

NATURAL INFRASTRUCTURE AND ECOSYSTEM ADAPTATION

Recommendation

The Green Budget Coalition recommends that in Budget 2017 the Government of Canada allocate 30% of planned phase-2 Green Infrastructure funding for investments to protect and enhance Canada's vital natural infrastructure, which provides services such as clean water, flood mitigation, coastal sea surge protection, and many other important services. Much of this natural infrastructure has been lost or degraded. Existing natural infrastructure assets urgently need to be protected and/or restored for the health and safety of Canadians. The funding would promote activities such as:

- Protection and enhancement of urban and suburban natural areas, including urban reforestation;
- Restoration of lost or degraded natural habitats and connectivity enhancements in agricultural/natural resource working landscapes; and
- Protection and restoration of coastal buffers, headwaters and wetland basins in areas prone to flooding or other extreme weather events, nutrient loading, and/or other events that impact water quantity and quality and/or harm human health or safety.

The GBC estimates that \$242 million per year will be required to fulfill the first three commitments, and a further \$250 million per year will be required to restore wetland basins in regions of the country that are prone to severe flooding, and in coastal areas that are susceptible to rising sea levels and storm surges.

In addition, we recommend that as part of the *Budget for a Cleaner, More Sustainable Future*, a specific fund should be developed to help Canada's ecosystems adapt to climate change. This is to address the urgent need to protect Canada's natural assets, such as our biodiversity, that provide important services for all Canadians and are threatened by human activity including climate change.

Investment Required

For 2016/2017	30% of Green Infrastructure funding for natural infrastructure investments
For 2016/2017	10% to the budget allocated from supporting the Pan-Canadian Framework on Clean Growth and Climate Change for helping Canada's ecosystems adapt to climate change
Ongoing	30% of Green Infrastructure funding per year over 10 years
Ongoing	10% to the budget allocated to support the Pan-Canadian Framework for helping ecosystems adapt to climate change

Summary

The GBC applauds the commitment to invest \$21.9 billion over 11 years to projects that propose to strengthen the resilience of communities and build public infrastructure to the impacts of climate change; to ensure these hard public assets are climate resilient and provide adaptation benefits including clean water for communities, and upgraded green municipal projects.

However, without clear federal support for the protection and enhancement of natural infrastructure, the federal government will be missing a significant opportunity and public good to ensure that such projects are brought forward. Therefore, in addition to ensuring that climate change mitigation and adaptation, as well as biodiversity criteria, are integrated into all new federal infrastructure decisions, the GBC is calling on the federal government to make a clear commitment to nature-based infrastructure in the 2017 budget.

This should be done in three ways:

- the creation of a specific natural infrastructure fund which would include at least half of the proposed natural infrastructure funding (15% of the total recommendation), that would be guided by an oversight committee comprised of public, private and NGO experts.
- request that jurisdictions consider alternative natural solutions to any investments they are making; and
- ensure that a specific percentage of green infrastructure funding be earmarked in every jurisdiction specifically for natural solution approaches, with clear criteria and measurable outcomes to ensure that biodiversity and climate related considerations are achieved.

Nature-based infrastructure investments consist of protecting, restoring, or enhancing natural ecosystems in order to provide and/or retain ecological services that would otherwise be achieved with technological solutions.

Nature-based infrastructure investments are directly relevant to Green Infrastructure, and have a role to play in developing Canada's social infrastructure. These investments can provide cost-effective climate adaptation and health benefits in urban and suburban areas, as well as water quality and quantity benefits and coastal protection for communities across Canada.

There are many scales of nature-based infrastructure. At the smallest scale, trees are nature-based infrastructure because they filter water and prevent heat islands. Wetland complexes are also natural infrastructure because they trap and hold chemicals, sediments and nutrients, sequester carbon and filter water. Retention and restoration of wetlands and riparian buffers throughout whole watersheds reduces downstream flooding, property damage and threats to human life. Depending on the scale of the activity, impacts on biodiversity, microclimate, and other ecosystem services will also differ, with large landscape-level projects providing additional co-benefits such as supporting protected area and Species at Risk goals and objectives, while also helping to fulfil Canada's climate change mitigation and/or adaptation commitments.

Given the potential scales of projects that could be funded, including the diversity of outcomes and the capacity for stakeholders other than governments to act on this work, is why the GBC recommends that at least half of the proposed *natural infrastructure fund* be kept separate from the broader Green Infrastructure fund, and be guided by an oversight committee comprised of public, private and NGO experts. This method will provide transparency and drive innovative undertakings rooted in evidence and science. It will also ensure that projects are managed effectively and leverage funding from other sources to the greatest extent possible.

