

CLIMATE CHANGE ADAPTATION PLANNING IN TORONTO: PROGRESS AND CHALLENGES

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Adaptation and the City of Toronto

- Citywide adaptation process started in 2007
- In 2008, City Council adopted *Ahead of the Storm*, a climate change adaptation strategy
- Builds on existing programs that provide protection from current weather extremes, and includes a commitment to short term actions as well as a longer term process for developing a comprehensive strategy
- The City is in the early stages of implementing the strategy



Climate Change Impacts - Toronto

- More, longer & hotter heat waves
- Declining air quality
- Milder winters
- Expanded numbers & range of harmful insects
- Intense rainfalls
- Increased flooding
- Record snowfalls
- More freezing rain & freeze-thaw cycles
- More extreme weather, storms and increased wind speeds



The Adaptation Team

- Policy and program staff from 14 City divisions and agencies, with core group from:
 - ✓ Toronto Water
 - ✓ Public Health
 - ✓ City Planning
 - ✓ Toronto Environment Office
 - ✓ Clean Air Partnership
- Met weekly from Sept. 2007 to April 2008
- Prepared:
 - ✓ Framework paper (*Ahead of the Storm*)
 - ✓ Summary report for wide distribution
 - ✓ Public consultations



Building Capacity

- Established an Expert Panel of leading local scientists and policy thinkers
- Met with Environment Canada, Institute for Catastrophic Loss Reduction, Engineers Canada, Canadian Institute of Planners to learn about climate change scenarios, infrastructure risk assessment, integrating adaptation into spatial planning and other issues
- Joined the Alliance for Resilient Cities network of Canadian cities & the U.S. Urban Leaders Adaptation Initiative to exchange information & ideas with peers in other cities
- Held internal meetings with key City divisions to discuss expected impacts on their operations, describe what other cities are doing, and initiate discussions about adaptation planning
- Hosted internal & public events to present and discuss issues and plans with political officials, staff, the public and the media



Commitments

The adaptation strategy adopted unanimously by Council on July 15, 2008 commits to the following:

- Incorporate explicit goals for adaptation of infrastructure and buildings into Toronto's Official Plan
- Incorporate climate change into planning of all City Agencies and Divisions and identify in 2009 budget submissions specific short-term actions
- Investigate a funding strategy for climate change adaptation including the creation of an Extreme Weather Reserve Fund
- Establish a process for the development of a long-term, detailed and comprehensive adaptation Strategy
- Establish an Urban Climate Change Network to support co-operation, among governments, universities, colleges and non-governmental organizations

Toronto's Longer-Term Process

1. Create the internal mechanisms and processes for a comprehensive, multi-year adaptation process
2. Engage the public, business and other stakeholder groups
3. Incorporate climate change adaptation into City policies and high level plans
4. Use best available science to analyze how climate is changing locally and what the future is likely to bring
5. Use this analysis to identify Toronto's vulnerabilities to climate change
6. Conduct a risk assessment to identify priority impacts requiring adaptation action
7. Identify and assess adaptation options to reduce the risk
8. Develop and implement detailed climate change adaptation strategies and
9. Monitor climate change, evaluate the effectiveness of adaptation initiatives in protecting the City from continuing changes, and adjust strategies when necessary

Implementation

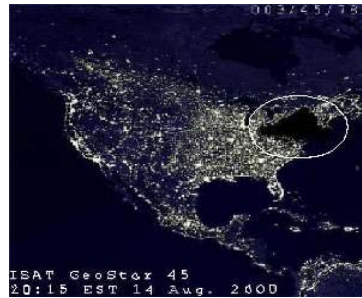
- **Two major research projects to underpin future adaptation planning underway:**
 - ✓ Analysis of Toronto's current & expected future climate
 - ✓ Risk assessment, to detail & prioritize expected impacts
- **Inclusion of adaptation plans & actions in 2009 departmental budgets, e.g.**
 - ✓ Expanded planting & maintenance of city trees
 - ✓ Intensive study to better protect 31 areas prone to flooding
 - ✓ Mapping vulnerable populations & hot spots to better target heat response
- ✓ New requirements in the Green Development Standard
- ✓ Eco-roof program
- ✓ Community-scale renewable energy & local distribution systems
- **Incorporation of adaptation into 2010 revision of Toronto's Official Plan**
- **Creation of Extreme Weather Reserve Funds to cover costs of extreme weather events**
- **Creation of Toronto Urban Climate Change Network**
 - ✓ Hosted recent Forum on Infrastructure & Climate Change Adaptation

Adaptation on the Ground



Key Challenges

- Uncertainty about future climate change and impacts
- Weak institutionalization of adaptation & inadequate commitment of human resources
- Financial resources
- Decisions taken at other levels of government



Conclusions

- Toronto, like other proactive cities, is still in the early stages of climate change impacts assessment, strategy development and implementation
- The City has shown considerable leadership in acknowledging the need for adaptation & taking early action, even though the government has been cash-strapped for some time
- In a short time has developed adaptation actions in several areas of operation, building on a number of existing programs, but adaptation actions are not yet welded into a comprehensive strategy
- Adaptation will require continued engagement, institutional commitment, creative thinking, and funding

Recommendations for Research

- Detailed case studies that examine urban adaptation *processes* as well as actions can provide valuable guidance to cities beginning to integrate adaptation into programs and policies.
- Researchers need to pay attention to (and acknowledge) the so-called “grey literature” where much useful information about practical adaptation approaches is to be found.
- More engagement (participant observation) of researchers in adaptation planning and implementation is needed. There is all too much abstract theoretical discussion of adaptation planning and too little observational evidence.
- Researchers need to be attuned to political sensitivities but also need to be able to present a constructively critical perspective.

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