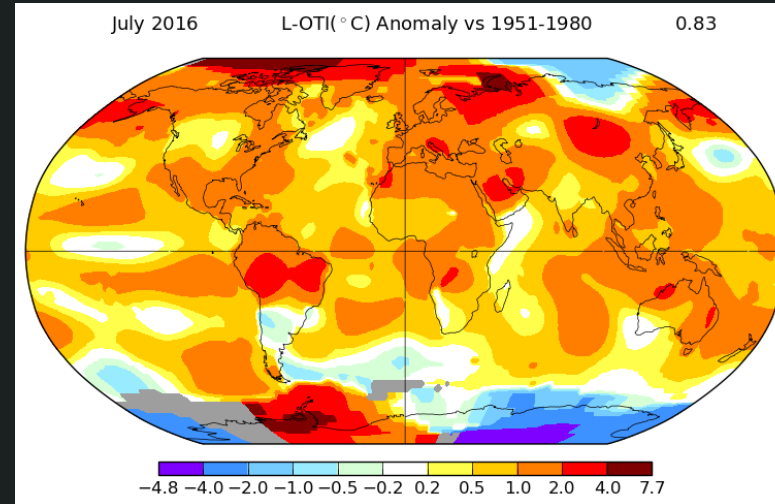


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Adaptation
to Climate
Change Team



Financing Tools for Municipal Adaptation

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The Municipal Adaptation Imperative

Infrastructure Deficit:

Nearly 35% of municipal infrastructure in Canada is in fair, poor, or very poor condition, resulting in high costs of flood damage.

Increasing Climate Risks and Damages:

For instance, water-related losses have surpassed fire and theft as the primary source of property insurance damages and affect virtually every municipality in Canada.

Need for Adaptation Planning:

Municipal adaptation planning is growing, but still lagging behind.



COVID-19

- Impacts on already limited income sources – property taxes, transit fares, user fees
- Declining revenues, limited revenue streams, growing costs
- Potential for public-private partnerships? (already clear that local governments would not be able to afford all adaptation needed; other govt sources insufficient)
- Essential to think about “multi-solving” and “low carbon resilience” for both short and long term resilience wherever possible



