

Climate Action Primer Series

Using Nature-based Solutions for Climate Action

Flooding from seasonal and summer storm events, extreme heat, high winds, wildfires – these are hazards that are becoming more frequent and extreme in Manitoba due to climate change. These hazards pose risks to Manitoba’s businesses and their supply chains, so **taking action to build resilience and also minimizing the extent of global climate change through carbon reductions are paramount** to a healthy and resilient Manitoba economy, society, and environment. And nature-based solutions can help.

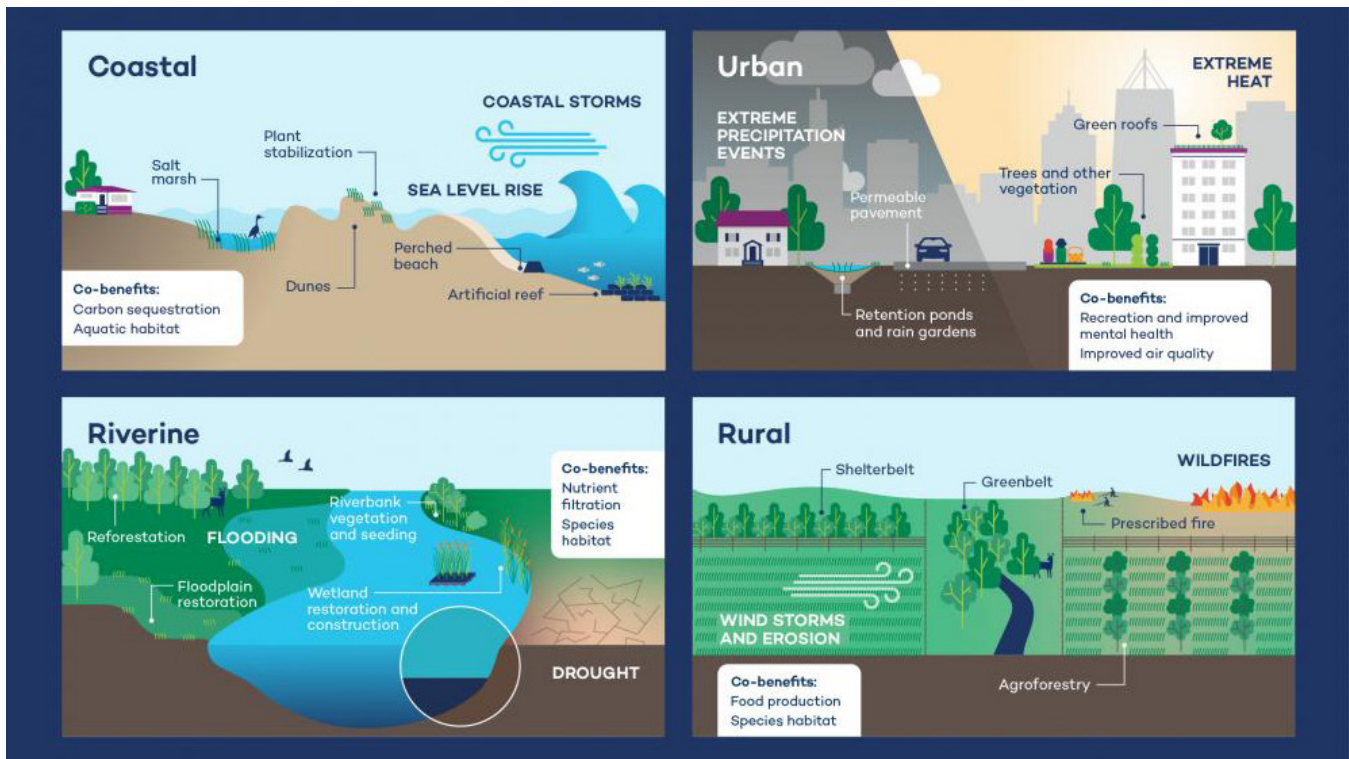


What are nature-based solutions and why are they important for Manitoba businesses?

Nature-based solutions is a general term used to describe the protection, restoration, and/or management of natural or modified ecosystems to provide social, economic, or environmental benefits. The term is often used interchangeably with other nomenclature including natural infrastructure, natural assets, and green infrastructure, each with certain defining characteristics ([Canadian Council of Ministers of the Environment, 2021](#)).

Examples include green roofs, engineered wetlands for flood protection and water filtration, trees planted for wind and fire breaks and reduction of urban heat, as well as natural assets used for delivering a variety of community services including wetlands, rivers, lakes, forests, fields, coastal marshes, dunes, and soils. There are a variety of nature-based solutions suited for different settings (see below).

The World Business Council for Sustainable Development (WBCSD) highlights that nature-based solutions can help companies harness the services that ecosystems offer as a substitute or complement to built or ‘gray’ infrastructure ([World Business Council for Sustainable Development, 2015](#)). Specifically, the WBCSD notes that natural infrastructure “may provide more benefits than gray infrastructure, while fulfilling the same function, being equally efficient, and providing the same level of performance”, and that **by investing in such nature-based solutions, businesses can reduce costs, improve operations, generate financial gains, and enhance their reputation.**



Source: IISD (2021)

Policy Context

Canada’s National Adaptation Strategy was released in 2022 and noted the following: “**Natural infrastructure solutions are increasingly seen as win-win investments** that support traditional infrastructure outcomes, such as stormwater management, and deliver valuable co-benefits to communities, such as climate change resilience, reduced pollution, and carbon sequestration” ([Gov. of Canada, 2022](#)).

