Estimate of Natural Infrastructure Public Grant Funding in Canada and the Canadian Prairies

**IISD REPORT** 

**Natural Infrastructure** for Water Solutions Thomas Saleh Marina Puzyreva © 2024 International Institute for Sustainable Development Published by the International Institute for Sustainable Development

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# Estimate of Natural Infrastructure Public Grant Funding in Canada and the Canadian Prairies

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# **Key Messages**

Natural infrastructure is a cost-effective solution to meeting Canada's infrastructure needs that simultaneously addresses our climate, biodiversity, and other environmental, social, and economic priorities. There is an urgent need to design and implement more natural infrastructure projects in both urban and rural environments in Canada and increase funding for natural infrastructure.

This analysis estimated the amount of public grant funding directed toward natural infrastructure in Canada generally and across the Prairie provinces (Alberta, Saskatchewan, and Manitoba). It found the following:

- There is public grant funding available in Canada and the Prairies for ecosystem conservation, restoration, and engineered ecosystems, with one fund—the Natural Infrastructure Fund (NIF)—specially targeting natural infrastructure and hybrid infrastructure to create resilient and sustainable communities.
- 16 funds with a national scope analyzed in this study provide an estimated total of CAD 346.6 million annually toward natural infrastructure in Canada, with an estimated CAD 69.3 million reaching the Prairies.<sup>1</sup>
- In addition, nine provincially funded programs in the Prairies were estimated to contribute CAD 29.1 million annually toward natural infrastructure projects, for a **combined total of CAD 98.4 million consisting of both federal and provincial funding**.
- Four of the largest funds—the Green Municipal Fund (GMF), the Investing in Canada Infrastructure Program (ICIP) and the ICIP COVID-19 Resilience stream, and the Disaster Mitigation and Adaptation Fund (DMAF)—allocated 0.4%, 0.4%, 13.2%, and 8.7% of their funding toward natural infrastructure respectively, with only a fraction of this funding (between 10% and 30%) directed to the Prairies. However, their impact on natural infrastructure funding in the Prairies remains significant due to their large size.
- From looking at how much funding is directed by these four largest funding programs toward different types of natural infrastructure projects, restored ecosystems represent the largest portion of funding at just over 57%, followed by engineered systems at 41.1%. Conserved ecosystems represented only a small percentage (1.7%) of all natural infrastructure funding, in part because of the lower costs of conservation compared to ecosystem restoration or engineered ecosystems.
- As interest in natural infrastructure grows and more natural infrastructure projects are considered and implemented, the increased *dedicated* public funding streams that support natural infrastructure distributed in an equitable way across communities in need will be essential.

<sup>&</sup>lt;sup>1</sup> Based on an average annual funding amount for funds that were active in 2022.

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# 1.0 Context

**Natural infrastructure comprises conserved, restored, and engineered ecosystems** and features that deliver targeted infrastructure services, such as water and wastewater treatment, stormwater management, and flood prevention (Méthot et al., 2023). Some examples of natural infrastructure are

- naturalized stormwater ponds
- conserved and restored wetlands or grasslands slowing down and filtering stormwater runoff
- urban tree canopies protecting from heat waves and helping with stormwater infiltration
- floating treatment wetlands deployed in conventional stormwater ponds and in sewage lagoons to improve water quality.

Apart from water infrastructure benefits, these solutions can be designed to provide extra benefits, such as recreational opportunities and wildlife habitat enhancement.

Natural infrastructure projects are delivered by conservation organizations, landowners, First Nations, private companies, municipalities, and other government partners in both urban and rural settings and on both private and public land. While there are no specific estimates of natural infrastructure funding needs in Canada, the existing estimate of the funding gap for conservation<sup>2</sup> in Canada is USD 15 billion–20 billion/year (Kosciolek et al., 2020), while the infrastructure funding gap in Canada is estimated to be between CAD 110 billion and CAD 270 billion<sup>3</sup> on average across various studies (CanInfra Challenge & The Boston Consulting Group, n.d.).

