

MIRIAM E. HACKER, PHD

Curriculum Vitæ

hackermiriam@gmail.com | +1.425.523.4197

EDUCATION

Ph.D., Civil & Environmental Engineering

University of Washington - Seattle, WA

Specialization: Construction, Energy and Sustainable Infrastructure

Completed: December 2018

Research interests: regulation, rapid population displacement, organizational legitimacy, humanitarian aid, government coordination.

M.S., Civil & Environmental Engineering

University of Washington - Seattle, WA

Specialization: Drinking Water Quality and Sanitation

Completed: June 2014

B.S., Civil & Environmental Engineering

University of Washington - Seattle, WA

Completed: June 2011

Additional education:

Online Business Foundations Specialization (Completed 12/2021)

Wharton School, University of Pennsylvania

Online Certificate in Data Analytics (Accepted, Spring 2022)

College of Liberal and Professional Studies (LPS), University of Pennsylvania

HONORS & AWARDS

USAID/OFDA/Habitat for Humanity Int'l – Shelter and Settlements Graduate Fellow	6/2018
2018 EPOC Best Paper Award	6/2018
2018 UW Three Minute Thesis Competition Participant	4/2018
2018 Graduate School Medal Nominee, Civil Engineering Department	4/2018
WAPA Scholarship Recipient	2/2016
International Water Engineering Scholarship	9/2013

RESEARCH EXPERIENCE

Senior Research Implementation Lead, Water Center at UPenn **3/2021 – Present**

Supervisor: Karl Russek, Howard Neukrug

Funding: Heinz Endowments

Project Lead: Accelerating Transformational Change in Pittsburgh's Three Rivers, Phase III

Tasks: Coordinating and facilitating meetings for the Southwestern Pennsylvania (SW PA)

Water Network with over 170 members, including the Strategic Working Group, smaller subject matter groups and all-network meetings (up to 130 registered). Managing online

communications platform (Basecamp); developing summary documents and resources from meetings for network members; tracking budgeting materials for final reporting mechanisms

with funders (Heinz Endowments). Lead facilitator for SW PA Leadership Incubator program,

coordinating guest speakers and panel sessions for early career professionals in the water sector.

Facilitated the development of a request for proposals and the selection process for a host

organization for the SW PA Water Network and incoming local coordinator.

Permitting Specialist

6/2020 – Present

Engie/UT-Austin Project: What is the cost of controversy?*Point of Contact: Dr. Kasey Faust**Funding: ENGIE Services AG*

Developing a framework to assess the cost of controversy associated with new technology. Providing support for graduate students, setting up approach for gathering existing information and qualitative analysis. Conducting a systematic literature review of organizational barriers for emerging technology in infrastructure services.

Research Assistant, University of Washington – Lebanon

6/2018 – 12/2018

Navigating informal urban housing for refugees in Mount Lebanon*Supervisors: Dr. Jessica Kaminsky**Funding Source: USAID/OFDA/Habitat for Humanity International – Shelter and Settlements Graduate Fellowship program*

Worked with local organizations and individuals to conduct 24 interviews with nonprofit organizations and municipality leadership in the Mount Lebanon governorate, researching shelter standards for urban refugees.

Research Assistant, University of Washington – Sweden

10/2016 – 7/2017

*Supervisors: Dr. Jessica Kaminsky and Dr. Sebastien Rauch**Funding Source: Valle Scholarship and Scandinavian Exchange Program*

Coordinated 32 interviews with employees in government agencies and nonprofit organizations to understand the impact of the European refugee crisis on city infrastructure and regulations

Research Assistant, University of Washington - Germany

6/2016 – 9/2016

Disaster Migration and Civil Infrastructure: The Impacts of Sudden Population Influxes on Water and Sanitation Infrastructure*Supervisors: Dr. Jessica Kaminsky and Dr. Kasey Faust**Funding Source: NSF Grant #1624417*

Coordinated 54 interviews in Berlin, Leipzig, Dresden and Munich, Germany with employees in water utilities, government agencies, nonprofit organizations, and private companies to understand the impact of the European refugee crisis on city infrastructure and regulations. Qualitative analysis using social network analysis and Dedoose software.

