

*Hydrology Seminar***Managing Water Through Impact Exchanges****Prof. Mark Milke**

Dept. Civil and Natural Resources Engineering, University of Canterbury, Christchurch, New Zealand

*Date: Friday 27 October**Time: 16:30-17:30**Room: ETH Hönggerberg, HIF E 11***Abstract**

Water regulation typically places limits on quality/quantity for each individual user while making an assumption about their aggregated impact on the environment. What if, instead, regulations placed limits on environmental impact, and then allowed users to find creative and adjustable ways to jointly meet those limits? The book [Smart Markets for Water Resources](#) sets out the underlying concepts. All users receive a share in the allowed impact, and each have unique coefficients set for their impact that vary in space and time. Users are able to exchange their impact quota through an exchange resulting in prices on the impact, providing an incentive to reduce impact and improving the quality of debate on the proper impact limits. The system relies on advances in environmental modelling, linear programming, real-time monitoring, and software systems. The seminar will show the concept applied to irrigation networks, [river salinity](#), and groundwater extraction.

**Bio**

*Mark Milke* is a Professor in the Department of Civil and Natural Resources Engineering, University of Canterbury, in Christchurch, New Zealand. Since 1991 he has taught and conducted research there on solid waste management, design, engineering decision-making, water impact management, and other topics in civil and environmental engineering. Mark is Editor-in-Chief for *Civil Engineering and Environmental Systems* and has a PhD from Carnegie Mellon University. He is a New Zealand Chartered Professional Engineer and practices as a peer reviewer of landfills. He has been a leader in curriculum and teaching innovations by developing new courses in design, communication skills, and professional engineering development. He is a member of the Standards and Accreditation Board for Engineering New Zealand, responsible for oversight of engineering education. Mark is a Visiting Professor in the Geosciences and Engineering Faculty at TU Delft in late 2023.

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