

NOVEMBER 2016

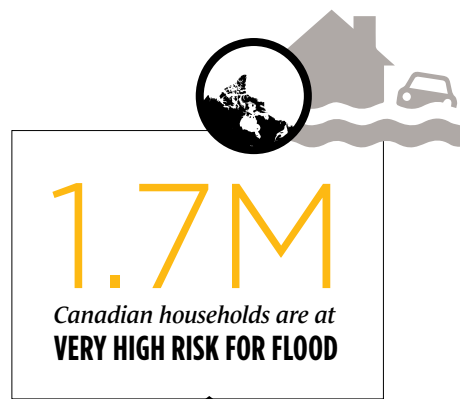


# partners for action

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# water damage



The economic, social, and environmental costs of flooding in Canada are painfully high and rising, but Partners for Action (P4A), a new applied research network, is giving Canadians reason for hope.

Damage from extreme weather has cost taxpayers and insurers more than \$12B since 2004. And the situation is only growing worse. Canada's Parliamentary Budget Officer anticipates the price of disaster recovery could exceed \$12 billion in the next five years alone.

But the impact of flooding is about more than just dollars and cents. Floods can devastate entire communities, causing injury (psychological and physical), loss of life, and widespread displacement. In the wake of a flood, it can take a community many years to fully recover.

The unavoidable reality is that climate change is altering weather patterns, and making intense rainfall more common. As a result, damaging floods are occurring with increasing frequency. Wild, unpredictable weather is the new normal.

Partners for Action (P4A) was created to address this urgent problem. We are an applied research network based out of the University of Waterloo's Faculty of Environment, with seed funding support from The Co-operators and Farm Mutual Reinsurance Plan. Our goal is simple: to protect the health and prosperity of Canadians by building resiliency to flooding.

# DIRECTOR'S MESSAGE



# stemming the tide

P4A is starting conversations and driving action to defend Canadians against the impact of flood.

Water-related damage is now the leading cause of disaster and recovery costs in Canada.

Yet, distressingly, Canadians remain largely uninformed about the risk that flooding poses to their lives and livelihoods. Many homeowners believe insurance and government recovery assistance will cover flood damage, when in fact, they rarely do. And, with nearly 1.7 million Canadian households at high risk for flooding, Canadians cannot afford to ignore this threat any longer.

In 2013, The Co-operators and the University of Waterloo took action to address this urgent problem. We undertook research to analyze the current state of flood resiliency in Canada, and to explore what was needed to further the discussion on flood insurance in the Canadian marketplace. This initial work led to the 2015 launch of P4A, an applied research network to advance flood resiliency in Canada. Farm Mutual Reinsurance Plan joined as a founding partner in the summer of 2015, and a new Director was hired starting in the fall of 2015.

P4A believes that a national conversation about flood resiliency is desperately needed. A conversation that brings together stakeholders from across the country, generates new, applied knowledge, forges collective resolve, and spurs coordinated action.

In just a short time, P4A has already accomplished a remarkable amount.

- » We have released a major research report about what is needed to better understand the impacts of flooding on our communities and the state of flood resiliency in Ontario, advancing our understanding of the issues involved in flooding;
- » We established a diverse network of stakeholders and partners from across the country, with 120 organizations (160 members) to date;
- » We launched a media campaign and garnered coverage from local media outlets; and
- » We participated in and hosted numerous conferences and workshops, with the aim of forging partnerships and creating awareness about flood resiliency, allowing us to share the results of our research and extend our network.

While we can't stop the next big flood from occurring, we can work together to better understand our strengths and weaknesses, and to help our communities grow stronger, more connected, and more resilient.

In the following report, we document P4A's early achievements and our plans for the future. We hope that you are as excited about our progress and optimistic about our future as we are.

**» SHAWNA PEDDLE**  
DIRECTOR, PARTNERS FOR ACTION  
UNIVERSITY OF WATERLOO

# leading the way

P4A's collaborative approach will help Canadians weather the storm.

Climate change is exposing our communities to the havoc of extreme weather, and this exposure is projected to intensify in the future — even if we reduce greenhouse gas emissions today. That's why we must focus our efforts on both mitigating and adapting to climate change.

