



SIE Seminar

Making Better Decisions: Integrating Socioenvironmental Assessment Tools with Decision Science

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Civil infrastructure systems like energy and water infrastructure are essential to society and play major roles in two of the greatest global challenges of our time: environmental degradation and social inequity. Advancing environmentally sustainable and socially responsible natural resource management around the world will require interdisciplinary solutions to complex challenges. One major area of need is for more robust tools to support multicriteria decisions, particularly in situations with uncertain impacts and widely varying priorities. I argue that by integrating decision science and life cycle assessment, a common engineering tool that aspires to comprehensively characterize socioenvironmental impacts for a subject of interest, policy and other decisions can be more sustainable and responsive to community needs. This talk will investigate two major projects associated with improving life cycle assessment as a decision support tool. The first investigates data quality, using a case study of water requirements for the US energy system. The second investigates multicriteria prioritization, using empirical research in American and Australian communities to present a set of archetypical value systems that can be used to test a decision's robustness given societal preferences. Together, these efforts support better decision making in high-stakes socioenvironmental contexts.

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