

DRAFT AGENDA



November 12 - 14, 2024

Hybrid*: Virtual (Zoom) & In-Person (Brattleboro, VT, US)

**All sessions are fully accessible for both virtual and in-person participants unless denoted otherwise.*

Tuesday, November 12, 2024

| Time (EST) | Description | Session Type |
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| 8:45 - 9:00 | <p>Summit Gathering</p> <ul style="list-style-type: none"> ▷ In-person: Coffee & light breakfast available ▷ Virtual: Live, virtual bulletin board for sharing announcements, upcoming events, etc. | |
| 9:00 - 9:15 | <p>Summit Welcome & Opening Remarks <i>Rich Earth Institute</i></p> | |
| 9:15 - 10:15 | <p>To Have Excretory Justice, We Have to Deal With Our Crap <i>Sarah Nahar, M.Div, Syracuse University (New York, US)</i></p> | Keynote |
| 10:15 - 11:25 | <p>Dynamics of Creating Circular Systems: Design, Drivers, and Impacts</p> <ul style="list-style-type: none"> ▷ A Decade of Innovation: EOOS' Journey in Designing Urine-Separating Interfaces and Future Developments - <i>Lotte Kristoferitsch, EOOS / Social Design (Austria)</i> ▷ Why Circular Economy's vision to 'regenerate nature' needs earth-centred governance - <i>Jordan Roods, Institute for Sustainable Futures, University of Technology Sydney (Australia)</i> ▷ Contaminant risks in an agricultural-sanitation circular economy - <i>Laura Carter, University of Leeds (United Kingdom)</i> ▷ Estimating environmental and societal impacts from scaling up urine concentration technologies - <i>Matilda Gunnarsson, Stockholm Environment Institute (Sweden)</i> ▷ Modeling US Economic & Environmental Drivers - <i>Nolan Grant, University of Vermont/Brightwater Tools (Vermont, US)</i> | Panel: Presentations & Discussion |
| 11:25 - 11:35 | Break | |
| 11:35 - 11:55 | <p>Urine Processing Treatment Technologies: State of the Field <i>Kai Udert, Swiss Federal Institute of Aquatic Science and Technology (Switzerland)</i></p> | Introductory Presentation |
| 11:55-1:10 | <p>Container Based Sanitation: Climate Resilience at the Intersection of Resource Recovery & Sanitation Justice</p> <ul style="list-style-type: none"> ▷ Container-Based Sanitation Alliance (CBSA): Challenges and | <p>Panel: Presentations & Discussion</p> <p>Implementation</p> |

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| | <p>Opportunities for Urine Reuse - Rémi Kaupp, CBSA (United Kingdom)</p> <ul style="list-style-type: none"> ▷ Obstacles and Opportunities for Disrupting Flush Toilets: three case studies from Uganda and the USA - Ryan Smith and Alisa Keeseey, Give Love (California, US) ▷ Mosan: Urine Collection & Processing Overview - Raluca Anisie, Mosan (Guatemala) ▷ Next Generation Sanitation: A New Way - Birger Lundgren, Sanitation Ambassadors (South Africa) ▷ Nutriente recovery and reuse - Aguatuya, Lourdes Valenzuela (Bolivia) ▷ The Effluent Diversion Unit - Bara Wahbeh, AKYAS environmental consultancy (United Arab Emirates) | |
| 1:10 - 2:00 | <p>Networking Lunch</p> <ul style="list-style-type: none"> ▷ In-person: <i>Catering provided</i> ▷ Virtual: <i>Informal breakout sessions hosted for continued conversation; live virtual bulletin board</i> | |
| 2:00 - 3:00 CONCURRENT SESSIONS | <p>Co-creating Design Principles for Equity & Justice in Urine Reclamation</p> | Interactive Workshop |
| 2:00 - 3:00 CONCURRENT SESSIONS | <p>Advances in Treatment Technologies (Part 1): Resource Recovery and Contaminant Removal</p> <ul style="list-style-type: none"> ▷ P in our Pee: Advancing Phosphorus Recovery from Fresh and Hydrolyzing Urine - Lucas Crane, Arizona State University, NSF Science and Technologies for Phosphorus Sustainability (STEPS) Center (Arizona, US) ▷ Circular fertiliser production by solar-thermal driven passive drying of acid- and base-stabilised fresh human urine - Charles Buregeya Niwagaba, Sustainable Sanitation and Water Renewal Systems (Uganda) ▷ PFAS and Pharmaceutical Removal from Urine by Biochar - Zhenyu Xia, University of Michigan (Michigan, US) | <p>Panel: Presentations & Discussion</p> <p>Technical</p> |
| 3:00 - 3:30 | <p>Day 1 Closing Session</p> <p><i>Summit attendees reconvene together for a facilitated sharing session. Participants from the co-creation session will present the design principles emerging from that workshop. Participants from the technical session will share brief summaries of the treatment technologies explored, key takeaways, and outstanding questions. We'll then explore the intersections between these areas, fostering a collaborative discussion, and setting the stage for Day 2.</i></p> | |
| 3:30 - 4:00 | <p>Networking Session</p> <ul style="list-style-type: none"> ▷ Virtual: <i>Randomly generated virtual breakout rooms open for virtual Summit participants to meet each other, connect, and have informal conversations.</i> | |