Fortunately, we are at a unique juncture in history when organizations of all kinds — from businesses to universities, to non-governmental organizations, to all levels of government — are uniting efforts to address the climate crisis. We've waited a long time for this moment to come, and now that it's here, there is no time to waste.

P4A is a bold and visionary example of cross-sector collaboration to address urgent climate challenges. It harnesses the expertise and experience of a diverse group of stakeholders to achieve ambitious yet attainable goals.

At the University of Waterloo, we have extensive, nation-leading research strength in climate change adaptation, a proven track record of academic-industry-government collaboration, and a dynamic culture of innovation and entrepreneurship. We could not be prouder to be part of P4A, and we are incredibly grateful for the support of our founding partners, The Co-operators and Farm Mutual Reinsurance Plan.

We are committed to lead this initiative in all its facets — from fostering dialogue among our network of partners, to conducting cutting-edge research, to clearly communicating our findings with Canadians, to training the next generation of leaders and change makers.

The Faculty of Environment is eager and excited to offer our expertise to P4A, as together we build a climate-resilient Canada.

**>>> JEAN ANDREY**  
CHAIR, PARTNERS FOR ACTION ADVISORY COMMITTEE  
DEAN, FACULTY OF ENVIRONMENT  
UNIVERSITY OF WATERLOO



*the 2013 southern  
Alberta flood cost  
taxpayers and  
insurers over*

**\$6B**



## ADVISORY COMMITTEE MEMBERS

- » **JEAN ANDREY** (Chair) (Waterloo, ON)  
Dean, Faculty of Environment, University of Waterloo
- » **ROB WESSELING** (Guelph, ON)  
President and Chief Executive Officer, The Co-operators Group  
(effective December 1, 2016)
- » **STEVE SMITH** (Cambridge, ON)  
President and CEO, Farm Mutual Reinsurance Plan (FMRP)
- » **BETH CROSBIE** (St. John's, NL)  
Immediate Past President and current Atlantic Regional Director,  
Canadian Real Estate Association, and International Director,  
Board of the US National Association of REALTORS
- » **DAVE MURRAY** (Victoria, BC)  
President, Canadian Water Resources Association (CWRA)
- » **IRVING LEBLANC** (Ottawa, ON)  
Assembly of First Nations — Special Advisor —  
Safe, Secure and Sustainable Communities
- » **MATTHEW GODSOE** (Ottawa, ON)  
Manager, Research, Public Safety Canada
- » **CATHY MANIEGO** (Edmonton, AB)  
Executive Director, Resilience and Mitigation,  
Alberta Environment and Parks
- » **TOBY HEAPS** (Toronto, ON)  
CEO and Co-founder, Corporate Knights
- » **WOLF KELLER** (Calgary, AB)  
Chair, Expert Panel on River Flood Mitigation, and  
Former Director of Water Resources, City of Calgary
- » **SHAWNA PEDDLE** (Waterloo, ON)  
Director, Partners for Action, University of Waterloo



“As a co-operative insurer, our business exists to provide financial security for Canadians and Canadian communities. Flood damage is one of the most significant risks to this security today. Yet the challenge of building flood resiliency is so much larger than any one industry, sector, or level of government. **P4A is creating an environment where we can clearly understand the risks of flooding and take action to minimize them.**”

— **ROB WESSELING**, President and Chief Executive Officer,  
The Co-operators Group (effective December 1, 2016)

