



Adapting to Climate Change in the Mississippi Watershed

**A Presentation by
Mississippi Valley Field Naturalists
(MVFN)**



Objectives of presentation

- Two day workshop, 'Weathering Climate Change', held September 2007
- Publication released in Fall 2008
- Need to plan for climate change adaptation

Topics covered in workshop

- Climate Change (Mississippi Watershed + Ontario)
- Agriculture
- Forestry
- Fisheries
- Wildlife/ecosystems

- Health and Well Being
- Tourism and Recreation
- Communities/planning
- Water – hydro/water management

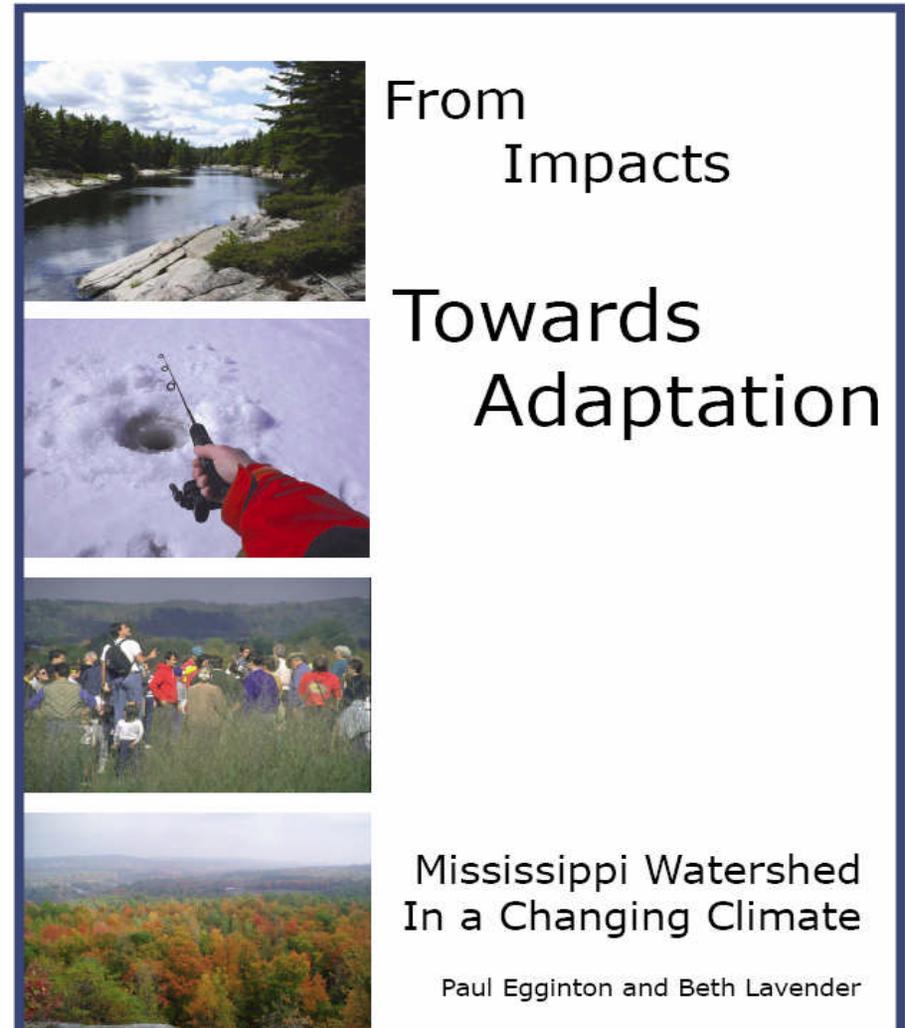
- Workshop presentations for each sector (minus health) can be found at: <http://mvc.on.ca/program/workshops.html>

“From Impacts Towards Adaptation – Mississippi Watershed in a Changing Climate”