Progress Since 2015

Internal Funding/Financing Sources

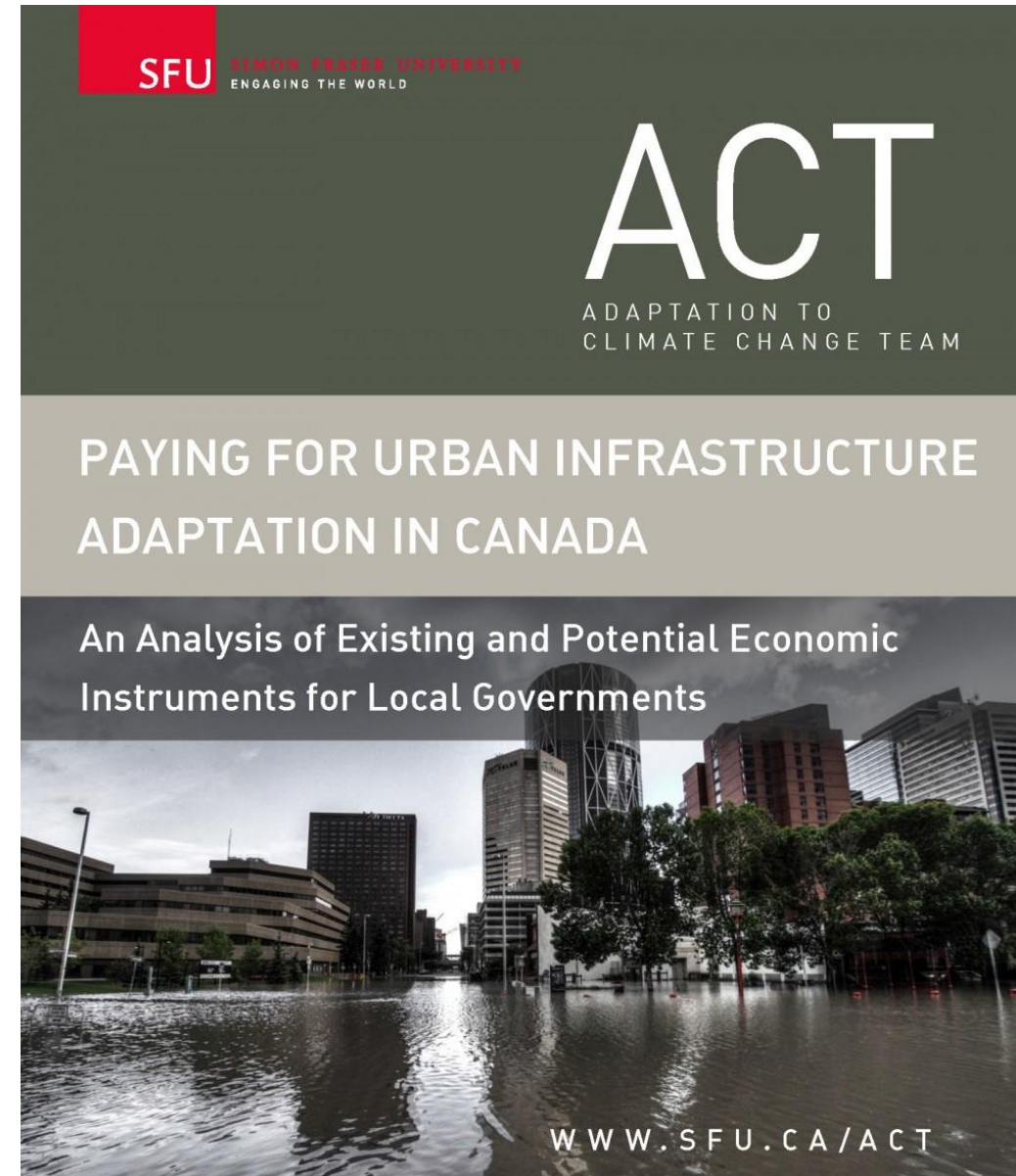
- Property Taxes, Tax Levies
- Tax Increment Financing, Local Improvement Charges
- Climate/Green Bonds
- User Fees, Development Cost Charges (DCCs)

Local Financial Incentives and Rebates

- Development Cost Charge Reductions
- Local Improvement Charge Financing (PACE loans)
- User Fee Rebates/Credits

External Sources of Revenue

- Conventional Sources: Gas Tax, Infrastructure Canada Programs
- Merit-based: MCIP, GMF, MAMP, Disaster Mitigation and Adaptation Fund
- Carbon Revenues



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Local Level Tools

User Fees

Overview:

- User fees are charged directly to property owners based on the amount of the service used
- Provides an equitable, stable funding source that allows for long-range planning, maintenance, improvements
- Can address increased precipitation projections (for Stormwater Management) and incentivize property-level resilience
- Used by at least 24 Canadian municipalities, including 10 in Ontario, 7 in BC and 4 in Alberta, to fund stormwater management
- Various rate calculation methods from simple (flat rate) to complex (impervious area measurement)
- Eg Kitchener: Rate structure: 16 property-type classifications with rates ranging from \$4.50 (small residential) to \$2,300 (largest non-residential) per month.



User Fees

Select Canadian Examples of Stormwater Utility User Fees

Municipality and Year	Rate Calculation Method	Credit/Rebate System in Place?
Victoria, BC- 2015	Impervious Area including roofs and paved surfaces	Yes, credit given for best management practices- up to 10% reduction for homeowners, 40% for multiple-family or commercial properties
St. Albert, AB- 2003	Tiered flat rate for Single Family Home, Condo, Non-residential properties. As of 2018, moving to a Impervious Area Measurement system	Under development (as of Sept. 2018).
Mississauga, ON- 2016	Tiered residential rate based on 'roofprint', flat rate. Multi-residential rate calculated on impervious area	Yes, for multi-residential properties- up to 50% reduction
Kitchener, ON- 2011	Equivalent Residential Unit – 16 property-use tiers	Yes, Since 2012. Residential Property Owners eligible for reductions of up to 45% of Stormwater fees for use of Best Management Practices
Halifax, NS-	Equivalent Residential Unit-Tiered since 2017	Yes, Since 2017. Non residential property owners are eligible for 30% to 50% reduction on Stormwater fees for use of private stormwater management