There are three main sources of capital for natural infrastructure: the private sector, the philanthropic sector, and the public sector (Vajjhala, 2020). Historically, **the public sector has been the major funder of natural infrastructure** through loans and grants (Méthot et al., 2023, United Nations Environment Programme, 2022); however, it is difficult to quantify the size of this public investment in Canada due to the broad scope of the natural infrastructure sector. There are many national and provincial programs that support natural infrastructure either directly or indirectly. For example, the federal Natural Infrastructure Fund (NIF), announced in June 2021, is a direct funding program for natural infrastructure. However, there are also myriad programs federally and provincially that support ecosystem conservation, restoration, agricultural beneficial management practices, and Indigenous land stewardship, and thus are indirectly

<sup>&</sup>lt;sup>2</sup> Conserved landscapes are considered a category of natural infrastructure.

<sup>&</sup>lt;sup>3</sup> The available estimates are, however, outdated. Efforts by the Government of Canada are ongoing to initiate a National Infrastructure Assessment that would provide a consistent and accurate measurement of infrastructure needs in Canada (Government of Canada, 2021). In addition, if the infrastructure services will be delivered by both grey and natural infrastructure, the infrastructure funding deficit estimate must be revised. Natural infrastructure is typically less expensive than grey or conventional infrastructure (Bassi et al., 2021), so the total estimate of the infrastructure funding deficit may be smaller. Nevertheless, the infrastructure funding deficit in Canada remains substantial.

considered natural infrastructure investments. These programs can contribute to the provision of ecosystem services across landscapes, which can also support infrastructure service delivery, such as water quality improvements and flood protection. For example, funding to support the work of Indigenous land stewards through Indigenous Guardians programs can support natural infrastructure alongside reconciliation and many other positive outcomes.

As Canada moves to address its infrastructure funding gap and, at the same time, fulfill its climate, biodiversity, and water-related goals, it is important to evaluate the magnitude of public funding support for natural infrastructure in Canada. It is also critical to assess its distribution across provinces and territories and across various ecosystems to ensure equity and sufficiency of this funding. This brief specifically targets the analysis of the natural infrastructure public grant funding in the Canadian Prairie provinces—Manitoba, Saskatchewan, and Alberta.

### Figure 1. Categories and examples of natural infrastructure



### 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

### 📩 Restored Ecosystems

Restoring or enhancing degraded ecosystems to deliver infrastructure outcomes

#### Examples

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



### Engineered Ecosystems

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

#### Examples

Constructed wetlands, water retention sites, floating treatment wetlands, soil cells, green roofs, and bioswales

Source: Méthot et al., 2023.

# 2.0 Objectives

The first objective of this analysis is to determine the **annual amount of public grant funding**, in Canadian dollars, dedicated to natural infrastructure in Canada and the Canadian Prairies. This includes national federal programs and both federal and provincial programs in the Canadian Prairies. Quantification of private or philanthropic capital for natural infrastructure is outside the scope of this analysis.

The second objective is to characterize the **allocation of this funding across classes of natural infrastructure** (conserved, restored, and engineered) and subtypes (engineered wetlands, protected areas, urban green space, etc.).

# 3.0 Methodology

## **Data and Scope**

For this analysis, we examined 52 programs related to infrastructure, conservation, water management, and nature-based solutions. Out of these, 25 programs provided either funding commitments or recent annual statements, allowing us to estimate the yearly contributions. Among the total 52 programs, 25 were specifically designed for the Prairie provinces (with 9 having funding data), while the remaining 27 had a national scope (with 16 having funding data) (Table 1). The 25 programs with funding data were directly operated and/or funded by the Government of Canada and the Prairie provinces.

For this analysis, natural infrastructure includes conserved natural landscapes (such as parks and conservation areas), restored landscapes (such as restored wetlands), and engineered or built natural systems (such as urban green spaces, engineered wetlands, and bioswales). This aligns with the Natural Infrastructure Framework developed by the Canadian Council of Ministers of the Environment (2021).

## **Methods and Assumptions**

To estimate annual funding for natural infrastructure, we examined federal and provincial programs for which funding estimates—either total or annual—and program objectives were publicly available. Depending on data availability, we used one of two approaches to estimate or analyze natural infrastructure investment from the public sector:

## **Project-Level Analysis**

In the case of the largest funders of natural infrastructure,<sup>4</sup> the descriptions and budgets of funded projects were examined to estimate the actual contribution of the funds to natural infrastructure projects (Table 1). For this project-level analysis, projects that primarily involved an investment in natural infrastructure were counted in full, even if those projects included other costs not directly related to natural infrastructure; for instance, if a park trail improvement was listed, the entire funding for the project was counted as a natural infrastructure contribution, even if aspects of the project may have involved paving and road work.

