

Natural Infrastructure for Water Solutions: ClimateWest Regional Workshop

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**Natural Infrastructure
for Water Solutions**

Why natural infrastructure?

The anticipated impacts of climate change, combined with a growing water infrastructure gap, **will strain the capacity of existing grey infrastructure** to provide urban and rural Prairie communities with reliable, clean water and protection in the **face of mounting climate risks**.

Natural infrastructure is increasingly recognized as a strategy to bridge the infrastructure gap and strengthen regional resilience.





Engineered Ecosystems

Engineering and constructing new ecosystems which incorporate ecosystem features to deliver infrastructure outcomes

Examples

Constructed wetlands, water retention sites, floating treatment wetlands, tree trenches, green roofs, and bioswales

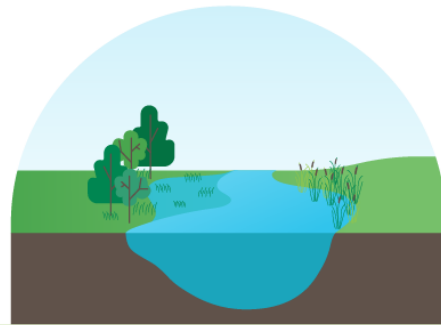


Restored Ecosystems

Restoring or enhancing degraded ecosystems to deliver infrastructure outcomes

Examples

Wetland, grassland, floodplain, and forest restoration, riparian buffers, and urban tree canopy



Conserved Ecosystems

Conserving existing natural ecosystems to prevent their loss and/or optimizing their function to enhance infrastructure outcomes

Examples

Wetland, grassland, floodplain, and forest conservation, riparian buffers, and urban tree canopy



Planning and working with nature to meet infrastructure needs

A resilient infrastructure mix

Integrating natural and grey infrastructure for better outcomes





Natural Infrastructure for Water Solutions

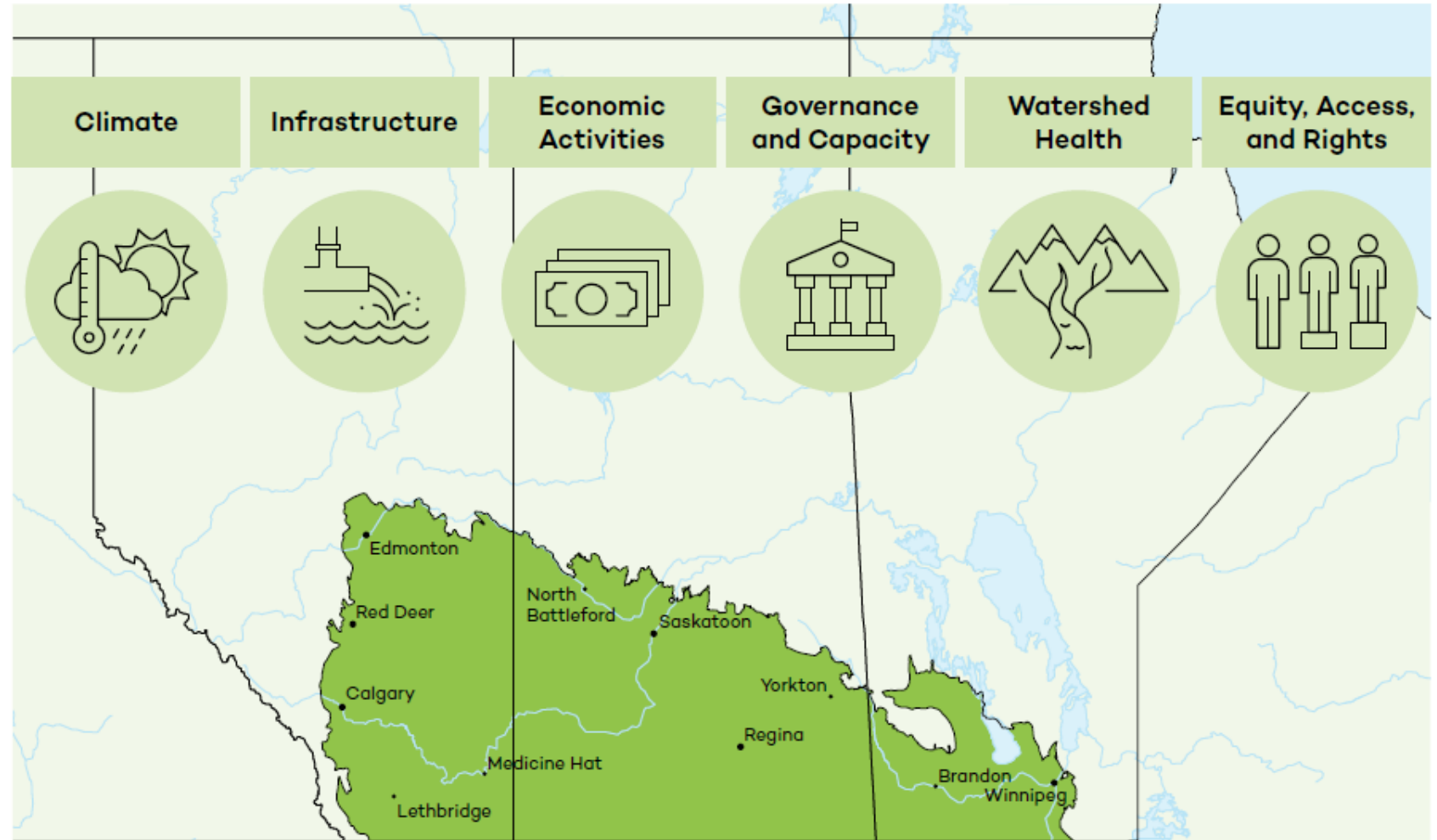
Natural Infrastructure for Water Solutions (NIWS) is a five-year initiative (2022 to 2026) led by IISD to scale up NI across the Canadian prairies (Manitoba, Saskatchewan, and Alberta). The NIWS initiative aims for NI to be **well-understood, adopted, financed, and enabled by policy**.