# educating canadians

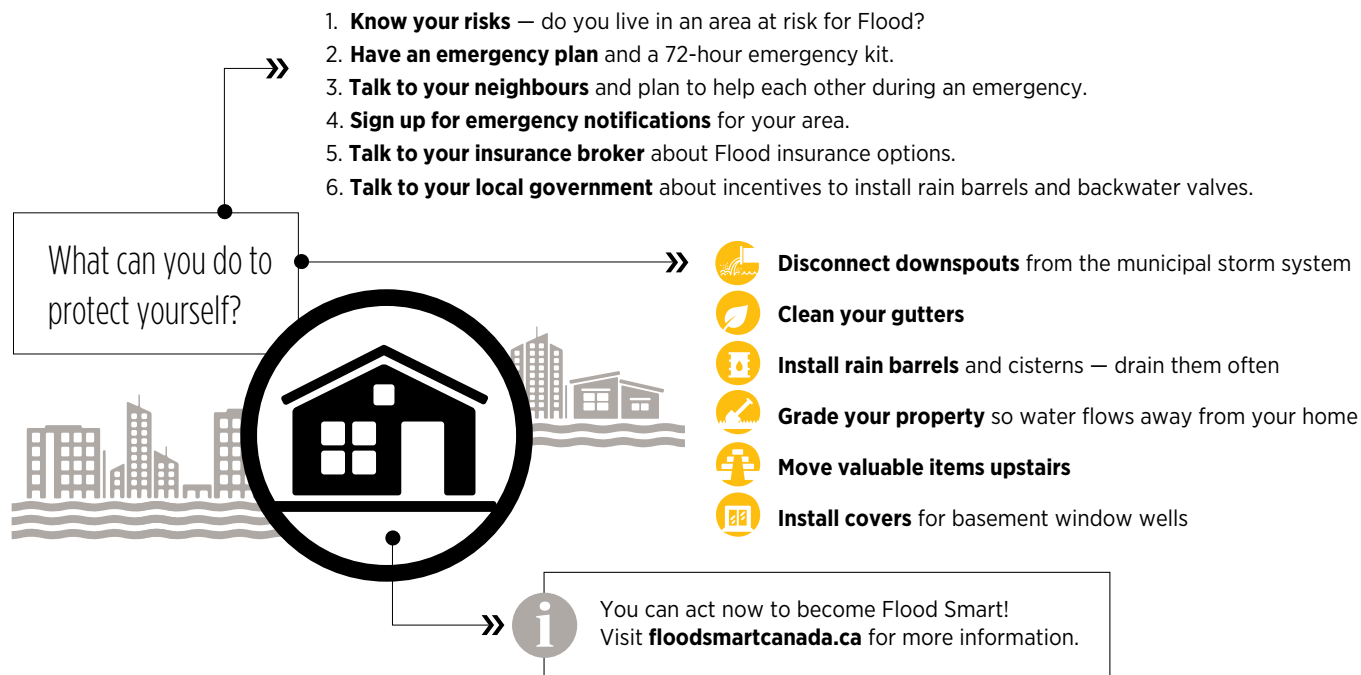
P4A is using a variety of channels to spread the word and raise awareness about flood resiliency.

Canadians need to understand the risks that flooding poses to their homes, businesses, and communities, so they can take action to protect themselves. Yet, even in the wake of the high-profile flooding in Toronto and Calgary, many Canadians remain in the dark about the practical steps they can take to minimize the impact of floods and transfer risk.

P4A has been active in its early days to fill this information gap.

-  **Riverine** | heavy rainfall or spring snow melt causes rivers or creeks to overflow.
-  **Pulvial** | heavy rainfall in neighborhoods or downtowns can be too much for storm systems to handle, or in rural areas can cause flood because the ground is frozen or saturated and can't absorb rain fall.
-  **Groundwater** | heavy rainfall causes underground water levels to rise above ground level and rain over land.
-  **Ice Jam** | river ice breaks and jams in spring causing rivers to backup and flood.
-  **Storm Surge** | heavy winds force waves inland from a large water body (Lake or Ocean).
-  **Tidal wave/Tsunami** | An earthquake offshore forces a large wall of water onshore.