If 15% of the Green Infrastructure allocation is kept in a segregated fund, it must support larger landscape scale projects which may be overlooked by jurisdictions seeking to address smaller scale and local projects. Irrespective of funding management, we recommend that a) jurisdictions be asked to consider natural solutions to any investments they are making; and b) that a specific percentage of green infrastructure funding be earmarked in every jurisdiction specifically for natural solution approaches, with clear criteria to ensure increasing biodiversity and climate related considerations are achieved.

Further, the GBC recommends that as part of the *Budget for a Cleaner, More Sustainable Future*, funding should be allocated that enables Canada's ecosystems to adapt to climate change, including:

1. Maintaining and enhancing biodiversity and ecosystem services (e.g. water protection, carbon storage potential)
2. Protecting wildlife populations facing climate-related habitat loss and degradation
3. Ensuring connectivity of wildlife habitat at a whole-landscape scale

While enabling climate change adaptation, this funding would directly support a number of the federal government's other environmental commitments, including meeting and exceeding Aichi biodiversity targets and protecting critical habitats including those that support Species at Risk.

In addition, the Green Budget Coalition recommends the following:

- Integration of climate change adaptation or resilience objectives into all new infrastructure expenditures, including consideration of its impact on existing natural assets such as habitat loss or functional impairment and negative impacts to biodiversity. This would require the systematic use of strong climate change adaptation criteria in the identification, design and construction of all federally-funded infrastructure investments.
- Enabling Canadian non-governmental organizations (NGOs) to serve as a full project partner proponent under Phase 2 of the Green Infrastructure program, and be permitted to apply directly to the Government of Canada for funding. This would be contingent on the NGO identifying conservation opportunities, providing evidence and arguments as to how they would generate critical infrastructure services, and contributing a minimum of one third (33%) of the required program dollars towards the completion of the project.
- Assigning meaningful green performance measures and incentives for all proponents. These should include expenditure targets, conserved acres (particularly within areas prone to natural disasters, like flooding) and biodiversity enhancement.
- Providing fiscal incentives that will promote natural infrastructure expenditures by private parties, both in the buildings and green infrastructure sectors.
- Providing financial support for municipalities to:
 - ◆ Identify natural capital assets that help deliver desired municipal services;
 - ◆ Determine the condition and value of their natural asset(s);
 - ◆ Develop and cost plans for the long-term management of their natural asset(s);
 - ◆ Monitor, measure and evaluate the efficacy of municipal natural capital approaches

Background and Rationale

Investing in Natural Infrastructure

Over the coming decades, Canadians will face many new challenges as a result of climate change. The infrastructure we build today will play a central role in determining how we confront these challenges.

At present, there are numerous opportunities across Canada for investment in nature-based infrastructure that will be cost-effective, and will deliver multiple benefits over and above the specific service they provide.

The GBC recommends that infrastructure planners and policymakers take a regional or landscape-level approach to addressing flooding and water quality issues, proactively focusing their approach upstream at the watershed level before the full impacts of climate change further exacerbate existing challenges. Some coastal communities have already started to consider the values of restoring coastal areas to deal with storm surges, but further promotion of these activities can provide services at a much reduced cost and on a broader scale. Other municipalities are pioneering natural capital strategies by measuring and managing it within existing asset and financial management business processes, to reduce risk, capital and operating expenses, and improve their climate change resilience. Funding for increased pilots of this approach are needed.

Finally, criteria for green infrastructure projects should be easy to quantify and demonstrate: (e.g. number of

hectares protected, number of riparian strips restored, number of trees planted, etc.) Criteria must also reflect the reality that smaller and more rural municipalities have a much higher chance of having valuable areas to protect, and may also face higher development pressures compared to already highly developed urban areas.

Helping ecosystems adapt to climate change

Climate change is a significant additional stressor on ecosystems, and scientists estimate that it may cause the loss of up to 30% of the world's biodiversity. This loss has both immediate and far-reaching consequences for our life support system. Healthy ecosystems provide people with food, clean air and water, and many other important services. Maintaining Canada's biodiversity is fundamental to ensuring that ecosystems and human communities are resilient to climate change.

There is a scientific consensus building that at least half of our planet's ecosystems should be protected from industrial activity in an interconnected way. In some cases, achieving this objective will mean protecting areas that have not yet been significantly impacted; in other cases, restoration of environmentally degraded areas will be key.

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