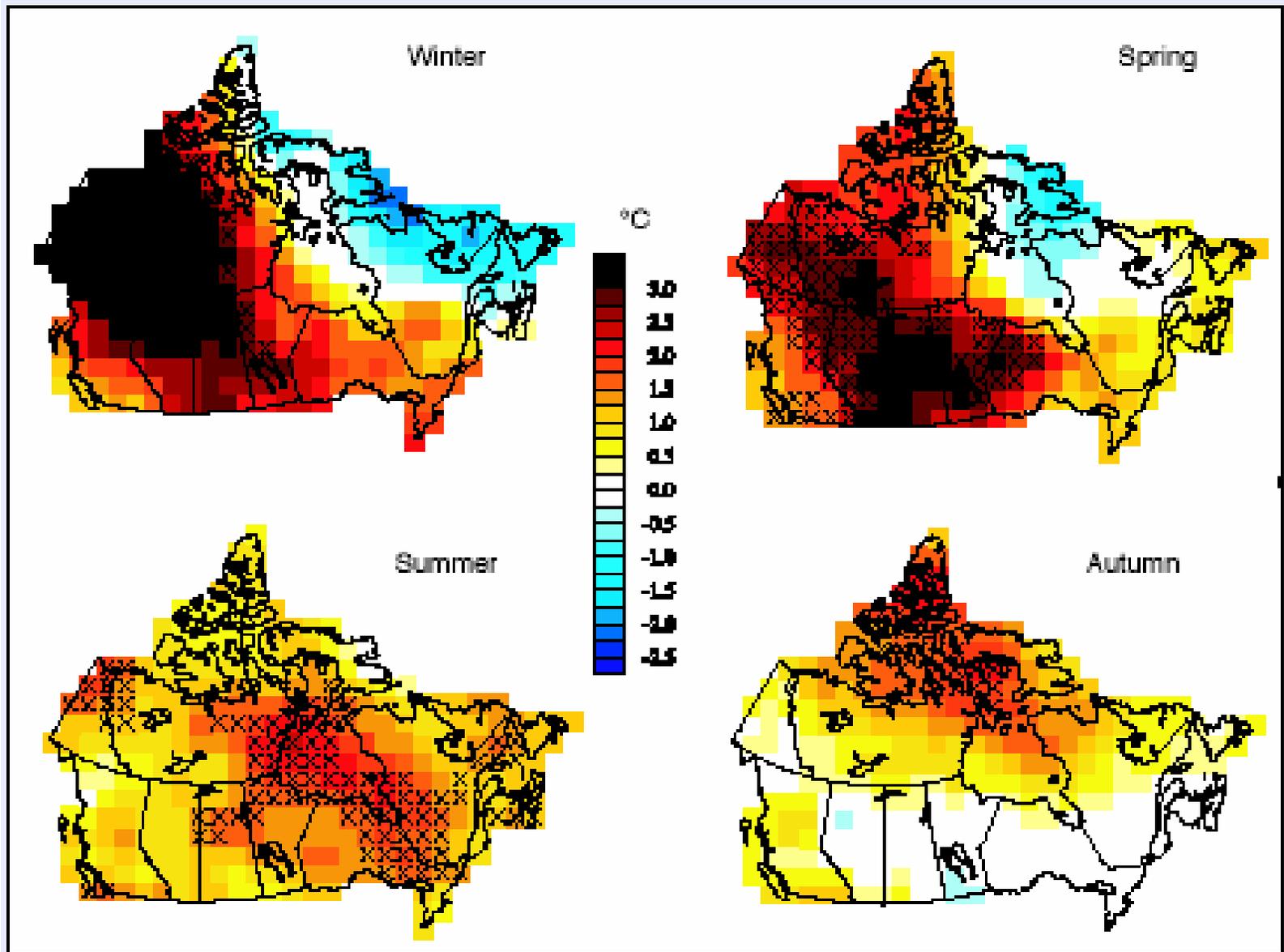
Publication by Paul Egginton & Beth Lavender

The publication can be found at:

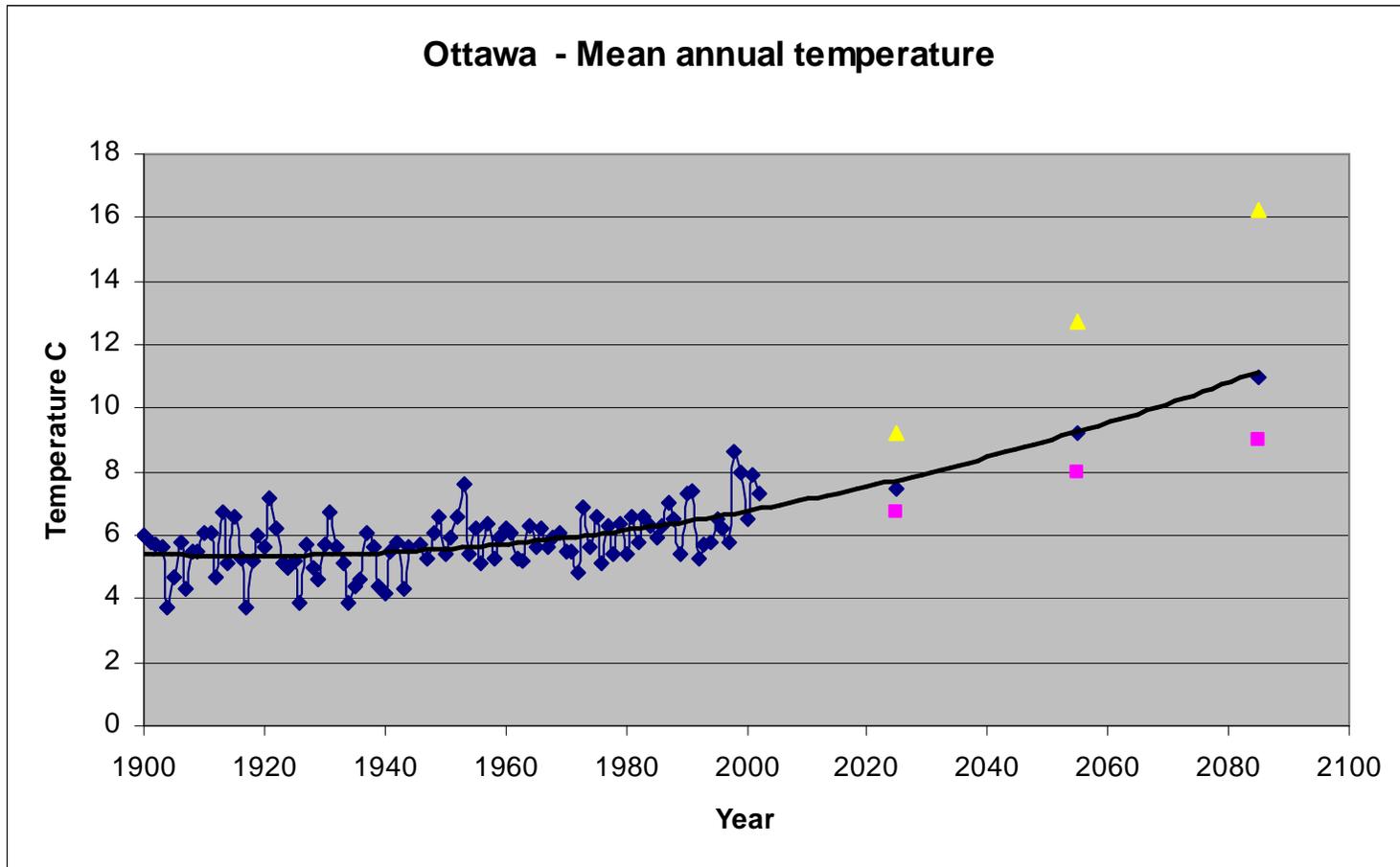
<http://mvfn.ca/wordpress/wp-content/uploads/2008/11/from-impacts-towards-adaptation-mississippi-watershed-in-a-changing-climate.pdf>