<sup>&</sup>lt;sup>4</sup> Federally funded programs: the Disaster Mitigation and Adaptation Fund (DMAF), Investing in Canada Infrastructure Program (ICIP), ICIP – COVID-19 Resilience Stream, and Green Municipal Fund (GMF).

## **Estimate by Objectives**

For programs where project-level data was unavailable, we estimated the ratio of natural infrastructure funding to total program funding based on the program's stated objectives and assigned weighting factors tied to the objectives. Examples of objectives related to natural infrastructure include improved or managed habitat for aquatic species at risk (Fisheries and Oceans Canada, 2022) and use and uptake of natural infrastructure (Infrastructure Canada, 2023). Where the wording of an objective was broad or ambiguous, we referred to the program's broader language and mandate to determine relevance to natural infrastructure. This method assumes that each program's allocation of funding is evenly distributed across its stated objectives.

Appendices A and B contain the details of the methodologies and the calculations.

Table 1. Breakdown of the programs with the funding data included in the analysis byprogram type

| Type of program                 | # in the analysis | # excluded from<br>analysis | Type of analysis |
|---------------------------------|-------------------|-----------------------------|------------------|
| Large national grant programs   | 4                 |                             | Project level    |
| Other national grant programs   | 12                | 12                          | By objectives    |
| Prairie-specific grant programs | 9                 | 16                          | By objectives    |
| Total                           | 25                |                             |                  |

Source: Authors.

## **Strengths and Limitations**

In interpreting these findings, it is important to be aware of the following:

- 1. This analysis uses only verifiable public information. However, this means that this analysis risks underestimating the total funding channelled to natural infrastructure since funds that did not publish committed spending amounts may represent a substantial portion of total public funding for natural infrastructure.
- 2. The objectives-based analysis uses program objectives as a proxy for spending distribution. This is the basis for estimating the allocation of funding for 21 programs representing 56% of total funding for natural infrastructure under this analysis. With this method, there is a risk of underestimating or overestimating the specific funds' allocations to natural infrastructure projects in cases where programs' allocations are unevenly distributed across their stated objectives.
- 3. This is an analysis of funding programs and not of natural infrastructure projects. Therefore, this analysis does not represent the total value of natural infrastructure projects

but only an estimate of the aggregate annual contributions of various funding programs to natural infrastructure based on their stated objectives.

4. Specific types of projects that may count as natural infrastructure may vary across studies. A reference table showing the types of infrastructure included in this study can be found in Appendix A (Table A1).

# 4.0 Findings

# How much public grant funding is directed to natural infrastructure in the Canadian Prairies?

**Figure 2.** Estimated annual grant funding channelled to natural infrastructure in the Canadian Prairies



Source: Author diagram.

<sup>a</sup> Estimated share of grant funding directed to natural infrastructure for reviewed national programs. Weighted average of each program's natural infrastructure funding ratio using either the objectives-based or the project-based method.

<sup>b</sup> Estimated share of the annual grant funding for natural infrastructure reaching the Prairies. Estimated from the project-level review of four funds representing ~34% of the natural infrastructure funding.

° Estimated share of the annual funding from the reviewed provincial programs in the Prairies directed to natural infrastructure. Weighted average of each program's natural infrastructure funding ratio using the objectives-based method.

As demonstrated in Figure 2, based on available data, we estimated that CAD 346.6 million/year is directed to natural infrastructure projects in Canada from federal funding programs, and CAD 98.4 million/year is directed to natural infrastructure projects in the Canadian Prairies from both federal and provincial grant programs. These estimates are based on an average annual funding amount for funds that were active in 2022. The details of the calculations are presented in Appendices A and B.

# What goals related to natural infrastructure are the most prevalent in the funding programs?

To understand what types of stated objectives related to natural infrastructure are the most prevalent in the 25 funds analyzed, the outcomes related to natural infrastructure were grouped into nine broad themes:

- Climate change adaptation and disaster mitigation
- Conservation
- Education and engagement
- Emissions reduction and carbon sequestration
- Innovation and capacity building
- Natural infrastructure development
- Parks
- Watershed management
- General<sup>5</sup>

Of these goal categories, the most heavily represented across all programs were conservation (17 outcomes across 11 programs), climate change adaptation and disaster mitigation (eight outcomes across seven programs), and watershed management (eight outcomes across four programs). The least-represented outcome groups were goals explicitly focused on parks (one outcome in one program), natural infrastructure (two outcomes in two programs) and emissions reduction and sequestration (four outcomes in four programs). Seven of the 60 outcomes fell in the "general" category. See Table C1 for the full results.