From a provincial policy context, Manitoba’s 2017 Climate and Green Plan describes green and natural infrastructure as cost-effective options to provide more enduring resilience to extreme events ([Gov. of Manitoba, 2017](#)).

Examples of businesses taking climate action

Businesses and organizations across Manitoba and North America are using nature-based solutions and natural infrastructure to take action on climate change and sustainability. In many instances, businesses are collaborating with municipal governments to realize benefits for enhancing resilience to climate change and achieving carbon reductions. Here are a few examples.

Nature-based Solution	Case Example
Rain Garden and Rainwater Harvesting System	Calstone Inc. is a furniture manufacturer that installed a rain garden and rainwater harvesting system at its facility in Ontario to reduce runoff to the city storm sewer system (Toronto and Region Conservation Authority, 2020). Roof downspouts were connected to a system of Low-impact Development (LID) rainwater harvesting tanks and infiltration ponds. Approximately 1.8 million litres of rainwater annually are diverted from the city storm sewer system. As a vital co-benefit, the ponds also serve as a recreational area for its employees, providing physical and mental health benefits.
Low Impact Development for Stormwater Management	WSP Canada Group Ltd. was contracted to redesign John Hirsch Place in Winnipeg's Exchange District as the city's first woonerf – a living street for pedestrians and back-lane traffic and incorporating a low-impact design approach to reduce stormwater runoff (CityGreen, n.d.). Excess surface runoff flows into five naturalized catch basins and is dispersed into strata soil cells beneath the surface to hold and filter stormwater, removing pathogens, sediments and other particles. Microbes in the soil break down and absorb organic carbon, nitrogen and phosphorus. Rainwater and surface runoff is absorbed by tree roots and removed by evapotranspiration, reducing stormwater runoff before it enters the city's combined sewer system.
Engineered Wetland	Dow Chemical required upgrades to wastewater treatment processes at one of its Texas-based petrochemical facilities to remain compliant with U.S. Environmental Protection Agency (EPA) regulations. Rather than build a new wastewater treatment plant at an estimated cost of USD \$40 million, executives at Dow approved development of an engineered wetland with an initial start-up cost of USD \$1.4 million (Dow, 2018). Beyond achieving its intended performance for wastewater treatment, Dow's engineered wetland has delivered other environmental and social co-benefits. For example, energy consumption was reduced given that built infrastructure components such as pumps, lighting, and cooling and heating systems were not required. The natural infrastructure components have enhanced drought resilience for the system of wetlands in the area and support a variety of wildlife.

Tools for getting started with nature-based solutions for climate action

Using nature-based solutions in your business can be as simple as planting and maintaining trees around your facility or installing a green roof to provide a cooling effect during summer heat waves and thereby reduce air conditioning needs and sequester carbon from the atmosphere.

Depending on your specific needs for enhancing resilience or reducing carbon, there is likely a nature-based solution that can help you save money and at the same time deliver a range of benefits to your company and the community you operate in.

Benefit Accounting

What is it? Nature-based solutions and natural infrastructure can provide a wide range of co-benefits beyond addressing your primary needs. For instance, while your primary need might be to reduce the risk of flooding or as a means for enhanced stormwater management, water treatment, or coping with extreme heat, the ecosystems embodied in nature-based solutions and natural infrastructure can also deliver co-benefits such as carbon reductions and even recreation and enhanced aesthetics for improved physical

and mental health of employees and the public. Taking inventory of all the possible primary benefits and co-benefits, and then quantifying the physical and financial benefits and costs, will help you make the business case for taking climate action using nature-based solutions. **This approach is referred to as benefit accounting.**

How can I get started? The CEO Water Mandate of the United Nations Global Compact and the Pacific Institute have developed a three-step guide to help companies identify the benefits of nature-based solutions as well as to quantify them in physical and financial terms ([Brill et al., 2021](#)).

Benefit Accounting: Three-step Approach

Developed for the private sector, this 3-step guide helps companies identify, calculate, and value the benefits of nature-based solutions.



Source: <https://ceowatermandate.org/nbs/wp-content/uploads/sites/41/2021/03/guide.pdf>

Where can I go for more information? For training and guidance on using nature-based solutions, visit:

- [Natural Infrastructure for Enhancing Resilience to Climate Change](#) (Free webinar, slides, and handouts from Manitoba Climate Resilience Training and Engineers and Geoscientists Manitoba)
- [Dollars and Sense of Climate Change](#) (Free webinar and slides from Manitoba Climate Resilience Training)
- [The Business Case for Natural Infrastructure](#) (Guide from the Toronto and Region Conservation Authority)
- [The Business Case for Natural Infrastructure](#) (Guide from the World Business Council for Sustainable Development)
- [Natural Infrastructure for Water Solutions on the Prairies](#) (Resources from IISD)
- [Nature-based Infrastructure Global Resource Centre](#) (Resources from IISD)

The MCC Climate Action for Manitoba Business Initiative

Led by the Manitoba Chambers of Commerce (MCC), in collaboration with Novel Futures Corporation, the International Institute for Sustainable Development, and the Manitoba Environmental Industries Association, and with funding from the Government of Manitoba's Conservation and Climate Fund, the MCC Climate Action initiative builds awareness and capacity among Manitoba's small-and-medium sized enterprises (SMEs) in Assessing Climate Risk and Enhancing Resilience, Reducing Carbon Emissions via the Circular Economy; and Using Nature-based Solutions.