Research Assistant, University of Washington - Seattle, WA

9/2015 – 6/2016

Hofstede at the Head: Fuzzy sets, cultural dimensions & sanitation infrastructure*Supervisor: Dr. Jessica Kaminsky**Funding Source: University of Washington Royalty Research Fund*

Analyzed causal relationships of national sanitation outcomes understand cultural preferences regarding sanitation infrastructure using fuzzy-set qualitative comparative analysis

Research Assistant, University of Washington - Seattle, WA

4/2014 – 6/2014

Independent Study: Water Supply and Cultural Indicators*Supervisor: Dr. Jessica Kaminsky**Funding Source: not applicable*

Compiled information regarding current and on-going water and sanitation hygiene programs through various organizations.

OTHER PROFESSIONAL EXPERIENCE

Intern, Strategic Planning, Evaluation and Guidance Section (SPEGS) 7/2017 – 9/2017

UN Office for the Coordination of Humanitarian Affairs – New York, NY

- Provided administrative support for the Section Chief, Evaluation and Oversight units
- Assisted in coordinating meetings for the inter-agency humanitarian evaluation steering group
- Managed feedback for the agency's 2018-2021 Strategic Plan
- Coordinated bilateral consultations with other sections for updates to oversight recommendations from audits, evaluations, reviews and assessments

Youth Shelter Associate

2/2016 - 5/2016

Union Gospel Mission & New Horizons Ministries – Seattle, WA

- Managed a sleeping area for 15-25 young adults ages 18-24 in the Seattle area
- Completed registration and met with guests to make sure they were aware of available resources for case management, employment and transitional housing
- De-escalated high stress situations and kept a safe environment for guests and staff

Engineer II, Drainage Review

6/2014 – 9/2015

Snohomish County Planning & Development Services - Everett, WA

- Reviewed drainage for land disturbing activity permits for single family residences in Snohomish County in compliance with federal and county regulations.

Intern, Drainage Maintenance & Agricultural Survey

6/2012 – 6/2014

Snohomish County Surface Water Management - Everett, WA

- Updated inventory of drainage facilities maintained by Snohomish County in compliance with US Department of Ecology National Pollutant Discharge Elimination System (NDPES) permit
- Coordinated efforts to inventory drainage facilities throughout the county; input facility points into ArcGIS and worked with transitioning asset management systems
- Worked with the agriculture coordinator of Snohomish County to complete an agricultural crop survey for Washington State Department of Agriculture
- Completed site assessments and input results into ArcGIS to understand the gain or loss of land used for agricultural purposes

TEACHING EXPERIENCE

Program Lead

9/2021 – Present

Southwestern Pennsylvania (SW PA) Leadership Incubator Program

Supervisor: Karl Russek, Howard Neukrug

- Adapted, revised and curated an updated schedule for the virtual program
- Recruited 14 early career water professionals from SW PA region for participation
- Coordinated guest speakers for 9 of 15 sessions, facilitated discussions and program material for 5 of 15 sessions
- Connected cohort members to broader SW PA Water Network activities

Instructor

Spring 2021

GEO 835: Geography of Sustainability Transitions, University of Zurich

Supervisor: Dr. Christian Binz

- Developed one session on transition trajectories for on-site water reuse in the US, including breakouts and interactive activities for the virtual class

Teaching Assistant**3/2018-6/2018****CEE 420: Engineering in Developing Communities, University of Washington***Supervisor: Dr. Jessica Kaminsky*

- Class goal: introduce students to technologies, theories, and challenges involved in engineering with developing communities
- Served as a resource for students in class assignments and projects

Teaching Assistant**9/2017-12/2017****CEE 317: Surveying, University of Washington***Supervisor: Dr. Kamal Ahmed*

- Managed weekly labs: three-wire leveling, traverse adjustment, resection leveling, horizontal curve, and vertical curve
- Developed lab tutorials for drone software and ArcGIS and facilitated subsequent lab sections

Teaching Assistant**9/2015-12/2015****CEE 307: Construction Engineering, University of Washington***Supervisor: Dr. Jessica Kaminsky*

- Primary point of contact for design project of highway section
- Developed and facilitated lab sections for MS Project and Bid2Win tutorials