In other words, natural infrastructure itself was only rarely an explicitly targeted outcome of funding programs—only about 4% of natural infrastructure funding can be attributed to explicit natural infrastructure development funding targets. Instead, much of the funding directed toward natural infrastructure is either coincidental (as in the case of the ICIP COVID-19 Resilience funding, with an implicit focus on quick-start projects and outdoor recreation) or tied to related project outcomes like emissions reduction and carbon sequestration or conservation. Natural infrastructure is an explicit objective under the NIF and Building Regional Adaptation Capacity and Expertise program (Table C1).

<sup>&</sup>lt;sup>5</sup> Several programs included objectives that could not be sorted into a specific objective category, either because they were non-specific objectives related to program delivery and management or because they were not related to natural infrastructure and could not be grouped with any similar objectives from other programs.

### How much funding is directed to specific natural infrastructure classes?

### Methods

In cases where project-level data was available, projects were grouped according to their natural infrastructure class following the classification outlined in Section 1.<sup>6</sup> Using project-level funding data, the total funding for each natural infrastructure type was then calculated across the Prairie provinces for the four programs in question (these were, once again, the DMAF, GMF, ICIP, and ICIP COVID-19 Resilience stream programs).

### Findings

Across all natural infrastructure classes and funding years, DMAF represented the largest contribution to natural infrastructure in the Prairies (Table D1). This is due to a single CAD 53 million project to restore and enhance riparian buffers in Edmonton, Alberta, for flood mitigation. In addition, the ICIP – COVID-19 Resilience stream funded nearly CAD 25 million in constructed parks and trails, supplemented with an additional CAD 2 million from the other ICIP streams (Table D1).

Averaging across all projects, restored ecosystems represented the largest portion of natural infrastructure funding at just over 57%, followed by engineered systems at 41.1%. Conserved ecosystems represented only a small percentage, at 1.7% of all natural infrastructure funding.

**Figure 3.** Distribution of natural infrastructure funding in the Prairies by category (conserved, restored, and engineered ecosystems)



Source: Authors' diagram based on the project-level funding data from DMAF, GMF, ICIP, and ICIP – COVID-19 Resilience programs.

<sup>&</sup>lt;sup>6</sup> Natural infrastructure types include: restored riparian area, engineered wetlands, low-impact development, conservation planning/zoning, treatment lagoons, constructed pond, green roofs, constructed parks and trails, restored lakes and ponds, conserved parks and trails, urban canopy, and restored parks.

Separating the constructed and restored systems according to their dominant natural infrastructure features, moving water (rivers and engineered drainage) was the dominant natural infrastructure function at 54.4%, followed by urban greenery at 36%, and standing water systems (ponds and wetlands) at only 7.6%.

# 5.0 Conclusion

There is an acute need to design, test, and allocate funding to natural infrastructure projects to meet Canada's infrastructure, climate, biodiversity, and water needs and commitments. This preliminary effort to characterize the amount of public grant funding reaching the Prairie provinces in Canada is a first step to estimating whether we are on track with filling in the investment gap related to nature and infrastructure, as well as educating on the available funding programs related to natural infrastructure in Canada and the Prairies.

This analysis estimated that there is public grant funding available in the Prairies for ecosystem conservation, restoration, and engineered ecosystems in the amount of CAD 98.4 million per year. Based on the 25 selected grant programs, conservation is currently the most common objective. However, by looking at the four largest funding programs—DMAF, ICIP, ICIP COVID-19 Resilience stream, and GMF–conservation constitutes the smallest portion of actual funding because of the lower costs of conservation compared to ecosystem restoration or engineered ecosystems, typically.

Among the funds considered, the NIF stands out as the only fund that explicitly provides funding to natural infrastructure projects. However, other funds supporting ecosystem restoration, conservation, and improved land use practices, such as Manitoba's Conservation Trust, contribute to the provision of the ecosystem services that can also be infrastructure services, such as water quality improvements and flood protection. Together, funds like the NIF and Manitoba's Conservation Trust signal the beginning of an important shift towards the inclusion of nature as a provider of infrastructure services and other co-benefits.

Because scaling of natural infrastructure solutions is required, and more natural infrastructure projects will be designed and implemented, Canada and the Prairies will benefit from the increased dedicated funding streams that support natural infrastructure. This will help move natural infrastructure from "novel" to "normal" across sectors for better environmental, social, and economic outcomes.