Development Cost Charges

Overview and Uses

- One-time fees paid by developers to a municipality to recover the costs of increased demand on city services that is created by new development, used to fund roads, sewage treatment, water services, drainage, parklands, adaptive infrastructure.
- Used in BC, AB, Ontario, NS (SK and MB- development levy)
- Can be used to fund green infrastructure or natural infrastructure expansion
- Eg Gibsons (BC) amended DCC bylaw to allow DCCs to fund natural assets expansion for drainage, and demonstrated the services provided by the natural asset.
- DNatural asset valuation showed that expansion of natural assets could provide comparable drainage services at $\frac{1}{4}$ the cost



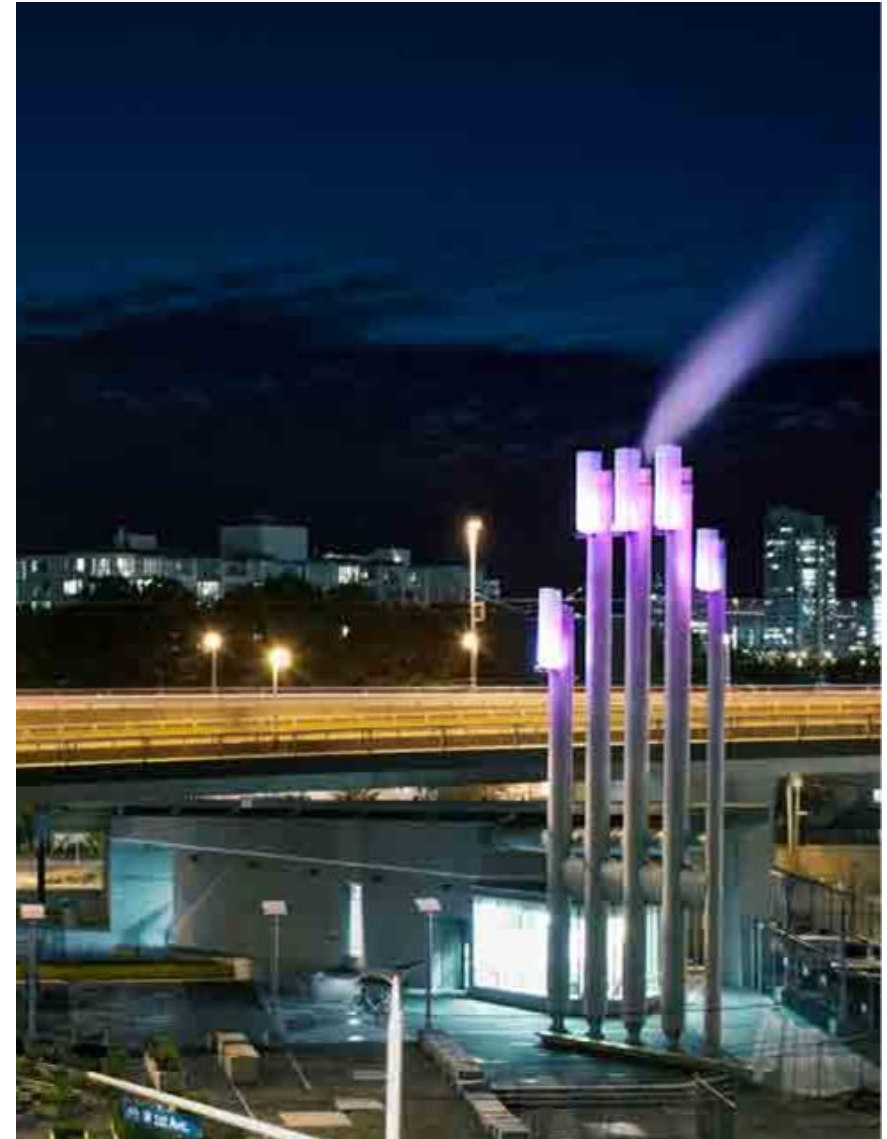
Green Bonds and Climate Bonds

Overview and Uses

- Similar in design to regular bonds, but used for projects with specific environmental or climate benefits. First municipal issuance in Canada in 2017 (City of Ottawa- \$102 million)
- Over \$5 billion issued in Canada in 2018, with municipalities responsible for about 42% of issuance
- Used in Canada to finance renewable energy projects, public/active transportation, low-carbon buildings, and adaptation projects

Example of municipal use in Canada:

Vancouver, 2018: \$85 million green bond issued to finance expansion of waste-heat recovery projects, low emissions buildings, green infrastructure projects. 10 year term, 3.1% interest rate.



Source: <https://www.ausenco.com/en/false-creek-energy-centre>

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Financial Incentives and Rebates

Local Incentives

DCC Reductions

- An amendment to the BC Local Government Act allows municipalities to incentivize energy efficient or climate-resilient development, through partial or full DCC reductions

Examples of DCC reductions incentivizing climate resilience (BC)

City of Penticton	50% to 100% DCC reductions available for developments that meet low-impact environmental development standards
City of Sooke	30% to 100% DCC reductions (for wastewater and road DCCs only) for high-density, LEED certified developments



Local Improvement Charge Financing

Overview and Uses

