

What is Water Security and why is it important?

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Introduction

Water is essential to the Canadian economy. Environment Canada estimates that 60% of Canada's GDP is directly dependent on water with vast majority of industry sectors heavily reliant on water to grow, operate and sustain business activities. The oil and gas industry, for example, relies heavily on water for resource extraction. Although this industry is not the largest water user in Canada, consumption is projected to significantly increase in the future. In Western Canada, where unconventional oil and gas development - shale gas in particular - has been called the future of energy supply in North America, the industry is vulnerable to reliable water supplies to facilitate the hydraulic fracturing required to access gases and liquids. As such, there is a direct correlation between economic productivity and **water security**.

Theory and/or Method

Water Security is predicated on taking into consideration social, environmental, and economic drivers to proactively assess the long-term **availability** and **reliability** of supply sources. The central theme is to ensure the suitability and sustainability of water used as well as to identify and manage risks and opportunities. Canada as a whole has an abundant supply of fresh water; however, specific areas are experiencing water challenges as a result of conflicting interests, over-use, over-allocation, concern regarding contamination, and changing water balances. In a period defined by climate change and extreme weather events, lack of water security can lead to water shortages, operational disruption, cost increases, and growth constraints. In Western Canada, where rapid industrial growth and associated urban development is occurring (e.g. shale gas development in northeastern British Columbia, oil sands development in northern Alberta, potash and uranium mining in north Saskatchewan), growth in water demands is creating tension amongst various water users. In these provinces, water is managed through an allocation and licensing system. The challenge to date is that these management systems may not sufficiently consider the cumulative effects that diversions may have on the water balance of a basin. As such, the benefits achieved from an economic standpoint can lead to unintended consequences with respect to the other aspects of sustainability (e.g. society and the environment). In many cases, these concerns and pressures have prompted regulatory bodies to enforce stringent guidelines on water use, specifically for industrial users, which in turn, have increasingly made **water risk** a significant **business risk**.

Conclusions

As water supply constraints and pressures become more prevalent and threaten economic growth the need to understand and address allocation, use, cost, and other key drivers that impact water use has never been more crucial. As such, current water management and allocation practices must adapt to reflect these pressures. This presentation will focus on how water has been allocated and managed to date, and the current and future implications of this regulatory structure. Water risks and threats that may constrain industry growth within Western Canada will be assessed, as well as opportunities to ensure water security, which may include alternative storage and management strategies, options for more flexible allocation and licensing systems, and rethinking the value placed on water.