

## Differentiating between Risk Types in the Water Sector

Navigating the Future Waters of Public Administration

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Our research team was commissioned by the Canadian Water and Wastewater Association (CWWA) to contribute to a risk profile for the water sector. Between February to April 2017, we conducted in 14 person and over-the phone interviews with regulators and operators in the Canadian water sector. We also conducted an online survey. Responses were received from 352 individuals representing 139 different water utilities across all 10 Canadian provinces and two of the territories.

We concluded that there were five perceived risks: physical access, cyber-related, water supply, other uncertain risks, and infrastructure-related.

Using Renn's (2008) classification of risks, infrastructure-related, water supply, and physical access were considered complex risks, while cyber-related and other uncertain risks were considered uncertain risks. Renn suggests that there should be different risk management plans for complex and uncertain risks. Complex risks involve many variables but operators typically have some experience with them and some reliable data to help them understand the likelihood of such risk events and how they might reliably reduce the exposure level. On the other hand, uncertain risks are those for which there is little reliable data and operators typically lack experience with them. The likelihood that uncertain risks will manifest themselves is not necessarily low; rather it is unclear.

In order to address uncertain risks, in particular, the water sector must create a constructive learning environment by: creating a knowledge commons for the sector, empowering water organisations to share and seek information about the risks they face, and to learn from organizations facing similar risks. It must also increase transparency and public education: consider broader sharing of risk information with stakeholders including emergency management organizations and provincial and territorial agencies to increase knowledge of specific vulnerabilities within organizations with a role to play in the resilience of the water sector.