercial Product

(Jim Smith, University of Virginia, USA)

Using Rapid Small-Scale Column Test Data and the Pore Surface Diffusion Model to Design Fixed-Bed Biochar Adsorbers for Control of Synthetic Organic Contaminants in Representative Water Matrices

(Joshua Kearns, North Carolina State University, USA)

A New Method for Silver Application to Ceramic Water Filters for Household Water Treatment

(James Smith, Univ. of Virginia, USA)

12:30-1:50 pm Lunch

1:50-2:30 **ROOM M: Keynote Speaker 4 –Peter Lochery, CARE USA,
2015 OU Water Prize Recipient**

2:40-3:20 Concurrent Oral Presentations – Group 6

Session 20: ROOM G/H: Conservation and Reuse Technologies [Moderator: TBA]
**Water Reuse for Vegetable Production and Marketing in Smallholder Farming
System in Lesotho**

(Ehsan Rizvi, Catholic Relief Services Lesotho)

**Reducing the Burden of Rural Water Supply Through Greywater Reuse: A Case
Study from Northern Malawi**

(Emmanuel Opong, World Vision International, Swaziland)

Session 21: ROOM I: Experience of NGOs and Charitable Organizations

[Moderator: TBA]

**Why Do Conventional Water Management Policies Exclude Ancient Practices in
Peru?**

(Lionel Vigil Angulo, World Neighbors, Peru)

**Operational Guidance for Assessing Conflict in Water Resources Development
and Emergency Response Projects**

(Christopher Seremet, Catholic Relief Services, USA)

Session 22: ROOM J/K: Assessment of WaSH [Moderator: TBA]

**WASH Action Research (Low Cost Sewage Treatment): Lessons Learned From 4
Years of WASH Innovation Projects**

(Muhammad Naveed, WaterAid, Pakistan)

**New Venture Design in Developing Countries: An Institutional Profile
Perspective**

(Philip Deal, University of Oklahoma, USA)

Session 23: ROOM I: Water Quality Improvement, Monitoring, and Evaluation

[Moderator: TBA]

**Comparison of Fecal Coliform Enumeration Methods for Field Analysis in
Resource-Limited Regions**

(Elmira Nazir, University of Oklahoma, USA)

The Sustainability of Biological Sand Filters in Rural Kenya

(Kyla Semmendinger, Mercer University, USA)

3:20-3:50 Break

3:50-4:30 Concurrent Oral Presentations – Group 6

Session 24: ROOM G/H: Water Resources and Current Challenges [Moderator: TBA]

Towards a Comprehensive Water Governance in Colombia: First Steps of a Holistic Watershed Management Proposal

(Alberto Uribe-Jongbloed, Universidad EAN, Colombia)

Impact of climate change on water sector: A case study of Huai Luang River Basin, Thailand

(Sathaporn Monprapussom, Srinakharinwirot University, Thailand)

Session 25: ROOM I: Social Entrepreneurship and Market-Based Approaches

[Moderator: TBA]

Developments in Formulation and Implementation of the Social Franchising Approach to WATSAN Operation and Maintenance for Developing Communities

(Oliver Ive, Amanz' abantu Services (Pty) Ltd., South Africa)

Nexus Centers Nepal - By the Local for the Local

(Guneshwar Prasad Mahato, Nexus Center, Nepal)

Session 26: ROOM J/K: Sanitation and Wastewater Treatment [Moderator: TBA]

Household Water Reuse, On-Site Treatment and Alternative Water Resources for use in Remote Arctic Communities

(Kaitlin Mattos, UC Boulder, USA)

Conservation and Reuse Technology: Waste to Wealth Initiative at Covenant University Nigeria (David Olukanni, Covenant University, Nigeria)

Session 27: ROOM L: Water Quality Improvement, Monitoring, and Evaluation

[Moderator: TBA]

Groundwater Quality Characteristics and Processes in Northwestern Liberia

(Zachary Arno, Desert Research Institute, USA)

The Influences of Artificial Macropores in Experiment Tanks on Hydrodynamic Properties of Overland Flow Under Different Rainfall Intensity

(Xiaona Zhang, Nanjing University of Information Science & Technology, China)

4:30-5:30	Free time
5:30-5:50	Buses load and depart for Sam Noble Oklahoma Museum of Natural History
6:30-9:00	Banquet and 2017 University of Oklahoma Water Prize Presentation <i>(Sam Noble Oklahoma Museum of Natural History)</i>
9:00	Buses return guests to NCED Conference Hotel