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Building Sustainable Flood Insurance: Rewarding Local Resilience Through a Canadian Community Rating System

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ABSTRACT

Canada faces rising flood risks due to climate change, aging infrastructure, and continued development in vulnerable areas. These trends have made flood insurance unavailable or prohibitively expensive for many high-risk households. To address this gap, the Government of Canada is developing a national flood insurance program. Without complementary efforts to reduce exposure at the local level, however, costs could increase to make the program unsustainable.

This policy brief explores the potential to adapt the U.S. Community Rating System (CRS) for Canada. The CRS incentivizes municipal flood mitigation through insurance premium discounts for residents, encouraging a wide range of activities such as land-use planning, public education, and infrastructure improvements that reduce flood exposure. The U.S. experience shows that the program supports long-term engagement and measurable risk reduction, but it suffers from equity and accessibility limitations.

A Canadian CRS must embed equity considerations, offer technical support for under-resourced jurisdictions, and align with existing policy frameworks. It should prioritize actions that reduce risk for vulnerable populations and reward inclusive, effective mitigation. If designed thoughtfully, a Canadian CRS could advance flood resilience while protecting public investments, reducing disaster recovery costs, and ensuring fairer outcomes for all Canadians.

Keywords: flooding; flood insurance; climate resilience; Community Rating System (CRS).

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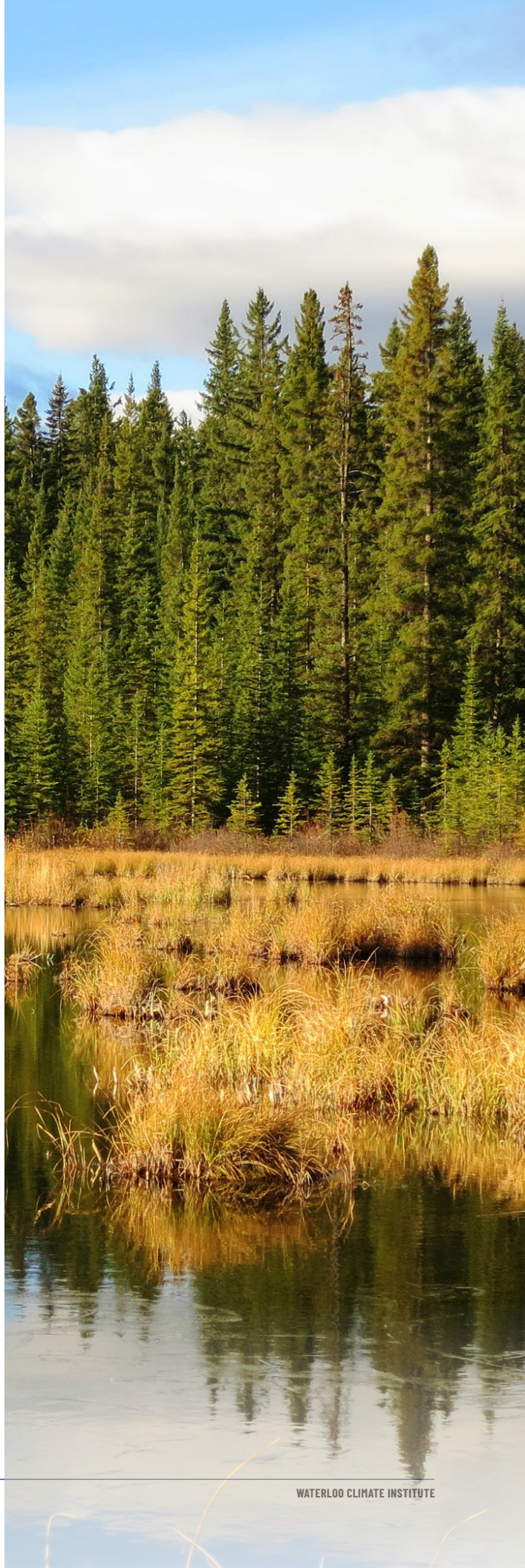
KEY MESSAGES

- Flooding is Canada's most costly climate-related hazard, and current insurance options leave high-risk households under-protected and financially vulnerable.
- The U.S. Community Rating System (CRS) offers a proven model to incentivize local flood mitigation through insurance premium discounts based on community actions.
- A Canadian CRS must prioritize equity by supporting under-resourced municipalities and recognizing efforts that reduce risk for vulnerable populations.
- Implementing a Canadian CRS would help align local governance with national flood resilience goals, improve affordability, and make federal investments in flood insurance more sustainable.

