

CELEBRATING LOCAL LEADERSHIP

Evidence that our climate is changing is now “unequivocal” according to the Intergovernmental Panel on Climate Change (IPCC), the world’s leading forum for assessing and communicating current knowledge about climate change. In particular, extreme rainfall is expected to increase in frequency and severity. ICLEI, the leading forum for local governments to promote sustainability, found that the most important impacts of climate change identified by member communities around the world are i) increased storm water runoff and ii) changes in demand for storm water management. The Institute for Catastrophic Loss Reduction (ICLR) is a world-class disaster risk reduction research centre at Western University. Actions taken by ICLR include work with local governments and other stakeholders to identify best practices for managing the risk of loss and damage from sanitary and stormwater flooding. In this book, we provide 20 case studies of local leadership across Canada to address the growing challenges from waste and stormwater management associated with extreme rainfall.

A comprehensive local plan to manage extreme rainfall should include actions to enhance municipal infrastructure and also plans to involve property owners with waste and stormwater management. ICLR estimates that preventable damage to homes and infrastructure in Canada as a result of extreme rainfall presently exceeds \$2 billion a year. Indeed, urban flooding has recently grown to become the leading cause of preventable damage to homes. Moreover, climate change is expected to significantly increase the frequency and severity of extreme rainfall across Canada.

Preventable damage to homes and infrastructure will continue to grow unless we adapt our current practices and confront the risks associated with extreme rainfall. Best practices for building and maintaining effective waste and stormwater infrastructure should include an evaluation of the expected intensity, duration and frequency of rainfall events based on historic local experience combined with an assessment of the change in the climate during the expected lifetime of the infrastructure.

ICLR has conducted detailed climate assessments for communities like London and offers an assessment tool that local officials can apply in any community across Canada. Engineers Canada has developed the Public Infrastructure Engineering Vulnerability Committee (PIEVC) engineering protocol for local governments to guide their efforts to build and maintain waste and stormwater infrastructure in a changing climate. And the Insurance Bureau of Canada is testing MRAT (Municipal Risk Assessment Tool) in three communities across the country seeking to provide a tool for local governments to reduce the risk of basement flooding.



Figure 1: Extreme rainfall event in Ottawa in 2006 causing sewer overflow.
(Source: City of Ottawa)

ICLR is a leader in working with local governments on strategies to involve property owners in the management of waste and storm water to reduce the risk of damage from extreme rainfall. The Institute has identified best practices for protecting homes, like the installation of backwater valves and sump pumps, landscaping and downspout disconnection to direct storm water to permeable surfaces and away from the sewer system, and regular inspection of storm laterals. Actions taken on private property are essential to manage the inflow and infiltration of rainwater into municipal wastewater systems. Legislative authority and economic considerations show that the greatest scope for local action involves the regulation of new development. Fortunately we also find many examples of financial incentives, public outreach programs and regulatory initiatives that have been successful in convincing existing homeowners to participate in actions to reduce risk.

This book provides 20 case studies of local leadership working to reduce the risk of loss and damage from extreme rainfall. Most of the identified communities have a comprehensive strategy in place but we report on only one element of their overall effort. These case studies were chosen because the actions are consistent with best local practices identified by the Institute for Catastrophic Loss Reduction and they can be applied in most other communities across the country. There is a well-established science foundation for local action, and many communities have begun to lead the way to turn scientific research into local action. Most loss and damage from extreme rainfall is preventable through local actions to manage waste and stormwater infrastructure combined with homeowner participation to protect their property. We are pleased to celebrate these examples of local leadership.



Source: ICLR