**The Director of P4A has participated in a number of conferences, including the following:**

- » Association of Municipalities of Ontario Southwestern Ontario Municipalities Conference (Speaker)
- » ICLEI Local Governments for Sustainability Webinar Series: Building Partnerships and Investing in Community Flood Resilience (Speaker)
- » ICLEI Workshop: Bridging the Implementation Gap (Participant)
- » ICLEI Workshop: Sharing Outcomes and Making Strides (Participant)
- » Cat IQ Canadian Catastrophe Conference (C42016) (Participant)
- » GLOBE 2016 (Participant)
- » Ontario Mutual Insurance Association Annual Convention (Speaker)
- » Adaptation Canada 2016 Symposium (Speaker)
- » WCCD and UNISDR Standardized City Indicators for Insurability and Resilience North American Stakeholder Consultation Workshop (Speaker)
- » Flood Risk and Insurance Canada (Speaker)
- » Livable Cities Forum (speaker)
- » CRHNet Symposium (speaker)

**P4A's Director also serves on the steering committees for the following initiatives:**

- » National Network for Municipal Flood Resiliency
- » Livable Cities Forum 2016
- » CatIQ's Canadian Catastrophe Conference (C42017)
- » RAIN Smart Neighbourhoods

The Director of P4A pursues media opportunities whenever possible, especially associated with the release of reports and events. P4A also hosts two websites (P4A's own site [uwaterloo.ca/partners-for-action](http://uwaterloo.ca/partners-for-action) and a site dedicated to connecting stakeholders and providing relevant information on understanding risk and actions to reduce that risk [floodsmartcanada.ca](http://floodsmartcanada.ca)) and a Twitter page to exchange information and publicize events and results amongst our diverse stakeholders. In addition, we will continue to work with our partners to create and share programs and easy-to-digest materials for residents, informing them about what they can do to reduce flood risks for themselves, their families, and their communities.

**KNOWLEDGE  
CREATION**



# programs and research

P4A's innovative reports are shedding light on the steps needed to build a resilient Canada.

Since our initial work with The Co-operators, P4A has been conducting much-needed research related to all aspects of flood resiliency in Canada. This work has yielded many new and sometimes surprising insights into the challenges and issues confronting our efforts to better manage flood risk in our communities. In addition to creating knowledge, we are committed to translating this knowledge, so that decision-makers and Canadian citizens are empowered to create real change.

Early research commissioned by The Co-operators at the University of Waterloo identified 3 "winning conditions" for the reduction of flood risk, which form the guiding principles for P4A:

- a) Canadians must understand the risk that flooding presents to their homes, businesses, and communities;
- b) Canadian decision-makers must use their understanding of flood risk to make sound adaptation decisions; and,
- c) Canadians must have access to means to transfer the risk associated with flood damage that remains after they have engaged adaptation.



**OVER THE NEXT 5 YEARS**  
*the total costs for floods  
are estimated to reach*

**\$12.15B**

We are working now to build on this foundation with further research, and will continue to share the results with our partners and the public. In particular, we will pursue programming, networking, and research under the following themes:

## NETWORKING AND SHARING IDEAS

- » Effectively engage our stakeholder group
- » Host workshops and webinars to share information amongst members of the Stakeholder Group
- » Establish and effectively engage members of the National Network for Municipal Flood Resiliency
- » Continue to speak and participate at relevant national conferences
- » Curate [www.floodsmartcanada.ca](http://www.floodsmartcanada.ca) as a public information platform and secure networking site for approved members of our Stakeholder Group

## RESEARCH

- » We recently released “At the Front Lines of Flood: How Prepared Are Ontario Communities?” based on interviews with 18 municipalities, 2 First Nation communities, and 15 Conservation Authorities. The report highlights how flooding is a major source of socio-economic vulnerability in our communities, placing unnecessary strain on municipal resources. While communities are working to assess and address vulnerabilities, there is a perceived gap in leadership from the provincial and federal governments related to climate science, funding, and technical support to our municipal staff. The report calls on Public Safety Canada to establish and enforce a national standard for flood-risk management, and on the Ontario government to provide more support to our municipalities, in addition to increasing funding for our Conservation Authorities. All levels of government must work together to better understand flood risk, and communicate this risk effectively to Canadians, to allow homeowners to act to reduce their own personal risk.
- » We are currently finalizing a report focusing on survey results of 2,400 Canadians, asking about their understanding of flood risk and responsibility

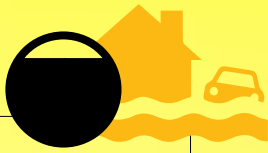
for protection and recovery should a flood event happen. The results from this work shed light on a national information gap on flood risk, and a desire for disclosure of risk on both a community and household level. Canadians want to know their risks, and they acknowledge that homeowners, governments and businesses share responsibility in preparing for and recovering from flood. These findings will help shape our communications efforts going forward, as we now better understand the information gap that exists.