- Used by homeowners to secure low-interest loans for home retrofits. LIC financing used in Canada in the form of Property Assessed Clean Energy Loans (PACE loans) and Home Energy Loan Programs (HELP loans).
- Loans of \$10,000-\$75,000 tied to the property, and typically paid back with property taxes or utility bill over 15 to 20 years.
- Have largely focused on mitigative goals such as energy efficiency and renewable energy financing, but increasingly considered for resilience measures (e.g. low-impact development or sump pump installation)
- Municipalities must pass LIC financing bylaw, can finance LIC loans from internal funds (operating revenues or capital reserves), borrowing from bond markets, or accessing provincial programs



Local Improvement Charge Financing

Examples: Property Assessed Clean Energy (PACE) & Property Assessed Resilience (PAR) loans

	Amount and Term	Eligible Projects
PACE: Toronto, ON- Home Energy Loan Program (2014)	Up to \$75,000, terms of up to 15 years	Building and energy efficiency upgrades, water conservation, renewable energy measures
PAR: Connecticut, USA- Shore-Up Connecticut Program (2014)	Up to \$300,000, terms of up to 15 years.	Residential homeowners must agree to elevate homes one-foot above the 500-year flood elevation level, commercial properties, one foot above 100-year level.

Local Improvement Charge Financing

Select Canadian Examples

Name, Jurisdiction, Year Started	Program Design	Eligible Projects
Nelson, BC- Ecosave Energy Retrofits Program (2012)	Up to \$16,000 in loans, paid back on monthly utility bill	Energy efficiency upgrades, water conservation toilets
Alberta- Clean Energy Improvement Program (2018)	Program operated by Energy Efficiency Alberta on behalf of participating municipalities. Expected up to 30 year loan period	Energy efficiency and renewable energy measures
Toronto, ON- Home Energy Loan Program (2014)	Up to \$75,000, terms of up to 15 years	Building and energy efficiency upgrades, water conservation, renewable energy measures
Nova Scotia (Bridgewater, Lunenburg, Digby, Barrington)	Clean Energy Financing Program administers financing on behalf of participating municipalities. Up to \$20,000 for up to 10 years.	Building and energy efficiency upgrades renewable energy measures, EV charging stations.

