

SUMMARY

The Case for Natural Infrastructure in the Canadian Prairies

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Constrained finances, fragile water resources, and catastrophic weather events are driving the need to rethink water infrastructure—for today and for future generations. With aging and deteriorating water infrastructure across the Canadian Prairies region, natural infrastructure can offer a cost-effective and innovative solution.

But what is natural infrastructure, and how can it help? The International Institute for Sustainable Development (IISD) sat down with key experts across the region and reviewed the latest literature to explore these pressing questions and determine what next steps are required to take natural infrastructure from novel to normal in Canada's Prairies.

Here's the point:

- **Natural infrastructure is a critical solution to the infrastructure gap** to treat and supply clean, fresh water to the millions who live in Canada's Prairies, as well as to protect them from natural disasters.
- **Canada's Prairies are highly vulnerable to floods, droughts, wildfires, and other impacts from climate change**, but the region also hosts unique ecosystems and opportunities for scaling up natural infrastructure.
- **We need more—and soon.** While there are leading examples of natural infrastructure to support water management, grey water infrastructure remains the default, and we need the broad adoption of natural infrastructure options to reap the benefits it can provide.
- **All levels of government need to commit to natural infrastructure solutions.** To achieve this, more must be done to ensure accessible funding and implement policies that enable natural infrastructure projects in the Canadian Prairies.



Why natural infrastructure?

Natural infrastructure is a way to plan and work with nature to meet infrastructure needs. Natural infrastructure can be a conserved ecosystem, a restored ecosystem, or even a nature-based engineered feature. Examples of natural infrastructure range from protecting wetlands to manage water flow to restoring riparian areas to reduce pollutants entering streams to installing green roofs to manage excess rainwater. Natural infrastructure is a low-cost solution that can solve multiple interconnected challenges with a range of social, economic, environmental, and cultural benefits. These benefits include protecting communities from flooding and drought, providing reliable water supplies, treating stormwater and wastewater, and helping biodiversity and carbon sequestration, to name just a few.

Why focus on Canada's Prairies?

The Canadian Prairies contain over 80% of Canada's farmland and are home to major cities and hundreds of small and medium-sized communities—all of which contribute significantly to Canada's economy. Urban, rural, and Indigenous communities face mounting water risks and climate change impacts in the context of an already limited and variable water supply. Canada's Prairies have also lost and continue to lose key natural assets, including a 40%–70% loss of wetlands by area due to agricultural drainage and urban expansion.

Working with the many processes that nature provides—from water filtration to retention—can deliver much-needed additional infrastructure services to communities while also supporting the unique ecosystems across the Prairie region.

Where are we now?

Grey water infrastructure (such as dams, ditches, and pipes) is still the default option across the region. But with aging grey infrastructure—the funding for which has not kept pace with deterioration—and the increasing need to mitigate and adapt to climate-related water events, now is the time to shift our focus.

Natural infrastructure typically costs less to implement, is easier to maintain, and provides more societal benefits—it is the solution we need to bridge this infrastructure gap.

Hundreds of water-related natural infrastructure projects across the Prairie provinces are driven by community members, municipal local government leaders, or conservation organizations, showing that this approach works. But a renewed focus on water management will be critical to ensuring the long-term prosperity of life on the Prairies.



What needs to happen next?

There are many promising opportunities to scale up natural infrastructure projects in Canada's Prairies. Moving forward, broader adoption must consider regional or watershed-scale efforts, equitable outcomes, and the capacity needed to implement projects. Bearing this in mind, four major next steps to growing natural infrastructure on the Prairies are the following:

- 1. Strengthening the business case for natural infrastructure.**
The water management community needs to make a clear case for why natural infrastructure is a cost-effective and impactful solution that provides a clear return on investment.
- 2. Encouraging local governments to adopt more natural infrastructure projects.**
We have to start locally—and that means supporting and working productively with municipalities of all sizes across the spectrum of rural and urban communities to help build capacity.
- 3. Enabling access to funding for the implementation of natural infrastructure.**
We need readily accessible and sustainable funding for those who want to implement natural infrastructure projects to benefit their local communities and the environment. Funding is especially important for smaller and rural communities with less capacity but demonstrated need.
- 4. Making sure that natural infrastructure is enabled by policy and championed by all levels of government.**
None of this is possible without policies across government and industry that allow the swift and effective implementation of natural infrastructure projects.

To learn more, please see our report:

State of Play: Natural infrastructure across the Canadian Prairies region

www.iisd.org/publications/report/state-of-play-natural-infrastructure-canadian-prairies

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NATURAL INFRASTRUCTURE FOR WATER SOLUTIONS

Natural Infrastructure for Water Solutions (NIWS) is a 5-year initiative (2022 to 2026) led by IISD to scale up NI across the Canadian prairies (Manitoba, Saskatchewan, and Alberta). The NIWS initiative aims for natural infrastructure to be well-understood, adopted, financed, and enabled by policy.

While science and policy are the foundation for this work, IISD is also taking a systems view—looking for opportunities and creative approaches to achieve real impact across the region, working with a network of champions, partners, and decision-makers.

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