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# Appendix A. Analysis of National Programs

## **National Programs**

National programs are defined as programs that target all provinces and territories. There were 16 such programs with publicly available annual funding data. Another 12 national programs did not share annual funding estimates and were therefore excluded from the analysis.

## **Major National Infrastructure Programs**

There were four national infrastructure programs with significant funding (over CAD 50 million annually) for which sufficient project-level data was available. These were the Disaster Mitigation and Adaptation Fund (DMAF), the Investing in Canada Infrastructure Program (ICIP), the separately funded ICIP COVID-19 Resilience stream, and the Green Municipal Fund (GMF) (Table A2). In total, these funds represented about CAD 4.6 billion in annual infrastructure funding, approximately CAD 165 million of which was found to be directed toward natural infrastructure. In these cases, natural infrastructure represented approximately 3.6% of infrastructure funding. See Table A1 for a list of infrastructure types and their classification as either natural or grey infrastructure.<sup>7</sup>

### **Smaller National Funding Programs**

There were also 12 smaller funding programs, many of which had a more specialized focus on natural infrastructure, watershed management, and land conservation (Table A2). These included highly relevant federally funded programs, such as the Habitat Stewardship Program for Aquatic Species at Risk and the Natural Infrastructure Fund, along with other programs with some relevant outcomes, such as the Municipalities for Climate Innovation Program and the Active Transportation Fund. Collectively, these 12 programs represented CAD 266.2 million in annual funding. Using the objectives-based analysis outlined previously, we estimate that about CAD 182 million (about 68%) of these funds is directed toward natural infrastructure annually.

The remaining program, the Canada Community-Building Fund (previously the gas tax fund), did not appear to contribute any significant amount of funding for natural infrastructure. Therefore, in total we estimate there to be approximately CAD 346.6 million in grant funding annually directed toward natural infrastructure by these national programs across Canada. However, the total annual value of natural infrastructure projects across Canada is certainly much higher since this number does not include municipal and provincial funding sources, or national sources for which funding data was not available. Also, many of these programs have cost-sharing

<sup>&</sup>lt;sup>7</sup> Grey infrastructure refers to human-made structures, often (but not exclusively) constructed from materials, such as concrete and steel; typically intended to meet targeted outcomes. Examples include water treatment plants, pipes, dams, and stormwater drains.

requirements, so the actual amount of money invested in natural infrastructure projects is higher. In most of the projects examined, the funding programs included in this analysis accounted for less than 50% of the total project value.

We reviewed 16 national programs representing approximately CAD 346.6 million in grant funding annually directed toward natural infrastructure across Canada.

 Table A1. Natural infrastructure reference table for the projects funded under major

 national infrastructure programs

| Name                                    | Function group        | Class      | Category |
|---|-----------------------|------------|----------|
| Restored riparian area                  | Rivers and drainage   | Restored   | Natural  |
| Engineered wetlands                     | Ponds and wetlands    | Engineered | Natural  |
| Low-Impact development                  | Stormwater management | Engineered | Natural  |
| Conservation planning/zoning            | Conserved landscapes  | Conserved  | Natural  |
| Treatment lagoons                       | Ponds and wetlands    | Engineered | Grey     |
| Constructed pond                        | Ponds and wetlands    | Engineered | Natural  |
| General stormwater and flood management | Stormwater management | Engineered | Grey     |
| Green roofs                             | Urban greenery        | Engineered | Natural  |
| Dikes, berms, and flood barriers        | Ponds and wetlands    | Engineered | Grey     |
| Constructed parks and trails            | Urban greenery        | Engineered | Natural  |
| Dams, spillways, and reservoirs         | Ponds and wetlands    | Engineered | Grey     |
| Restored lakes and ponds                | Ponds and wetlands    | Restored   | Natural  |
| Diversion channels                      | Rivers and drainage   | Engineered | Grey     |
| Conserved parks and trails              | Conserved landscapes  | Conserved  | Natural  |
| Urban canopy                            | Urban greenery        | Engineered | Natural  |
| Restored parks                          | Urban greenery        | Restored   | Natural  |

Source: Authors.

Notes: Major national infrastructure programs include DMAF, ICIP, the separately funded ICIP COVID-19 Resilience stream, and the GMF.