- » We will incorporate social vulnerability and flood risk to help municipalities better target community resilience and flood mitigation efforts.
- » We will incorporate climate change scenarios in flood risk modelling and mapping, and use these updated risk maps to better understand policy opportunities to reduce personal and community flood risk.
- » We intend to partner with First Nation communities to better understand their unique flood risks and opportunities to improve emergency response and resiliency.

## PROGRAMMING

- » RAIN Smart Neighbourhoods — partner with REEP Green Solutions, the City of Kitchener, and Green Communities Canada to help homeowners transform their neighbours to be more beautiful, flood-resistant, and sustainable.
- » Partner with local grassroots initiatives to develop programming aimed at building community resilience from the ground up.
- » Work with national and international partners to develop tools to quantify resilience and demonstrate the value of adaptation.
- » Partner with stakeholders and municipal staff to develop programs and tools aimed at educating municipal staff and councillors about flood risks, and the benefits of adaptation.





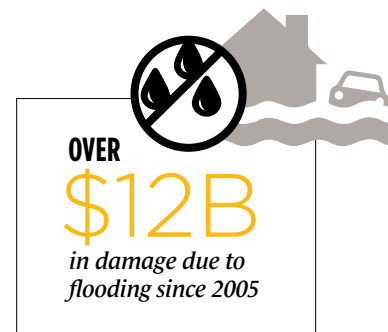
**FLOODS REPRESENT**

**75%**

*of federal disaster  
payments annually*



# building a network



A diverse group of stakeholders is coming together to embrace a coordinated approach to managing the risks of flooding.

Adapting to extreme weather is a complex and multifaceted challenge. There are no 'silver-bullet' solutions. To make real progress, we need a diversity of perspectives, a culture of collaboration, and a lively and creative exchange of ideas.

P4A has worked diligently to recruit a diverse and representative team of stakeholders from across the country. This recruitment is ongoing, but we have already enlisted over 120 organizations (see map on next page).

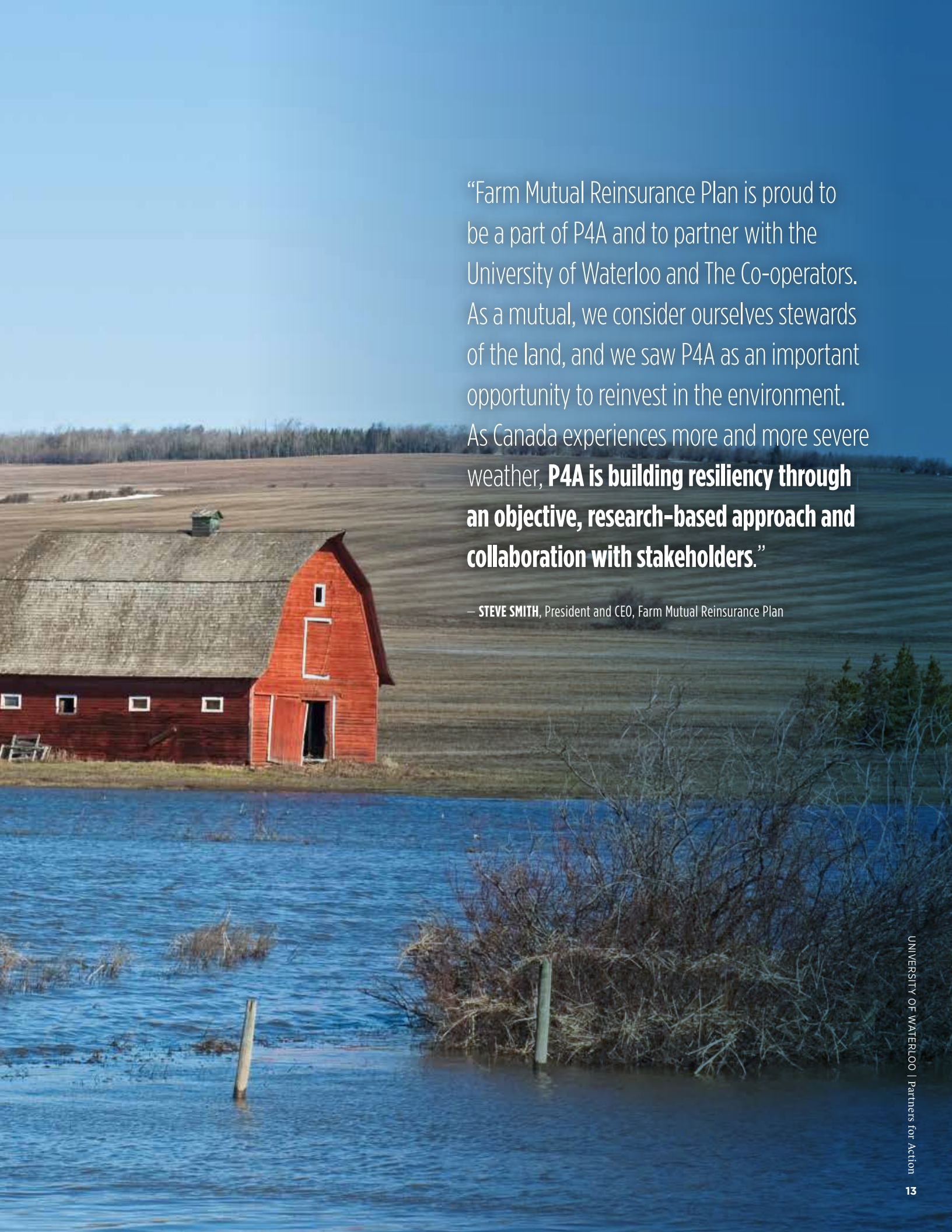
P4A has built this network by reaching out in various ways.