INTRODUCTION

Flood risk in Canada is intensifying due to climate change, aging infrastructure, and continued development in flood-prone areas. Projected increases in extreme precipitation—especially in summer—are expected to exacerbate both fluvial (riverine) and pluvial (urban stormwater) flooding (Grenier et al. 2024). Catastrophic events like the 2021 Pacific Northwest floods, which inflicted over $2.5 billion in damage in British Columbia, are becoming more common due in part to climate change (Gillett et al. 2022).

Meanwhile, municipalities approve development in flood-prone zones to grow the property tax base, despite limited mitigation capacity and outdated infrastructure (McClearn 2022). Finally, Canada is mobilizing to accelerate housing construction to address a massive shortfall; this urgency raises the risk that homes could be built in high-risk flood areas (Canadian Climate Institute 2025). These trends underscore the urgent need for proactive, locally informed flood risk reduction.



BACKGROUND

FLOOD RISK IN CANADA

About 10% of Canadian homes are in high-risk flood areas, and these properties account for about 80-90% of residential flood losses—estimated to be between $1.4 billion and $3 billion annually (Morin et al. 2025; Public Safety Canada 2022). Alarmingly, over 90% of residents in these high-risk zones are unaware of their exposure (Ziolecki et al. 2020). Many of these households are uninsured or underinsured, largely due to high premiums and lack of market availability, exacerbating vulnerability and increasing dependence on public disaster assistance (Thistlethwaite and Henstra 2024; 2017). Furthermore, private insurers face difficulty offering affordable coverage without reliable, standardized flood risk data, which remains fragmented across Canada (Beeby 2013; Minano et al. 2024).

These market failures have prompted federal intervention. The Government of Canada has allocated about $32 million to establish a national flood insurance program, which will provide coverage for high-risk properties (D'Andrea 2023). The program aims to achieve two outcomes: closing the protection gap in high-risk zones and strengthening systemic resilience to flood hazards. Risk-based pricing combined with means-tested subsidies offers a pathway to financial sustainability while addressing equity concerns (Thistlethwaite and Henstra 2024). However, long-term viability will depend on whether local governments implement complementary mitigation strategies.

Municipalities control critical levers of flood risk governance, such as land use, zoning, and infrastructure maintenance, but many lack the administrative or technical capacity to act decisively (Deschamps et al. 2023; Henstra and Thistlethwaite 2017). Without local action to reduce exposure, federal investments in insurance will become increasingly expensive as losses that exceed the premiums collected are covered by the public treasury. To align incentives and improve long-term outcomes, federal policy should reward municipalities that take meaningful steps to reduce flood risk. One promising option is a Canadian version of the U.S. Community Rating System (CRS).

A COMMUNITY RATING SYSTEM FOR CANADA?

Flood insurance in the United States is provided primarily through the National Flood Insurance Program (NFIP), an initiative managed by the Federal Emergency Management Agency (FEMA). Because FEMA administers the NFIP, it holds significant influence over flood insurance policy and pricing, which enables it to use the program as leverage to encourage broader flood risk management. The CRS is a voluntary program under the NFIP that reduces flood insurance premiums for residents in communities that undertake flood risk reduction efforts (FEMA 2018). Creditable activities range from public education and hazard disclosure to stormwater management and land-use regulations (Table 1). In addition to the economic incentive of insurance premium discounts (Table 2), communities are motivated to participate in the CRS to unlock access to other federal grants, and to achieve reputational gains, such as recognition for leadership, good governance, and stewardship.

Studies find CRS participation is correlated with reduced insurance claims, particularly when structural mitigation measures are prioritized (Gourevitch and Pinter 2022; Sadiq et al. 2020). Empirical analyses suggest that communities participating in CRS report significantly lower

flood losses compared to non-participating ones, underscoring the program's effectiveness in reducing disaster impacts (Highfield and Brody 2017).