PUBLICATIONS

Journal Publications:

- (1) **Hacker, Miriam E.**, and Jessica A. Kaminsky. 2017. "Cultural Preferences for the Methods and Motivation of Sanitation Infrastructure Development." *Journal of Water Sanitation and Hygiene for Development* 7 (3):407. <https://doi.org/10.2166/washdev.2017.188>.
- (2) **Hacker, Miriam E.**, Jessica Kaminsky, and Kasey M. Faust. 2019. "Legitimizing Involvement in Emergency Accommodations: Water and Wastewater Utility Perspectives." *Journal of Construction Engineering and Management* 145 (4): 04019013. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001622](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001622).
- (3) **Hacker, M. E.**, J. Kaminsky, K. M. Faust and S. Rauch (2020). "Regulatory Enforcement Approaches for Mass Population Displacement." *Journal of Construction Engineering and Management* 146(5): 04020042. <https://ascelibrary.org/doi/full/10.1061/%28ASCE%29CO.1943-7862.0001820>. Editor's Choice, March 2020.
- (4) **Hacker, Miriam E.**; Kasey M. Faust, Jessica Kaminsky, and Sebastien Rauch. 2021. "Regulatory Exemptions Illustrate the Humanitarian-Development Nexus in Highly Developed Cities." *International Journal of Disaster Risk Reduction* 61 (July): 102309. <https://doi.org/10.1016/j.ijdr.2021.102309>.
- (5) **Hacker, Miriam E.**; and Binz, Christian. 2021. "Institutional Barriers to On-Site Alternative Water Systems: A Conceptual Framework and Systematic Analysis of the Literature." *Environmental Science & Technology*, May. <https://doi.org/10.1021/acs.est.0c07947>.
- (6) Bakchan, Amal; **Hacker, Miriam E.**; and Faust, Kasey M. 2021. "Resilient Water and Wastewater Infrastructure Systems through Integrated Humanitarian-Development Processes: The Case of Lebanon's Protracted Refugee Crisis." *Environmental Science & Technology*, March. <https://doi.org/10.1021/acs.est.0c05630>.
- (7) **Hacker, Miriam E.**, and Christian Binz. 2021. "Navigating Institutional Complexity in Socio-Technical Transitions." *Environmental Innovation and Societal Transitions* (September 2021): 367–81. <https://doi.org/10.1016/j.eist.2021.09.003>.
- (8) **(UNDER REVIEW)** Bakchan, Amal; Faust, Kasey; Stephens, Keri; **Hacker, Miriam E.** "Developing Qualitative-based Integrated Models for Understanding Socio-technical Systems"

Complexity: Coupling Grounded Theory with Integrated Assessment and Modelling.” *Environmental Research: Infrastructure and Sustainability*.

- (9) **(UNDER REVIEW)** LaPatin, Michaela; Spearing Lauryn A.; Tiedmann, Helena R.; **Hacker, Miriam E.**; Kavvada, Olga; Giorda, Maria; Daniélou, Jean; and Faust, Kasey M. “Controversy in Energy Construction Projects: How Social Systems Impact Project Performance.” *Journal for Construction Engineering Management*.
- (10) **(UNDER REVIEW)** Osman, Khalid; **Hacker, Miriam E.**; Binz, Christian; Faust, Kasey. “Conceptualizing Equity for On-site Water Reuse Systems in the United States.” *Environmental Science and Policy*.

