



CBRM Water Utility
Committed to Quality



Preparing for Change: Watershed Planning as a Sustainability Tool

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The Collective Voice for Nova Scotia Municipalities.

unsm

UNSM's Municipal Sustainability Office

- Established in 2007 to help municipalities address priority sustainability issues, such as climate change and energy conservation

Goal of the Municipal Sustainability Office

- Assist municipalities to be leaders in sustainability

How?

- Awareness raising & education
- Projects & initiatives
- Building capacity through partnerships

Integrated Community Sustainability Plans (ICSP)

- Developing an ICSP is an exercise in long-term planning that moves a municipality towards sustainability through community involvement.
- Similar to source water protection planning process, creating an ICSP can increase the capacity of local governments by creating strong communication networks between and among agencies, organizations and residents, thereby creating access to shared human and financial resources.



- Source water protection plans can constitute a large component of the environmental pillar of the ICSP.

Climate Change & Our Water Resources

- In addition to pressures from population growth, urbanization and increased pollution, climate change is projected to amplify pressures on our water resources several fold and create significant challenges to managing our watersheds in the future.
- Changes in temperature and precipitation influence evaporation and runoff and the amount of water stored in glaciers, lakes, groundwater and wetlands.
- This results in changes to the quantity and quality of water available for human use and impacts ecosystems.



Climate Change Impacts



- Increased temperatures will increase evaporation.
Result: decreased surface water levels (impacting 70% of Canadians who draw their water from surface sources), intake pipes and water treatment facilities many need to be altered and new sources sought. Also decreased soil moisture = expanded irrigation of crops and reduced groundwater recharge



- Coastal environments will be vulnerable to sea-level rise and even more to the particular coastal processes associated with this rise such as flooding, erosion and storm surges.
Result: salt water intrusion and damage to infrastructure sited along the coast



- More frequent extreme weather events
Result: High volumes of water will flow quickly over land, affecting aquifer recharge rates, possibly contaminating water supplies from salt water intrusion and sewage back-ups, and damaging water infrastructure.

- Changes in the amount, timing and nature of precipitation
Result: Heavier rains will alter runoff patterns and increase overflow incidents from combined storm water and sewer systems and will also cause in-land flooding.

Climate Change Impacts

Together these changes may translate into:

1. *Increased treatment costs for drinking water supplies*
2. *Increased energy costs to pump water from greater depths*
3. *Potentially the need to seek out new water sources*
4. *Increased costs to replace and repair infrastructure*



Water infrastructure is at particular risk

- Water infrastructure is perhaps the most vulnerable of all types of infrastructure to climate change.
- Since failure of water supply and wastewater treatment facilities has the potential to cause significant consequences and because they are designed to last longer than the average building (i.e., more than 60 years), these facilities warrant particular consideration to reduce their vulnerability to climatic risks.
- Municipal governments are facing billions of dollars in new infrastructure costs to adapt water and sewage systems to volatile systems emerging under climate change



What can municipalities do?



- Encourage water conservation through a combination of educational and funding programs
- Prevent construction on flood plains
- Protect wetlands to reduce spring flooding and increasing summer streamflow

What can municipalities do?

- Build all water-related infrastructure to meet projected changes in climate
- Carefully monitor water quality and consumption patterns (particularly in coastal areas where saltwater intrusion due to sea-level rise is coupled with decreased summer precipitation)



"If you think education is expensive, try ignorance."

Chris Bok
Former President of Harvard

In conclusion . . .

- The development of a source water protection plan as a long-range planning and implementation tool to manage both water resources and ecosystems provides a unique platform to integrate both climate change mitigation and adaptation opportunities.
- The integration of climate change into watershed planning initiatives provides for a scientific and defensible approach for assessing climate-related impacts on issues of water management, such as flood risk and infrastructure design.