In addition to risk reduction, the program has shown durability—most participating communities remain engaged over time—and scalability, with varying entry points for different levels of municipal capacity (Michel-Kerjan et al. 2016). It also supports a multi-dimensional resilience framework, enhancing physical and social capital at the community level (Atreya and Kunreuther 2020).

Table 1. Credit Points Awarded for CRS Activities

Activity	Points	Activity	Points
Public Information		Flood Damage Reduction	
elevation certificates	116	floodplain management planning	622
map information service	90	acquisition and relocation	2,250
outreach projects	350	flood protection	1,600
hazard disclosure	80	drainage system maintenance	570
flood protection information	125		
flood protection assistance	110	Flood Preparedness	
flood insurance promotion	110	flood warning and response	395
		levees	235
Mapping & Regulations		dams	160
floodplain mapping	802		
open space preservation	2,020		
higher regulatory standards	2,042		
flood data maintenance	222		
stormwater management	755		

Source: (FEMA 2018)

Table 2. CRS Premium Discounts

Credit Points	Premium Reduction (%)
4,500+	45
4,000-4,999	40
3,500-3,999	35
3,000-3,499	30
2,500-2,999	25
2,000-2,499	20
1,500-1,999	15
1,000-1,499	10
500-999	5
0-499	0

Source: (FEMA 2018)

While long-term benefits are evident, the CRS also faces notable shortcomings, one of which is fiscal efficiency. The CRS has been criticized for not being actuarially accurate, meaning the points allocated per activity do not necessarily align with the premium reductions awarded (Kousky and Shabman 2015). Annual program costs frequently exceed the insurance savings generated: between 1998 and 2020, for instance, the cumulative value of NFIP flood loss reductions attributed to CRS participation ($10.1 billion) matched almost exactly with the cumulative cost of premium discounts provided to policyholders ($10.0 billion) (Gourevitch and Pinter 2022).

Equity is another weakness. Participation is concentrated in affluent, administratively capable municipalities (Sadiq and Noonan 2015), and its complex application process and documentation requirements discourage smaller jurisdictions. Moreover, the CRS program is designed to be revenue-neutral, so all NFIP policyholders pay a roughly 15% surcharge to fund premium discounts for participating communities (Gourevitch and Pinter 2022). Under-resourced, non-participating communities effectively subsidize wealthier ones that can afford to engage with the program, a disproportionate financial burden that raises equity concerns.

Finally, the CRS program falls short in addressing social vulnerability, with the current point system often overlooking the needs of marginalized or low-income populations (Atreya and Kunreuther 2020). Although CRS activities are scored and credited for physical and informational mitigation, the program does not explicitly consider socioeconomic indicators like income, age, or disability status in its evaluation procedures or point allocations. This omission means that communities with high levels of social vulnerability might not receive targeted support despite facing disproportionate risks and recovery burdens.

Despite these limitations, the CRS remains a valuable model. A Canadian version could deliver significant public value if designed with appropriate adjustments. Its flexible, performance-based structure is well-suited to Canada's decentralized governance context, and it could encourage proactive risk reduction among municipalities.

To succeed, a Canadian CRS must address equity head-on. Technical and financial support should be embedded to assist smaller and under-resourced jurisdictions. Credit allocations must reflect both the effectiveness and inclusivity of mitigation efforts, rewarding actions that protect vulnerable populations. This outcome could be achieved by coupling the CRS with a spatial analysis tool that identifies areas with elevated social vulnerability (Chakraborty et al. 2023). An equity-weighted scoring system could then be implemented to assign higher credit for risk-reduction measures in high-vulnerability areas.

Monitoring and evaluation will also be essential. Canada has an opportunity to build an evidence-driven system from the outset, tying credits to measurable outcomes and supporting transparent, open-access flood risk data. A federated data-sharing platform that connects mitigation actions to observed premium reductions, which is currently lacking, would help municipalities assess risk, plan mitigation, and track progress, while also reducing barriers to insurance market participation (Minano et al. 2024).