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| | ▷ In-person: <i>Mingling over light refreshments</i> | |
| 6:30 - 7:30 | Dinner ▷ In-person: <i>An informal community meal will be hosted for in-person Summit attendees</i> | |

Wednesday, November 13, 2024

| Time (EST) | Title | Session Type |
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| 8:45 - 9:00 | Summit Gathering ▷ In-person: <i>Coffee & light breakfast available</i> ▷ Virtual: <i>Live, virtual bulletin board for sharing announcements, upcoming events, etc.</i> | |
| 9:00 - 9:15 | Grounding Activity for Summit Day 2 | |
| 9:15 - 10:25 | Nutrient Cycling for Watershed Protection: Perspectives on Economic Drivers and Strategies for Growth ▷ Green Center Cubie-Based Urine Diversion Pilot Study - Earle Barnhart & Hilda Maingay, Green Center Inc (Massachusetts, US) ▷ What's up with Urine Diversion on Cape Cod - Bryan Horsley, Barnstable County Department of Health and Environment - MASSTC (Massachusetts, US) ▷ Urine to Fertilizer in Burlington, VT: Process and Characterization - Benson Colella, Wasted *PBC (Vermont, US) ▷ How 'Wee' can fix the UK - Lucy Bell-Reeves, NPK Recovery (United Kingdom) ▷ Decentralized Implementation of the Pitribon System in Housing Cooperatives - Marius Klinger, Aneco (Switzerland) | Panel: Presentations & Discussion Implementation |
| 10:25 - 11:25 | Seeding Collaborations: Project Feedback & Problem-Solving <i>Ongoing implementation projects will seek feedback, advice, and ideas from fellow Summit attendees. Each participating organization will give a brief overview of their project and outline their specific questions for workshoping during this session. In virtual breakout rooms, participants will engage with project leaders to delve deeper into exploring strategies and collaborations to support these implementation projects via facilitated feedback and brainstorming activities. The groups will then reconvene to share their insights and recommendations.</i> | Interactive Workshop Implementation |
| 11:25 - 11:35 | Break | |
| 11:35 - 11:55 | Launching a Farmer Guide to Using Urine Fertilizer - Abraham Noe-Hays, Rich Earth Institute & Brightwater Tools (Vermont, US) | Introductory Presentation |