## **Illustrative Examples in Context**

The ICIP COVID-19 Resilience stream directed 13.2% in funding toward natural infrastructure—more than any of the other ICIP streams—potentially due to an emphasis on outdoor recreational areas and quick-start infrastructure projects. In comparison, the GMF directed 0.4% in funding toward natural infrastructure since it had a stronger focus on greenhouse gas reductions, energy efficiency, and employment opportunities than on nature-based approaches (Table A2).

Other, more targeted programs, such as the Indigenous Guardians Program and the Natural Infrastructure Fund, had natural infrastructure reflected in a majority of their program objectives (such as land conservation and restoration, enhanced ecosystem management, increased access to nature, and enhanced biodiversity habitat). Programs like these were assumed to dedicate 100% of their funding to natural infrastructure, but this could not be confirmed due to a lack of project-level data.

|   | Program name  | Weighting<br>factor | Total annual<br>funding (CAD<br>'000s) | Estimated annual<br>natural infrastructure<br>funding (CAD '000s) <sup>8</sup> |
|---|---|---------------------|--|--|
| 1 | Disaster Mitigation and<br>Adaptation Fund                                    | 0.087*              | 225,000*                               | 19,575   |
| 2 | Investing in Canada<br>Infrastructure Program                                 | 0.004*              | 3,300,000*                             | 13,200   |
| 3 | Investing in Canada<br>Infrastructure Program –<br>COVID-19 Resilience stream | 0.132*              | 1,000,000*                             | 132,000  |
| 4 | Green Municipal Fund  | 0.004*              | 74,600*                                | 298  |
| 5 | Building Regional Adaptation<br>Capacity and Expertise                        | 0.5                 | 3,600                                  | 1,800  |
| 6 | Canada Community-Building<br>Fund   | 0                   | 2,400,000                              | -  |
| 7 | First Nations Adapt Program   | 0                   | 8,500                                  | -  |
| 8 | Habitat Stewardship Program for Aquatic Species at Risk                       | 1                   | 4,000                                  | 4,000  |
| 9 | Indigenous Guardians  | 1                   | 20,000                                 | 20,000   |

Table A2. Programs with a national scope included in the analysis

<sup>&</sup>lt;sup>8</sup> In cases where a fixed annual funding amount was not provided, the annual funding amount was estimated either a) by dividing the total funding amount by the number of active years (past + expected) or b) by reviewing and averaging the yearly funding totals provided in recent financial statements.

|    | Program name                                      | Weighting<br>factor | Total annual<br>funding (CAD<br>'000s) | Estimated annual<br>natural infrastructure<br>funding (CAD '000s) <sup>8</sup> |
|----|---|---------------------|--|--|
| 10 | National Disaster Mitigation program              | 0.33                | 12,500                                 | 4,167  |
| 11 | Natural Infrastructure Fund                       | 1                   | 20,000                                 | 20,000   |
| 12 | Nature Smart Climate<br>Solutions Fund            | 1                   | 63,100                                 | 63,100   |
| 13 | Canada Nature Fund for<br>Aquatic Species at Risk | 1                   | 11,000                                 | 11,000   |
| 14 | Active Transportation Fund                        | 0.3                 | 80,000                                 | 24,000   |
| 15 | Canada Nature Fund –<br>Species at Risk Stream    | 1                   | 31,000                                 | 31,000   |
| 16 | Municipalities for Climate<br>Innovation Program  | 0.2                 | 12,500                                 | 2,500  |
|    | Total   |                     | 7,268,300                              | 347,140  |

Source: Authors.

\* Weighting factors marked with an asterisk were estimated using a project-level analysis.

## Percentage of National Grant Funding Reaching the Prairies

### Share of Total Infrastructure Funding Reaching the Prairies

In the case of the GMF, 15.5% of all funding and financing across Canada was directed toward the Prairie provinces (including loans and grants). For the ICIP, this number was 21.5%, for the DMAF it was 31.7%. The ICIP and DMAF were entirely grant programs.

### Share of Natural Infrastructure Funding Reaching the Prairies

When looking specifically at natural infrastructure, this ratio was higher for the ICIP (26%) but lower for the DMAF (10.5%). Extrapolating an estimated 20% of total investments across all programs, we could expect that the Prairie provinces would receive CAD 1.45 billion of the nearly CAD 7.27 billion in annual funding represented by these 16 nationally distributed programs. We estimated that about CAD 69.3 million of this funding received by the Prairies is directed toward natural infrastructure.<sup>9</sup>

<sup>&</sup>lt;sup>9</sup> The Prairie provinces represent 18% of the population of Canada, 19.6% of its land mass, and 21.6% of Canada's GDP.