Members are drawn from academia, the insurance industry, non-governmental organizations, business and professional organizations, industry and the business community, and all four levels of government (municipal, provincial, federal and indigenous). In addition, personal invitations were directed at individuals with previous exposure to P4A, or who were involved in flood initiatives through their professional or personal affiliations.

The Director continues to participate in conferences, speaking engagements, and workshops to promote P4A and invite membership. A number of stakeholder group members were also directly involved in the 2014 P4A roundtable, which brought together approximately 60 participants to identify the winning conditions for reducing flood risk in Canada.

Finally, P4A is partnering with the City of Calgary, ICLEI Local Governments for Sustainability, and the Canadian Water Resources Association towards formation of the National Network for Municipal Flood Resiliency, which will further broaden the reach of stakeholders interested in municipal flood resiliency on a national scale.

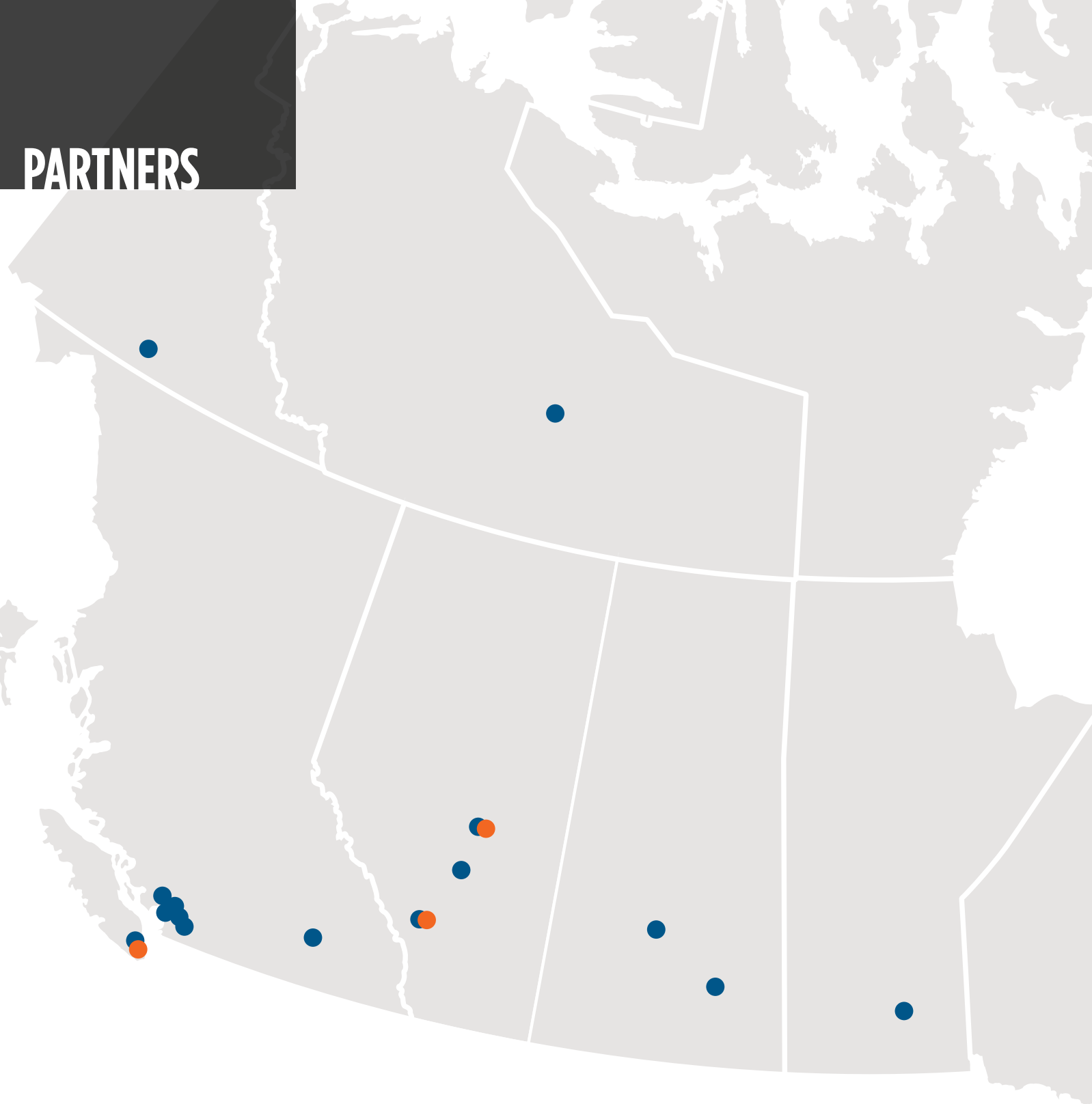
While our network of stakeholders is strong and growing, we need representation from all sectors, and we invite those with a common goal of preparing our communities for flood resiliency to join our Stakeholder Group.