Conference Publications

- (1) **Hacker, Miriam E.** & Kaminsky, Jessica A., (2016). ”Relating Hofstede's Cultural Dimensions & National Sanitation Infrastructure Using Fuzzy Sets.” *EPOC 2016 - Building Resilience*, 28-30 June 2016, Cle Elum, Washington, USA.
- (2) **Hacker, Miriam E.**; Kaminsky, Jessica; Faust, Kasey, (2017). “Government Coordination in Providing Emergency Accommodation for Displaced Persons in an Urban Context.” *6th CSCE/CRC International Construction Specialty Conference*, 31 May- 3 June, 2017, Vancouver, B.C., Canada.
- (3) **Hacker, Miriam E.**; Kaminsky, Jessica; Faust, Kasey, (2017). “Legitimization of Water and Wastewater Utilities’ Role in Urban Emergency Response for Displaced Persons.” *EPOC-MW 2017 – Managing Complex Adaptive Systems*, 5-7 June 2017, Lake Tahoe, California, USA.
- (4) **Hacker, Miriam E.**; Kaminsky, Jessica; Faust, Kasey. “Housing Regulations in Temporary Accommodations for Displaced Persons: A German Case Study.” *Construction Research Congress 2018 – Building Community Partnerships*, 2-4 April 2018, New Orleans, Louisiana, USA.
- (5) **Hacker, Miriam E.**; Kaminsky, Jessica; Faust, Kasey. “Mapping Regulatory-Related Interactions of Stakeholders for Temporary Accommodations: a German Case Study.” *EPOC 2018 - (Re)Organizing in an Uncertain Climate*, 25-27 June 2018, Brijuni, Croatia.
- (6) **Hacker, Miriam**; Faure, Julie; Faust, Kasey; Kaminsky, Jessica. “The Discourse of Regulation for Temporary Accommodations: a Comparative Case Study.” *EPOC 2019 – A Challenge Summit*, 25-27 June 2019, Vail, Colorado, USA.
- (7) Bakchan, A.; **Hacker, M.**; Faust, K.; Kaminsky, J. “Humanitarian-Development Nexus regarding Water and Wastewater Service Provision: Learning from Lebanon’s Protracted Population Displacement.” *Construction Research Congress 2020*, Tempe, Arizona. March 2020.
- (8) **Hacker, Miriam**; Binz, Christian. “Navigating Institutional Complexity in Socio-technical Transitions – A Case Study of San Francisco’s On-site Non-potable Water Reuse Program.” *IST Conference – Governance in an Era of Change*, 19-21 August 2020, VIRTUAL.
- (9) Osman, Khalid; **Hacker, Miriam**; Faust, Kasey; Binz, Christian. “Water Services for All? Placing Equity at the Center of Development Agendas in Water and Sanitation.” *EPOC 2020 – Disruptive Engineering*, 21-23 October 2020, VIRTUAL.
- (10) LaPatin, Michaela; Spearing Lauryn; Tiedmann, Helena; Kavvada, Olga; Giorda, Maria; Daniélou, Jean; Faust, Kasey; **Hacker, Miriam**. “Why do energy projects fail? Understanding how different types of controversy impact construction projects.” *CI and CRC Joint Conference 2022 - Next Generation Construction*, 9-12 March 2022, Arlington, VA.

Reports

- (1) **Hacker, M.**; Kaminsky, J. “Navigating the Informal Governance Mechanisms for Shelter Rehabilitation Projects in Mount Lebanon.” Washington, D.C.: USAID/OFDA, Habitat for Humanity International, InterAction. February 2019.

- (2) Chan, P.; Dossick, C.; **Hacker, M.**; Hartmann, T.; Javernick-Will, A.; Mahalingam, A.; Zerjav, V. (corresponding author) "EDITORIAL: Journal Reviews and Revisions: Advice from an Early Career Panel Discussion." *Engineering Project Organization Journal*. January 2020. <https://doi.org/10.25219/epoj.2020.00101>
- (3) **Hacker, M.**; Binz, C. "Focus Group Report: Understanding the enabling environment for on-site non-potable reuse." Swiss Federal Institute for Aquatic Science and Technology (Eawag). June 2020.