# Appendix B. Analysis of Prairie-Specific Programs

Prairie-specific programs are defined as programs that only fund projects in the Prairie provinces and do not direct a significant amount of funding to other parts of Canada. Looking exclusively at programs based in the Prairies, nine programs were examined, representing a total of about CAD 125.1 million in investments (Table B1). Based on the stated objectives of these nine programs, we estimate that some CAD 29.1 million of these funds may be directed toward natural infrastructure annually. In other words, Prairie-specific funding programs may rival national funding programs in terms of total funding directed toward natural infrastructure initiatives. Further analysis of project-level data would be required to confirm this. This analysis does not include municipal funding sources, provincial grey infrastructure programs, or programs for which funding information was not publicly available.

Looking exclusively at programs based in the Prairies, we estimate that CAD 29.1 million of these funds may be directed toward natural infrastructure annually.

## **Illustrative Examples in Context**

Funding estimates weigh the total funds available from a program against its stated outcome objectives. For instance, the impact of the ~CAD 7.5 million GRowing Outcomes in Watersheds program in Manitoba—whose stated objectives are closely aligned to natural infrastructure—may rival the natural infrastructure contributions of a larger fund like the Alberta Community Resilience Program (representing CAD 30 million annually) with a broader mandate to fund water and wastewater infrastructure, typically with a focus on grey infrastructure.

|   | Location | Program name   | Weighting<br>factor | Total annual<br>funding<br>(CAD '000s) | Estimated Annual<br>NI Funding<br>(CAD '000s) |
|---|----------|--|---------------------|--|---|
| 1 | Alberta  | Alberta Community<br>Resilience Program              | 0.5                 | 30,000                                 | 15,000  |
| 2 | Alberta  | Alberta Municipal<br>Water/Wastewater<br>Partnership | 0                   | 22,114                                 | -   |

Table B1. Programs based in the Prairies included in the analysis

|   | Location | Program name  | Weighting<br>factor | Total annual<br>funding<br>(CAD '000s) | Estimated Annual<br>NI Funding<br>(CAD '000s) |
|---|----------|---|---------------------|--|---|
| 3 | Manitoba | Conservation and<br>Climate Fund                          | 0.5                 | 1,500                                  | 750   |
| 4 | Manitoba | Fish and Wildlife<br>Enhancement Fund                     | 1                   | 1,063                                  | 1,063   |
| 5 | Manitoba | GRowing Outcomes in<br>Watersheds                         | 1                   | 7,500                                  | 7,500   |
| 6 | Manitoba | Heritage Grants<br>Program                                | 0                   | 200                                    | -   |
| 7 | Manitoba | The Conservation<br>Trust                                 | 1                   | 2,800.00                               | 2,800   |
| 8 | Alberta  | Water for Life Program                                    | 0                   | 70,000.00                              | _   |
| 9 | Alberta  | Watershed Resiliency<br>and Restoration<br>Program (WRRP) | 1                   | 2,000.00                               | 2,000   |
|   |          | Total   | N/A                 | 125,062                                | 29,113  |

Source: Authors.

# **Appendix C. Program Objectives Grouped by Theme**

### Table C1. Program objectives grouped by theme

|  | CC Adaptation &<br>Disaster Mitigation | Education &<br>Engagement | Emissions Reduction<br>& Sequestration | General | Innovation &<br>Capacity Building | Natural<br>Infrastructure | Parks | Watershed<br>Management | Conservation &<br>Biodiversity | Grand Total |
|--|--|---------------------------|--|---------|-----------------------------------|---------------------------|-------|-------------------------|--------------------------------|-------------|
| Active Transportation Fund                                 |  | 1                         |  | 2       |                                   |                           |       |                         |                                | 3           |
| Building Regional Adaptation Capacity and Expertise        |  |                           |  |         | 1                                 | 1                         |       |                         | 1                              | 3           |
| Canada Nature Fund - Species at Risk Stream                |  | 1                         |  |         |                                   |                           |       |                         | 1                              | 2           |
| Canada Nature Fund for Aquatic Species at<br>Risk          |  | 1                         |  |         |                                   |                           |       |                         | 1                              | 2           |
| Disaster Mitigation and Adaptation Fund                    | 1                                      |                           |  |         |                                   |                           |       |                         |                                | 1           |
| Habitat Stewardship Program for Aquatic<br>Species at Risk |  | 1                         |  |         |                                   |                           |       |                         | 2                              | 3           |
| Indigenous Guardians                                       |  |                           |  |         | 1                                 |                           |       |                         | 3                              | 4           |
| Investing in Canada Infrastructure Program                 | 1                                      | 1                         | 1                                      | 1       |                                   |                           |       |                         |                                | 4           |
| National Disaster Mitigation program                       |  |                           |  |         | 2                                 |                           |       |                         |                                | 2           |
| Natural Infrastructure Fund                                | 1                                      | 1                         | 1                                      | 1       |                                   | 1                         | 1     |                         | 1                              | 7           |