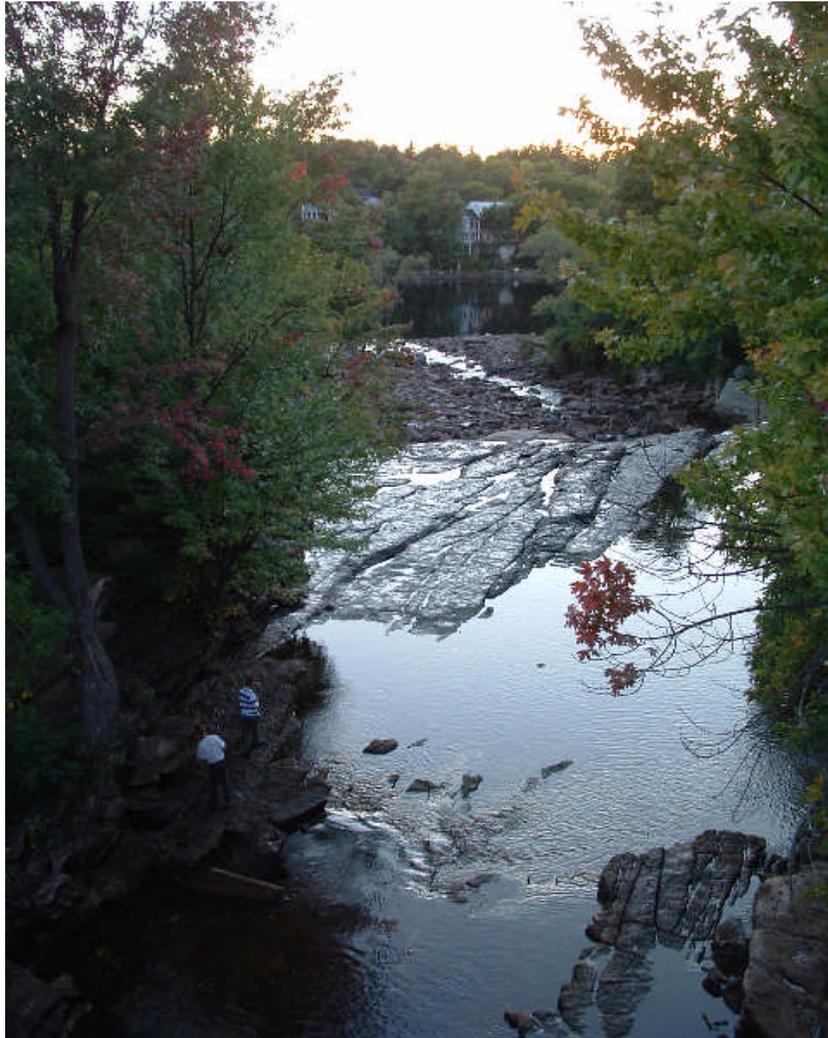
Climate is changing in Eastern Ontario and Canada – (mean temperature change over the last 50 years)



Climate is already changing in our watershed – current trends are likely to continue



Based upon the report and the workshop, local agencies and municipal governments need to take Climate Change into account when performing their functions today