PRESENTATIONS

Invited lectures and seminars

- **Hacker, M.** "Regulating Uncertainty: The Role of Regulations in Temporary Accommodations for Displaced Persons." *Lecture, CEE 420, University of Washington, Seattle, USA*. May 2018.
- **Hacker, M.**; Kaminsky. "Using Minimum Standards and Informal Systems to Shelter Displaced Populations in Lebanon." *Shelter and Settlements Working Group meeting, Washington D.C., USA*. February 2019.
- **Hacker, M.**; Binz, C. "Overcoming institutional BARRIers to non-grid urban watER Systems (BARRIERS)." *WINGS Committee Meeting, Duebendorf, Switzerland*. April 2019.
- Truffer, B.; **Hacker, M.** "Water and sanitation innovations for non-grid solutions (Wings) Phase II – An update." *Eawag Symposium, Duebendorf, Switzerland*. September 2019.
- **Hacker, M.** "Water and sanitation innovations for non-grid solutions (Wings)." *Lecture, UT-Austin, Austin, Texas*. October 2019.
- **Hacker, M.**; Binz, C. "Institutional barriers to on-site urban water reuse: An analytical framework and systematic literature review." *WINGS Committee Meeting, Duebendorf, Switzerland*. June 2020.
- **Hacker, M.**; Binz, C. "Systematizing the institutional barriers for on-site water recycling: insights from a literature review and case study in San Francisco." *Eawag Symposium, VIRTUAL*. September 2020.
- **Hacker, M.**; Binz, C. "Governance arrangements for the adoption of onsite non-potable water reuse systems." *Lecture, UT-Austin, VIRTUAL*. September 2020.
- **Hacker, M.** "ONSITE WATER RECYCLING IN THE U.S. - Understanding drivers and socio-technical barriers in San Francisco and NYC" *Lecture, University of Pennsylvania, GEOL643 / CBE543, VIRTUAL*. March 2021
- **Hacker, M.** "ONSITE WATER RECYCLING IN THE U.S. - Understanding drivers and socio-technical barriers in San Francisco and NYC" *Lecture, University of Zurich, GEO835, VIRTUAL*. April 2021
- **Hacker, M.** "PURSUING HOLISTIC CHANGE IN WATER: The One Water Approach & Water Reuse." *Lecture, University of Pennsylvania, ENVS 410, VIRTUAL*. 2 November 2021.
- **Hacker, M.** "Water at the Center of Science, Equity and Climate Change." *Presentation, Society of American Military Engineers (S.A.M.E.) – Philadelphia Post Resiliency Day*. 10 November 2021.
- **Hacker, M.** "Navigating Institutional Complexity for Onsite Water Reuse" *Presentation, National Blue Ribbon Commission for Onsite Non-potable Water Systems, VIRTUAL*. 10 November 2021.
- **Hacker, M.** "Southwestern PA Water Network: Accelerating transformational change in water management in the region" *Presentation, RAIN Virtual Webinar*. 18 November 2021.

Conference presentations (presenter in bold)

- **Hacker, M.**; Kaminsky, J.; Faust, K. "Coordination in Providing Emergency Accommodation for Displaced Persons in an Urban Context." *6th Annual CSCE/CRC International Construction Specialty Conference, Vancouver, B.C., Canada*. May/June 2017.

- **Hacker, M.**; Kaminsky, J.; Faust, K. “Legitimization of Water and Wastewater Utilities’ Role in Urban Emergency Response for Displaced Persons.” *Engineering Project Organization Conference – Megaprojects Workshop 2017*, Lake Tahoe, California, USA. June 2017.
- **Hacker, M.**; Kaminsky, J.; Faust, K. “Housing Regulations in Temporary Accommodations for Displaced Persons: A German Case Study.” *2018 Construction Research Congress*, New Orleans, Louisiana, USA. April 2018.
- **Hacker, M.**; Binz, C. “Navigating Institutional Complexity in Socio-technical Transitions – A Case Study of San Francisco’s On-site Non-potable Water Reuse Program.” *IST Conference – Governance in an Era of Change*, VIRTUAL. August 2020.
- **Osman, Khalid**; Hacker, Miriam; Faust, Kasey; Binz, Christian. “Water Services for All? Placing Equity at the Center of Development Agendas in Water and Sanitation.” *EPOC 2020 – Disruptive Engineering*, 21-23 October 2020, VIRTUAL.
- **Hacker, M.** “Beyond the technology: Possibilities for water reuse and social factors affecting uptake.” Alaska Tribal Conference on Environmental Management (ATCEM). 18 December 2020, VIRTUAL.

