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Adaptive Water Infrastructure Planning for a Changing World

Sarah Fletcher
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November 9, 10:30 am Mountain Time

By Zoom:

https://usu-edu.zoom.us/j/84342900372?pwd=SW5CNU5rdWVWK3Z1YW9iWlo2Wm0zQT09

Water planners face the challenge of ensuring reliable water supply for people and the environment. Long-term changes and short-term variability in both the natural and social environments create large uncertainty in future water supply and demand. This makes it difficult to know when and how to adapt water systems through operational changes, policy, and infrastructure development. Adaptive planning approaches, in which planners defer action and respond as the system changes over time, have the potential to enable robustness to an uncertain future without unnecessary infrastructure development or policy changes. However, adaptive approaches may prevent planners from leveraging economies of scale, can pose a risk to reliability, and may require greater institutional capacity. In this talk, I will evaluate adaptive planning approaches under different hydrological, technical, and social conditions and discuss their implications for water reliability, cost, and equity. I will discuss case studies from drought planning in Melbourne, Australia; groundwater management in Riyadh, Saudi Arabia; and climate change adaptation in Mombasa, Kenya.

Bio -- Sarah is an Assistant Professor at Stanford studying water resources and climate change adaptation from a socio-technical systems perspective. She integrates methods from hydrology, policy analysis, and data science to inform decision-making around critical environmental challenges. Sarah holds a PhD in Engineering Systems from MIT's Institute for Data, Systems, and Society. Before starting her PhD, she worked as a researcher and consultant on issues at the intersection of water, energy, and environment. Sarah has an S.M. in Technology and Policy from MIT and a B.A. in Physics and Economics from the University of Pennsylvania. In her free time, Sarah enjoys rock climbing, playing the violin, baking bread, and reading novels. She is originally from Baltimore, MD.

Series Schedule

Date / Time (Mountain)	Person	Title
Oct. 28, 10:30 AM	Dr. Jian Wang (USU)	Strategies for Managing the Colorado River in an Uncertain Future
Nov. 4, 10:30 AM	Dr. Jon Herman – University of California, Davis	Adaptive policy design in water resources systems under uncertain climate and human stressors
Nov. 9, 10:30 AM	Dr. Sarah Fletcher – Stanford University	Adaptive Water Infrastructure Planning for a Changing World
Nov. 11, 1:00 PM	Dr. Marjolijn Haasnoot – Deltares, Netherlands	Dynamic Adaptive Policy Pathways
Nov. 13, 10:30 AM	Dr. Patrick Ray – University of Cincinnati	TBD