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| 11:55 - 12:55 | <p>Urine Fertilizer in Agriculture (Part 2): Nutrient Cycling for Climate-Resilient Food Systems</p> <ul style="list-style-type: none"> ▷ Putting the P(ee) in Perennial Agriculture - <i>Madeline DuBois, The Land Institute (Kansas, United States)</i> ▷ Climate Action Through Soil Restoration: Empowering Women and Youth with Urine Fertilizer in Southeast Nigeria - <i>Sr. Stella Ewa ISMV, Life Giver Foundation (Nigeria)</i> ▷ From Waste to Resource: Using Human Urine as Fertilizer for Sustainable Corn Production - <i>Florent Brun, Programme OCAP - Leesu - Ecole des Ponts Paris Tech (France)</i> ▷ Innovative Nutrient Recycling: Enhancing Fish Production in Africa Using Animal and Human Urine - <i>Dr. Isa Olalekan Elegbede, Lasu (Nigeria)</i> | <p>Panel: Presentations & Discussion</p> <p>Agriculture</p> |
| 12:55 - 1:55 | <p>Networking Lunch</p> <ul style="list-style-type: none"> ▷ In-person: <i>Catering provided</i> ▷ Virtual: <i>Informal breakout sessions hosted for continued conversation, live virtual bulletin board</i> | |
| 1:55 - 3:05 | <p>Urine Fertilizer in Agriculture (Part 2): Optimizing Nutrient Recovery and Soil Carbon Sequestration with Biochar</p> <ul style="list-style-type: none"> ▷ Functional Group Analysis for Screening Biochars for Total Ammonium Nitrogen Recovery from Hydrolyzed Urine - <i>Soliver Fusi, University of California, Berkeley (Kenya)</i> ▷ Assessing the impact of human urine fertilization on soil nutrient dynamics and bacterial communities - <i>Manon Rumeau, University of Birmingham (United Kingdom)</i> ▷ Nitrogen and Phosphorus Mineralization Dynamics of Human-Excreta Derived Fertilizers - <i>Elena Bischak, California Association of Resource Conservation Districts, (California, US)</i> ▷ The potential of urine-enriched human feces biochar for maize production in the Guatemalan highlands - <i>Raluca Anisie, Mosan (Guatemala)</i> ▷ Urine-powered composting of cereal residues rivals mineral soil in crop yield with biochar benefits - <i>Krisztina Mossdetsy, Cornell University (New York, US)</i> | <p>Panel: Presentations & Discussion</p> <p>Agriculture</p> |
| <p>3:05 - 4:00</p> <p>CONCURRENT SESSIONS</p> | <p>Virtual Tours: Processing Facilities</p> <ul style="list-style-type: none"> ▷ Distributed Source Separation at Noorderhoek - <i>Sybrand Metz, Desah (Netherlands)</i> ▷ Pee-recycling in Sweden with SLU & Sanitation360 - <i>Nicola Parfitt, Sanitation360 (Sweden)</i> ▷ How recycling our waste can change the environmental climate - <i>Niko Bogianzidis, öKlo GmbH (Austria)</i> ▷ YouGo Gardening Tour - <i>Rebecca Nelson, Cornell University (New York, US)</i> ▷ Brightwater Tools treatment train tour - <i>Gabe, Cole, Michel</i> | <p>Virtual Screening</p> |
| 3:05 - 4:00 | <p>Community Urine Nutrient Reclamation Program (UNRP)</p> | <p>In-Person Tour</p> |

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| CONCURRENT SESSIONS | Tour - Rich Earth Institute This guided tour of the Rich Earth Institute's UNRP will feature urine-collecting toilet installations at area residences and businesses, a community urine depot, and a participating farm. | |
| 6:30 - 7:30 | Dinner ▷ In-person: An informal community meal will be hosted at the in-person Summit hub location | |

