

Can Canada's First Nations water security be engineered? The role of project and engineering management in achieving long-term infrastructure service delivery objectives

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Ensuring water security is one of the major challenges of the 21st Century for scientists, society, industry, and policy-makers. While concern over water insecurity is universal, its underlying causes vary. Key factors include climate change as well as physical and socio-political determinants. Canada's Indigenous people are 99% more likely to experience water insecurity than non-Indigenous Canadians. This despite dedicated programs, plans, policies and significant funding over the past decades. Direct and indirect outcomes range from negative impacts on physical, mental, and spiritual health to reduced educational and economic success. Women and children are disproportionately affected. Causes exist at multiple levels and are found at the macro, meso, and micro scale. This presentation surveys international scholarship on water security, specifically key challenges and proposed solutions, before focusing on the role of infrastructure and technology. It uses examples from Canada's First Nations to support contentions by the Institution of Civil Engineers (ICE) and others that conventional approaches to infrastructure delivery are too often not producing satisfactory outcomes. Prompted by the anticipated investments in infrastructure to help nations build back after COVID-19, and realization that industry needs to "do a better job," the ICE calls for changes in project and engineering management. After exploring the ICE's call for changes in the First Nations water governance context, I close by outlining my research approach to help forge a way forward.