A Canadian CRS must reflect institutional realities, particularly the role of provinces in setting planning frameworks. Coordination among federal, provincial, and municipal actors will be essential to avoid duplication, streamline compliance, and ensure incentives reinforce rather than contradict other adaptation programs. Fortunately, the metrics used in property insurance are largely standardized across the country, meaning a CRS will require limited need for harmonization across jurisdictions. As a result, funding from federal or provincial mitigation programs (e.g., Disaster Mitigation and Adaptation Fund) can easily be recognized as credits.

Moreover, the program must avoid incentivizing development in high-risk areas, a concern raised in the U.S. context (Sadiq et al. 2020). Reforms should include safeguards against subsidizing new construction in flood-prone zones. Instead, rewards should favour actions such as strategic retreat, nature-based solutions, and land-use restrictions that align with long-term resilience goals (Cottar et al. 2021; Raikes et al. 2023). These actions also align with recent reforms to the Disaster Financial Assistance Arrangements that require mitigation to qualify for future payments (Public Safety Canada 2025).

POLICY RECOMMENDATIONS

The preceding analysis highlights both the promise and the limitations of adapting the U.S. Community Rating System (CRS) for the Canadian context. While the CRS model has demonstrated success in encouraging local flood mitigation and reducing insurance claims, it also reveals gaps in equity, capacity, and administrative feasibility that must be addressed for effective Canadian implementation. The following policy recommendations are designed to translate this analysis into actionable strategies that support inclusive, evidence-based, and fiscally sustainable flood risk governance in Canada.

1. Support equitable participation.

Provide capacity-building grants, technical assistance, and simplified application pathways to enable small and under-resourced municipalities to engage with the program. These supports should be designed to reduce administrative burdens and address gaps in technical expertise, especially in rural and Indigenous communities. For example, the CRS could identify opportunities for innovative forms of insurance such as parametric coverage to address underinsurance among tenants or Indigenous communities. Equitable access will help ensure that flood resilience is not limited to well-resourced jurisdictions and that vulnerable populations receive the protection and benefits they need. Notably, the Government of Canada has developed a Canadian Index of Social Vulnerability to target policies that support equity-focused risk reduction (Statistics Canada 2025).

2. Create a national flood data platform.

Develop an open-access, climate-adjusted geospatial risk system to guide local planning, insurance pricing, and CRS crediting. This platform should integrate data from high-resolution flood hazard models, climate projections, and socioeconomic vulnerability data. Investments by federal and provincial adaptation programs could be incorporated into the platform to underpin tangible offsets in insurance premiums. The platform could encourage participation in various ways, such as by showing premium discounts to highlight the economic benefits and recognizing participating communities to strengthen reputational incentives. A national platform would enhance transparency, reduce data fragmentation, and empower all levels of government to make informed, evidence-based decisions about risk reduction and adaptation investments.

3. Reward meaningful, inclusive mitigation.

Design point systems that prioritize evidence-based, equity-enhancing activities, such as retrofits in low-income neighbourhoods or Indigenous-led floodplain stewardship. The categories and weightings of the various CRS activities should be calibrated carefully to target specifically Canadian policy objectives and recognize innovative, community-driven solutions that align with cultural practices. Specifically, the program should acknowledge diverse worldviews, especially those of Indigenous communities and newcomer groups, that reflect deeper relationships with land and water and governance structures that differ from conventional Western risk management models. In practice, this might mean rewarding activities such as nature-based solutions aligned with traditional ecological knowledge, innovative public awareness activities that use culturally resonant forms of communication, or community-led relocation that preserves cultural cohesion and identity.

4. Align federal and provincial frameworks.

Ensure CRS incentives complement provincial land-use policy, disaster assistance eligibility, and infrastructure funding to maximize coherence. This alignment will reduce policy fragmentation, improve administrative efficiency, and enhance the uptake of risk reduction practices at the local level. Collaborative governance structures and joint implementation guidelines should be established to ensure consistency across jurisdictions and promote shared responsibility in flood risk management.

CONCLUSION

A Canadian Community Rating System, thoughtfully adapted from the U.S. model, has the potential to align insurance incentives with proactive local mitigation and build systemic resilience in the face of escalating flood risk. While promising, the success of such a program will depend on its ability to avoid equity pitfalls, overcome technical barriers, and foster inclusive governance. With careful design and sustained political support, a Canadian CRS can complement the federal flood insurance program by embedding incentives that reward—not just insure—community resilience.

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