Thursday, November 14, 2024

| Time (EST) | Title | Session Type |
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| 9:45 - 9:00 | Summit Gathering ▷ In-person: <i>Coffee & light breakfast available</i> ▷ Virtual: <i>Live, virtual bulletin board for sharing announcements, upcoming events, etc.</i> | |
| 9:00 - 9:10 | Grounding Activity for Summit Day 2 | |
| 9:10 - 10:20 CONCURRENT SESSIONS | Advances in Treatment Technologies (Part 2): Nitrogen Retention and Microbial Dynamics ▷ An Introduction and Evaluation of Ammonium Recovery from Urine using Ion Exchange - <i>Camille Brule and Kara Nelson, UC Berkeley (California, US)</i> ▷ Microbial Succession of Human Feces in Self-Contained Composting Toilets - <i>Jeff Meilander, Northern Arizona University (Arizona, US)</i> ▷ Method validation, detection and quantification during assessing fate of selected antimicrobials through struvite making from source separated human urine by liquid chromatography-tandem mass spectrometry - <i>Nebiyat Nigusie Woldeyohannis, Addis Ababa University (Ethiopia)</i> ▷ Evaluation of membrane fouling during dewatering and nutrients concentration from fresh urine by Forward Osmosis - <i>Maano Tshimange, University of Surrey (United Kingdom)</i> ▷ Effect of hydraulic retention time on urine nitrification in pilot-scale activated carbon incorporated membrane bioreactor and application on hydroponics - <i>Weonjung Sohn, University of Technology Sydney (Australia)</i> | Panel: Presentations & Discussion |

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| <p>9:10 - 10:20</p> <p>CONCURRENT SESSIONS</p> | <p>Exploring Peecycling with Youth</p> <ul style="list-style-type: none"> ▷ Transdisciplinary approaches to sustainable decentralized wastewater treatment and resource recovery in Monteverde, Costa Rica - <i>Kevin Orner, West Virginia University (West Virginia, US)</i> ▷ "Pee Lab": Experiments with Urine Fertilizer at Putney School - <i>Abby Verney-Fink, Putney School (Vermont, US)</i> ▷ Applied Internships & Urine Diversion Communication Strategies - <i>Jane Ward, Wellesley/Green Center (Massachusetts, US)</i> ▷ Adaptable K-12 Peecycling Lesson Plans - <i>Julia Cavicchi, Rich Earth Institute (Vermont, US)</i> | <p>Panel: Presentations & Discussion</p> |
| <p>10:20 - 10:30</p> | <p>Break</p> | |
| <p>10:30 - 10:50</p> | <p>Orientation to the Nutrient Cycling Regulation Landscape <i>Mathew Lippincott, University of Michigan (Michigan, US)</i></p> | <p>Introductory Presentation</p> |
| <p>10:50 - 11:50</p> | <p>State-to-State Peer Exchange, National Progress, and Global Collaboration: Navigating Regulatory Pathways and Creating New Standards</p> | <p>Roundtable Discussion</p> |
| <p>11:50 - 12:50</p> | <p>Networking Lunch</p> <ul style="list-style-type: none"> ▷ In-person: <i>Catering provided</i> ▷ Virtual: <i>Informal breakout sessions hosted for continued conversation</i> | |
| <p>12:50 - 1:50</p> | <p>Strategies for Knowledge Sharing & Public Communication</p> <ul style="list-style-type: none"> ▷ Driver, Strategy and Technology Factsheets for Urine Diversion & Resource Recovery - <i>Rosanne Wielemaker, Eawag (Switzerland)</i> | <p>Roundtable Discussion</p> |
| <p>1:50 - 2:50</p> | <p>Themed Breakout Discussions</p> <p><i>Breakout rooms will be generated according to topics for further discussion gleaned during the Summit from attendees via a live poll. Rooms may be generated according to regions and/or Communities of Practice (e.g. regulation, communication, and technology development, and agriculture).</i></p> | |
| <p>2:50 - 3:20</p> | <p>Summit Closing</p> <ul style="list-style-type: none"> ▷ Final reflections and take-aways from the Summit ▷ Opportunities for further engagement, upcoming events | |

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| | ▷ Golden Funnel Award Ceremony | |
| 4:00 - 5:00 | <p>Research Center Open House - Rich Earth Institute</p> <p><i>The Open House is free to the public and will feature:</i></p> <ul style="list-style-type: none"> • <i>Updates about Rich Earth Institute's ongoing social, technological, and agricultural research projects</i> • <i>Tours of Rich Earth's urine fertilizer processing facility</i> • <i>Q & A with the Brightwater Tools team (a spin-off of Rich Earth) about their technologies for regenerative sanitation</i> • <i>Light refreshments (including harvests from Rich Earth's demonstration garden)</i> | In-person |