Local Incentives for Climate-Resilient Development

Revitalization Tax Exemptions (RTEs)

- Bylaw to partially or fully exempt specific properties from property taxes for up to 10 years
- BC Community Charter amended in 2007 to allow use of RTEs to promote high performance or efficiency buildings, streamside protection measures, integrated stormwater management, and brownfield redevelopment.

Example: Sooke, BC

- RTE created for a maximum of 3 years (100% reduction in 1st year) for developments that are high-density and LEED certified



External Funding Sources for Infrastructure Adaptation

External Funding Sources for Infrastructure Adaptation

Overview:

- Since 2015, greater focus on funding for adaptation and resilience
- Increasing acknowledgment of low carbon resilience value of Green Infrastructure and Nature-based Solutions
- Investing in Canada Plan: Since 2015, over 33,000 infrastructure projects worth \$19 billion approved in Canada.
- Climate Lens Assessment: Consideration of GHG emissions, climate resilience for all major projects (valued \$10m or more) receiving funding from Infrastructure Canada



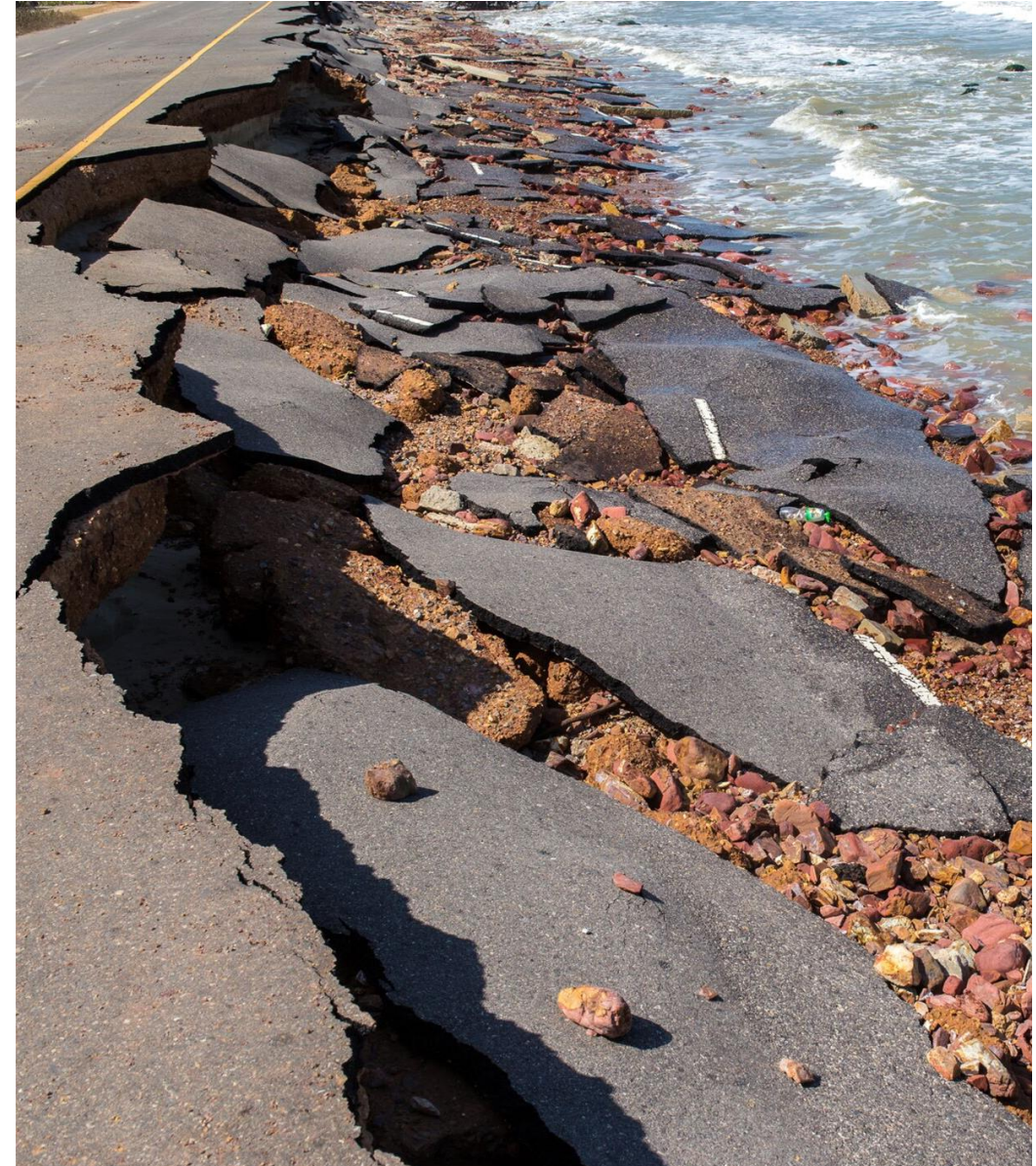
Federal Gas Tax Fund

Overview:

- Permanent source of funding, \$2 billion/year on a per-capita basis to provinces/territories.
- Budget 2019: One-time, additional transfer of \$2.2 billion to address short-term priorities in municipalities and First Nation communities
- Eligible projects: Engineered infrastructure, public transit, water and wastewater systems, community energy systems, brownfield redevelopment, (as of 2014) adaptation/ disaster mitigation

Example: Tignish, PEI

- Will use 2019 annual Gas Tax allocation (\$100,000) to fund wastewater system replacement



Infrastructure Canada- Clean Water and Wastewater Fund

Overview:

- \$2 billion in funding on a per-capita basis to provinces and territories, for projects related to water treatment/distribution, wastewater and stormwater infrastructure, including naturalized water management systems.
- Cost-share model: Federal funding for up to 40% of project costs for municipalities
- Funding agreements, project selection and announcements completed 2017-2018

Example: Lethbridge, AB