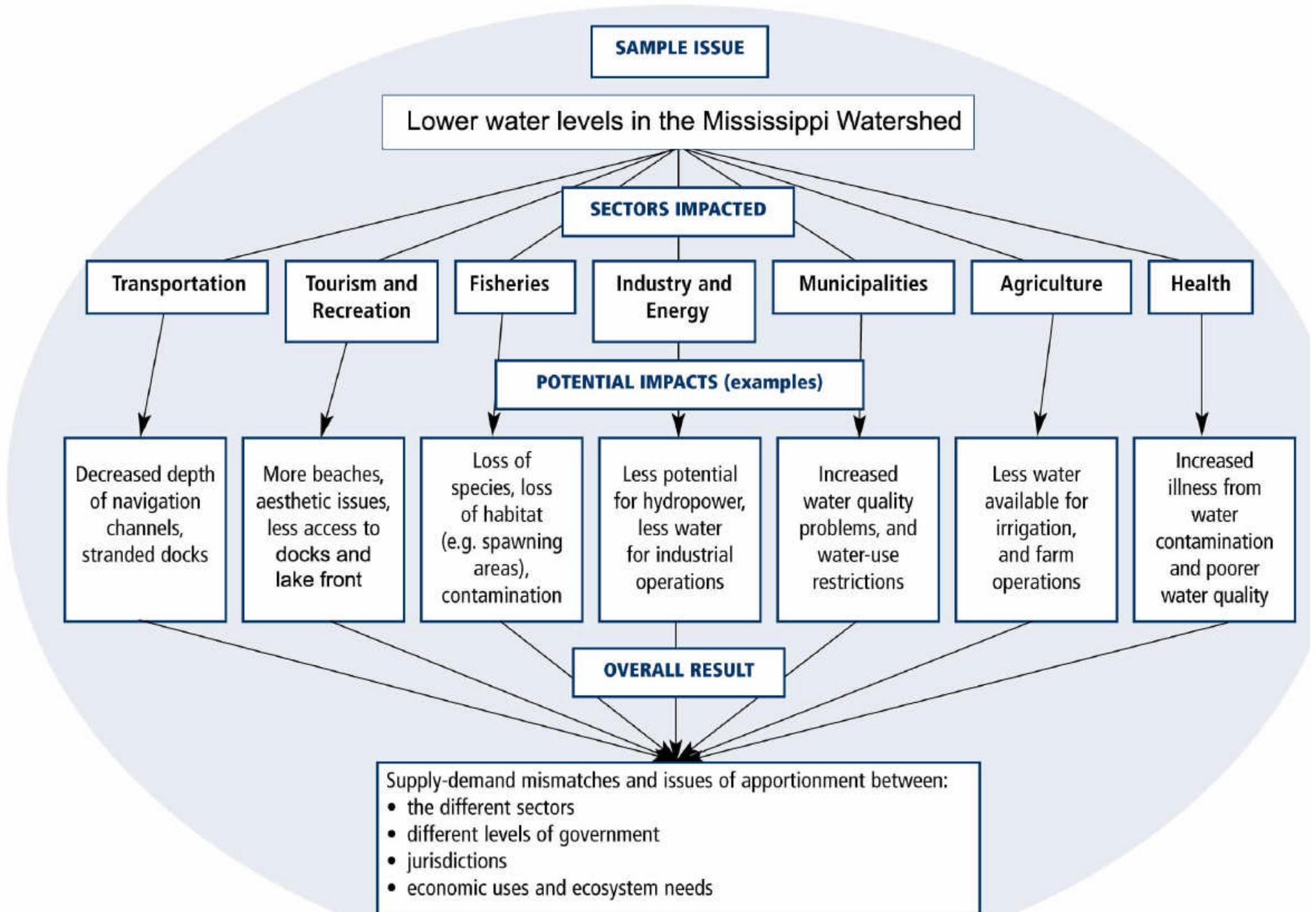


e.g. low water flows are now 3 times more common than 40 years ago



The falls at Almonte (Sept 2007)

Water resources is a crosscutting issue



The Almonte Communiqué:

Released by delegates of 'Weathering Climate Change', a two day workshop co-sponsored by MVC and MVFN

Many important economic and social decisions are being made today on long-term projects and activities in our watershed based on the assumption that past climate data are a reliable guide to the future. This is no longer a good assumption.

We believe that all levels of government are key players in this issue and must raise awareness and incorporate climate change into planning, decision making and leadership.