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.

“Taking natural infrastructure from novel to normal.”

The Canadian Prairies

- 80% of Canada's farmland
- 18% of Canadian population
- 40-70% wetland loss
- Depreciation of water-related (grey) infrastructure outpaced investments by 3 billion (2017-2021)



State of Play Report

Provides a birds-eye view of the state of NI implementation across the prairies, specifically as it relates to water management and resilient water infrastructure.

Informed by desktop research and interviews (17).

- 🔹 Nascent but growing momentum
- 🔹 Some interesting projects and initiatives, but grey water infrastructure is the go-to
- 🔹 Prioritize the conservation and restoration of ecosystems due to the ongoing loss of natural assets
- 🔹 Need to invest in people and organizational capacity



NI in Alberta

- Calgary and Edmonton are leading the way!
- Low Impact Development
- Active watershed management
- Early attempts at integrating NI into municipal planning

PRAIRIE CHALLENGES
Climate - Infrastructure - Economic -
Watershed Health - Governance and Capacity -
Equity, Access, and Rights

Sample Alberta NI projects



The City of Edmonton is promoting rain gardens, shallow basins that hold runoff to help properties reduce community flooding.



Nature Conservancy of Canada has conservation protection on 35,000 hectares in Waterton Reservoir Watershed.



The Cows and Fish non-profit has worked across Alberta for 30 years in multiple riparian area restoration projects.

NI in Saskatchewan



The City of Saskatoon leading the NI way



Saskatoon green roofs program linked to stormwater management



No Wetland Policy to date



Lower watershed management capacity

PRAIRIE CHALLENGES
Climate - Infrastructure - Economic -
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Sample Saskatchewan NI projects



The City of Saskatoon is supporting green roofs to control storm water drainage and provide additional green spaces.



The Village of Avonlea's tertiary treatment wetland is improving the quality of water released to the Moose Jaw River Watershed.



The Dry Lake Drainage project restored 55 acres of wetland contributed by agricultural producers to support wetland habitat conservation.

NI in Manitoba



Active watershed management efforts



Collaborative Leadership Initiative



Conservation and GROW trusts



Water Management Strategy

PRAIRIE CHALLENGES
Climate - Infrastructure - Economic -
Watershed Health - Governance and Capacity -
Equity, Access, and Rights

Sample Manitoba NI projects



Ducks Unlimited Canada is restoring and conserving nearly 4,400 acres of private wetland and grassland, funded by the Conservation Trust.



Village of Dunnottar cleans wastewater using aquatic vegetation on five floating treatment wetlands in their secondary wastewater lagoon.



The City of Winnipeg is reducing stormwater runoff with naturalized stormwater ponds built by Native Plant Solutions, using native species.

Barriers to Scaling NI Across the Prairies

Despite some progress scaling up NI in recent years, there are several barriers to implementation:



Uncertainty around measuring performance and valuation

Accounting for societal benefits on private land



Grey infrastructure remains the go-to

Stretched capacity and limited expertise

Current procurement strategies



Funding requirements (“shovel ready”)

Developing project pipeline



Awareness and demand

Election cycles and administrative turnover

Limited watershed-scale coordination



Business case



Municipalities

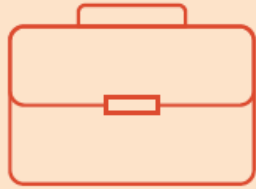


Finance



Policy

Natural Infrastructure for Water Solutions: Paths to Scale



**Strengthening the
business case**



**Supporting
municipal adoption**



**Mobilizing funding
and finance**



**Enabling policies
across scales**

Watersheds

Equity

Capacity

Cross-cutting lenses



Building Momentum

Connecting and supporting a growing network of **champions** and leaders across the prairies.





Stay tuned for future publications, webinars, and engagement.

Research:

- Economic Impact Study (2023)
- Funding & Financing for Prairie NI (2023)
- Benefits & Performance of NI

Engagement & Events:

- NIWS Fall webinars (2023)
- NI Forum (2024)

An aerial photograph of a river meandering through a lush green landscape. The river flows in a series of large, sweeping curves, creating a path through the fields. The surrounding land is a mix of vibrant green grass and some golden-brown patches, possibly from harvested crops. The sky is not visible, focusing the viewer's attention on the natural beauty of the river and its surroundings.

Thank You!

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