SERVICE

- Invited reviewer – peer-reviewed journals
 - *Journal of Construction Engineering Management* [Articles refereed: 3]
 - *International Journal of Disaster Risk Reduction* [Articles refereed: 2]
 - *Journal of Urban Technology* [Articles refereed: 1]
 - *Journal of Water and Sanitation Hygiene for Development* [Articles refereed: 2]
 - *wH2O: The Journal of Gender and Water* [Articles refereed: 1]
- Invited reviewer – conference papers
 - *Engineering Project Organization Conference* [Articles refereed: 8]
- Social media coordinator, Cirrus group, ESS Department, Eawag - 03/2020 – 02/2021
- Social media coordinator, Geography of Sustainability Transitions Webinar Series - 11/2020 – 12/2020

MENTORSHIP

Undergraduate Research Supervision

- **Katarina Kubiniec (2017)** | Advisor: Dr. Jessica Kaminsky, University of Washington
Project: *Disaster Migration and Civil Infrastructure: Water and Wastewater Utilities’ Response to Rapid Population Increase*. Funded by Mary Gates Research Scholarship.

Graduate Research Supervision

- **Amal Bakchan (2018- 2020)** | Advisor: Dr. Kasey Faust, UT-Austin.
Project: *Resilient Water and Wastewater Infrastructure Systems: Integrated Processes for Bridging the Humanitarian-Development Nexus*.
- **Nicol Myer (2020-2021)** | Advisors: Dr. Miriam Hacker and Dr. Christian Binz, Eawag
Project: *Multi-scalar view on niche diffusion - Understanding agency and institutional strategies in the process of diffusion of niche innovation*
- **Tzipora Wagner (2020-2021)** | Advisor: Dr. Kara Nelsen, UC Berkeley
Project: *Visualizing Governance Arrangements for Alternative Water Systems – a Case Study of San Francisco’s On-site Non-potable Water Reuse Program*.
- **Khalid Osman (2020 - 2021)** | Advisor: Dr. Kasey Faust, UT-Austin
Project: *Water Services for All? Placing Equity at the Center of Development Agendas in Water*.
- **Rajratna Sardar (2021)** | Advisor: Dr. Erum Sattar, Tufts University
Project: *Defining Water Affordability in New York State*

CERTIFICATIONS AND MEMBERSHIPS

Member, WaterReuse Association	11/2021 – Present
Member, American Association of University Women	7/2019 – Present
Member, American Society of Civil Engineers	10/2017 – Present
Member, International Water Association	7/2017 – Present
Engineer in Training, NCEES	9/2010 – Present
Member, Greenbuzz Zurich	10/2020 – 09/2021
Member, Engineering Project Organization Society	3/2018 – 12/2020

TRAINING COMPLETED

Anti-Racist Leadership Training, Citi Bank	2021
Introduction to Sexual Exploitation and Abuse, InterAction	7/2018
Introduction to Water and Sanitation Hygiene (WASH), UNICEF	5/2018
USAID/OFDA Shelter and Settlements Training Course	5/2018
M&E Fundamentals, Global Health eLearning Center	5/2014
Washington Stormwater LID (Low Impact Development) Training Program:	
Advanced Topics in LID Design: Bioretention Media and Compost Amended Soils	4/2015
Advanced Topics for Long-term LID Operations: Bioretention	11/2014
Intermediate LID Design: Site Assessment, Planning and Layout	10/2014
Intermediate LID Design: Permeable Pavement	10/2014
Advanced Topics for Long-Term LID Design: Bioretention	10/2014

EXTRACURRICULAR AND VOLUNTEER EXPERIENCE

Migrant Justice Warrior **8/2020 - 3/2021**
RAICES - *The Refugee and Immigrant Center for Education and Legal Services*

Officer, Leadership Committee **10/2017 – 10/2018**

UW Graduate Society of Women Engineers (GradSWE) – Seattle, WA

Networked with industry professionals, faculty members and other STEM-related organizations for professional development events catered to graduate women in STEM fields. Organized a networking event in January 2018 and two professional panel sessions for the UW Women in Science and Engineering Conference in March 2018 focusing on research in industry and work-life balance.

Street Team & Text Outreach Coordinator **6/2013 – 4/2016**

Real Escape from the Sex Trade (REST) - Seattle, WA

Organized volunteers to meet with and offer resources such as counseling and case management to women in the sex industry 2-3 times per month. Conducted interviews and facilitated the on-boarding process for new volunteers. Coordinated with other local organizations to facilitate collaboration and partnerships.