Next Steps:

- Review the publication and its conclusions.
- Councils initiate a motion that MVC take on a co-ordination role on Climate Change adaptation.
- MVC to work with appropriate agencies and municipalities operating in the region to develop adaptation plans.
- MVC and agencies to report to Councils on their progress.
- Councils to update Official Plans to include climate change adaptation (reference text appended)



Backup Slides

Working Information on
Adapting to Climate Change

Reference Text for a Municipal Official Plan (2 Slides)

CLIMATE CHANGE CONSIDERATIONS

- One concern in the planning process is an expected increase in climate variability and in extreme weather, causing floods, droughts and storms (NRCan 2004).
- It is anticipated that even small shifts in climate normals will have potentially large ramifications for existing infrastructure (Auld and McIver, 2005).
- This will affect municipalities large and small, urban and rural, and will have positive and negative implications for the various types of municipal infrastructure:
built systems, e.g., roads and bridges; natural systems, e.g., watersheds and forests; and human systems, e.g., health and education

Built systems will endure greater exposure to extreme events in the future, resulting in increased demand for maintenance and upgrades. Energy transmission networks, such as towers and their supports, may suffer damage from severe windstorms, or ice storms. Water and sewage networks will need to accommodate more intense precipitation. Municipalities need infrastructure that can withstand future climate conditions to ensure it is dependable and maintain safety (for example, milder winters bring about more freeze-thaw cycles, which trigger increased pot-hole development and break-up of roadways). On the other hand, changing weather conditions may have a positive impact, for example, lower snow-clearing costs in milder winters.

Natural systems are expected to adapt to shorter winters and earlier springs, which will alter ecosystems and species' lifecycles. Increased risk of pests, diseases and forest fires are likely to occur in a warmer climate. Rising urban temperatures and heat waves frequently cause smog and diminished air quality, both of which affect the health of plant and animal species. On the other hand, a milder climate could present new opportunities for tourism and recreation by extending the growing season for vegetation in parks and other recreational areas.

Human systems, such as health, welfare, social aid and medical systems, will be affected by climate change, especially in resource- and tourist-based communities, which have a strong link between climate and economic prosperity. Demands on communities are expected to increase in response to emergency management of extreme physical discomfort, life-threatening conditions and stress-related illness. For example, health services need to accommodate vulnerable segments of the population during more frequent heat days. On the other hand, fewer cold snaps in winter will trend to signify fewer treatments of cold-related illnesses. Municipalities make investments in infrastructure that are required to last for many decades. Generally, infrastructure design is based on past climate conditions. However, given the climate changes expected over the next century, these historic conditions are no longer accurate indicators for planning,

Reference - The Canadian Climate Impacts and Adaptation Research Network (C-CIARN) Their 2006 report was tailored to Canadian Municipalities and is another useful resource.

See: http://www.c-ciarn.ca/pdf/adaptations_e.pdf

Senior levels of government already recognize the need and recommend developing adaptation strategies at the community level.

News Release Communiqué Ministry of the Environment

December 12, 2007

ONTARIO COMMITS CLIMATE CHANGE FUNDING FOR ADAPTATION

Environment Minister John Gerretsen announced today.

“The McGuinty government is committed to a greener Ontario. We are cutting emissions, but we also have to be prepared for the consequences we can’t avoid,” said Gerretsen.

Other communities are taking action

Toronto – May 2008
STAFF REPORT
ACTION REQUIRED
Climate Change
Adaptation Strategy

- Toronto is taking action.
- There is enough information to act.
- Due diligence demands it.

See their progress at

<http://www.toronto.ca/teo/adaptation.htm>

- In adopting the Climate Change Action Plan, **City Council also directed that a plan be established to reduce the negative impacts of unavoidable changes to climate that are already underway,** including: extreme heat; more intense storms; floods and droughts; damaging insects; and newly introduced diseases.

- Climate change involves a long-lasting shift in weather patterns. Our infrastructure and buildings will need to withstand weather that is different from the past. In addition climate change has the potential to significantly affect many civic programs and services such as public health, water supply, storm water management and urban parks, forests and ecosystems.