“Farm Mutual Reinsurance Plan is proud to be a part of P4A and to partner with the University of Waterloo and The Co-operators. As a mutual, we consider ourselves stewards of the land, and we saw P4A as an important opportunity to reinvest in the environment. As Canada experiences more and more severe weather, **P4A is building resiliency through an objective, research-based approach and collaboration with stakeholders.**”

— STEVE SMITH, President and CEO, Farm Mutual Reinsurance Plan

# PARTNERS



- P4A Advisory Committee
- P4A Stakeholder Group



# our partners from across the country



# P4A's goals

We have the science and the tools to reduce flood risk for Canadians, now.

Our goals are to help communities and individuals:

## **UNDERSTAND THEIR FLOOD RISK**

- » Flood and risk mapping
- » Risk and vulnerability assessment
- » Infrastructure assessment

## **HAVE ACCESS TO TOOLS**

- » Policies, plans, procedures
- » Cost-benefit of action versus inaction
- » Lot-level personal actions
- » Insurance

## **BUILD RESILIENCY**



# looking to grow

Collaborative action to create flood resiliency in Canadian communities requires the participation of municipal, provincial, federal, and aboriginal governments, non-governmental organizations, financial institutions, business and industry, and our citizens.

We continue to expand our network of partners and stakeholders, so please share our message with individuals and organizations interested in promoting climate resiliency.

Together, we can build a better future.



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