|  | CC Adaptation &<br>Disaster Mitigation | Education &<br>Engagement | Emissions Reduction<br>& Sequestration | General | Innovation &<br>Capacity Building | Natural<br>Infrastructure | Parks | Watershed<br>Management | Conservation &<br>Biodiversity | Grand Total |
|--|--|---------------------------|--|---------|-----------------------------------|---------------------------|-------|-------------------------|--------------------------------|-------------|
| Nature Smart Climate Solutions Fund                    |  |                           | 1                                      |         |                                   |                           |       |                         |                                | 1           |
| Municipalities for Climate Innovation Program          | 2                                      |                           |  |         |                                   |                           |       |                         |                                | 2           |
| Green Municipal Fund                                   |  |                           |  | 1       |                                   |                           |       |                         |                                | 1           |
| Fish and Wildlife Enhancement Fund                     |  |                           |  |         |                                   |                           |       |                         | 1                              | 1           |
| Conservation and Climate Fund                          |  |                           |  |         |                                   |                           |       | 1                       | 1                              | 2           |
| The Conservation Trust                                 | 1                                      | 1                         | 1                                      |         |                                   |                           |       | 3                       | 3                              | 9           |
| GRowing Outcomes in Watersheds                         |  |                           | 1                                      | 2       |                                   |                           |       | 3                       | 1                              | 7           |
| Watershed Resiliency and Restoration<br>Program (WRRP) |  |                           |  |         | 1                                 |                           |       | 1                       | 2                              | 4           |
| Alberta Community Resilience Program                   | 2                                      |                           |  |         |                                   |                           |       |                         |                                | 2           |
| Grand Total  | 8                                      | 7                         | 5                                      | 7       | 5                                 | 2                         | 1     | 8                       | 17                             | 60          |

Source: Authors.

# Appendix D. Total Funding per Natural Infrastructure Type, per Program

Table D1. Total funding per natural infrastructure type, per program (in CAD)

|                              | Disaster<br>Mitigation and<br>Adaptation Fund | Green<br>Municipal<br>Fund | Investing in Canada<br>Infrastructure<br>Program | Investing in Canada<br>Infrastructure<br>Program - COVID-19<br>Resilience stream | Total         |
|------------------------------|---|----------------------------|--|--|---------------|
| Conservation planning/zoning |   | 252,500.00                 |  |  | 252,500.00    |
| Conserved parks and trails   |   |                            | 102,312.00                                       | 1,357,797.00   | 1,460,109.00  |
| Constructed parks and trails |   |                            | 9,096,068.00                                     | 24,865,558.00  | 33,961,626.00 |
| Constructed pond             |   | 75,372.00                  | 522,938.00                                       | 1,051,644.00   | 1,649,954.00  |
| Engineered wetlands          |   | 902,800.00                 | 2,531,000.00                                     |  | 3,433,800.00  |
| Green roofs                  |   | 33,300.00                  |  |  | 33,300.00     |
| Low-impact development       |   | 350,000.00                 |  |  | 350,000.00    |
| Restored lakes and ponds     |   |                            | 2,430,000.00                                     |  | 2,430,000.00  |
| Restored parks               |   |                            |  | 320,000.00   | 320,000.00    |
| Restored riparian area       | 53,766,000.00                                 |                            |  |  | 53,766,000.00 |
| Urban canopy                 |   |                            | 1,000,000.00                                     | 244,824.00   | 1,244,824.00  |
| Total                        | 53,766,000.00                                 | 1,613,972.00               | 15,682,318.00                                    | 27,839,823.00  |               |

Source: Authors.

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