- Received \$12.2 million in federal funding in July 2017 for wastewater and stormwater management, wetlands preservation



Merit-Based Funding Programs

FCM Municipal Asset Management Program (MAMP), Municipal Climate Innovation Program (MCIP) and Green Municipal Fund (GMF).

Infrastructure Canada: Disaster Mitigation and Adaptation Fund

- \$2 billion to support infrastructure adaptation and resilience to natural hazards and extreme weather.
- Up to 40% cost sharing for municipalities. Minimum project size of \$20 million.
- First intake completed July 2018. Over \$150 million to flood mitigation and stormwater improvement projects announced.



Carbon Revenues

Overview:

- Considerable potential for funding climate change mitigation and adaptation
- Used in several provinces to fund infrastructure projects

Examples of Use:

- **BC: Climate Action Revenue Incentive Program (CARIP)**- Local govts eligible for provincial grants equal to their carbon tax paid
- **AB: Climate Leadership Plan**: funding dedicated to infrastructure upgrades and adaptation, flood mitigation, clean energy
- **QC: Green Fund (Fonds Vert)** supports provincial adaptation and mitigation measures



Summary

Greater use of tools and sources such as:

- User fees, climate bonds, LIC financing and incentives
- Federal funds dedicated to infrastructure adaptation

Potential for greater uptake in:

- Climate bonds with explicit resilience goals
- Property-Assessed Resilience Loans
- Use of natural asset services
- Carbon tax revenues

Challenges/Barriers

- Legislative changes to unlock financing tools are slow
- Adaptation and resilience is difficult to measure and quantify compared to mitigation



Post COVID-19 Recovery/Stimulus

Federal government and provinces contributing

Investments needed in essential services; job training programs eg retrofitting; buying land where possible

New municipal fiscal framework needed: new taxation powers (e.g., payroll, excise, land-value, income, and others), new regulatory authorities, new governance mechanisms

<https://medium.com/@georgepatrickr/covid19-proves-cities-deserve-more-money-heres-what-that-could-look-like-7f0bab6e37fd>

Refocused revenue streams, eg hyperlocal tourism

Once in a generation investment – must support low carbon resilience

