Technical and Policy Recommendations to Natural Resources and Environment and Climate Change Canada on the Two Billion Trees Program
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Prepared by *The Canada Nature-Based Climate Solutions Consortium*
(Canadian NGOs that organized the Feb. 2020 Nature-Based Climate Solutions Summit in Ottawa)

Executive Summary

The seven signatories to this letter (hosts of the Nature-Based Climate Solutions Summit) support the government's commitment to actively address the twin biodiversity and climate crises, in part, through the planting of trees in Canada. We are writing to provide advice and offer our assistance, in an advisory role, to support the program and help ensure meaningful results for climate change, biodiversity and people.

To ensure an effective program that obtains measurable results, the government should:

1) Ensure **the right trees are planted, in the right places, for the right reasons**.
2) Make a **long-term commitment to monitoring and documenting results** for climate change and biodiversity. Planting trees will result in benefits over the long-term (decades or longer) but have fewer measurable results in the short term (by 2030).
3) **Commit to consultations with stakeholders and Indigenous nations** to achieve multiple program benefits and avoid unintended negative consequences.

We were encouraged by the government's commitment that a high-profile project like tree planting be part of a broad strategy to address the climate and biodiversity crises in scientifically supported ways:

> *"… Natural climate solutions like planting trees and protecting grasslands can help us get closer to reaching our targets for lower emissions… To better support healthy ecosystems that help fight climate change, we will move forward with an ambitious plan to plant two billion trees over 10 years… and will be part of a $3 billion commitment to better conserve and restore forests, grasslands, agricultural lands, wetlands, and coastal areas[1]."*

A strategic investment in planting and maintaining trees can have real value if the combined goals of benefiting climate and biodiversity are enshrined in the program and adhered to rigorously. Tree planting will need to meet ecological criteria and must go hand-in-hand with increased reductions in produced CO2 emissions across society.

Planting trees can have co-benefits to people, for example, by giving shelter from extreme heat. The benefits to nature, communities and human health credibly argue for the tree planting effort in the near term; at the same time, it is designed to provide carbon sequestration value to be confirmed over time. Efforts should be made to invest where there are the most co-benefits resulting from the investment. In short, this program needs to ***plant the right trees, in the right places, for the right reasons***. It is our hope that this document will provide clear guidance on how to do that and on where investigation is still required to ensure we get things right.

[1] https://www2.liberal.ca/our-platform/natural-climate-solutions/

Recommendations

1) Adopt goals and key principles that will lead to rigorous and measurable outcomes for climate and nature.
2) Ensure resources for planting, survival, monitoring and measurement are in place.
3) Develop targets and measures for co-benefits.
4) Follow the science-based best practices for ecological restoration and the use of nature-based carbon offsets in order to assure rigour, accountability and comparability.
5) Measure, report out and consult on evolving the program annually.

These recommendations are elaborated on below. Our organizations would be happy to meet to review these comments and discuss any advisory roles we may play which government may find useful.

In addition, recommended principles to support development of a rigorous program (as suggested in recommendation (1) are proposed here.

Principles

In order to maximize the biodiversity and climate benefits of planting two billion trees, some important principles should help guide program design:

1) **Develop transparent program goals, design and implementation criteria.** Criteria should be science based, goal-focused, measured and adaptive.

2) **Use scientifically rigorous best practices.** Align the program with international best practices[2] for establishing the connections between trees planted and the goals they will achieve for climate, nature and people.

3) **Focus on realistic logistical targets.** regarding plant availability, planting capacity, locations selected and availability of resources. Ensure the survival of planted material and that plantings will be evaluated. This should be required of project proponents and supported over time.

4) Leverage and support a variety of actors to achieve program goals. Numerous national and local organizations can help plan, plant and maintain the trees and monitor performance.

[2] Gann GD, McDonald T, Walder B, Aronson J, Nelson CR, Jonson J, Hallett JG, Eisenberg C, Guariguata MR, Liu J, Hua F, Echeverría C, Gonzales E, Shaw N, Decleer K, Dixon KW (2019) International principles and standards for the practice of ecolog- ical restoration. Second edition: November 2019. Society for Ecological Restoration, Washington, D.C. 20005 U.S.A.

Detailed Rationale and Criteria for Key Principles

1) Develop transparent program goals, design and implementation criteria
(policy development process)

The initial design and rollout of this program will have a great deal of influence on how seriously it is taken by the conservation, climate and scientific communities, how well it is received by Canadians, and how vulnerable it is to political and budgetary undermining. A broad engagement based on the pre-adoption of high-level goals and principles is recommended, with direct consideration of co-benefits that add to, but do not counter, goals around climate and biodiversity relevance and rigour.

We recommend you:

- Ensure government sets a goal that the trees planted achieve maximum combined biodiversity and climate resilience outcomes.
- Require Indigenous consultation on any activities occurring in their territories and set co-governance as the ideal.
- Conduct stakeholder consultations to inform program development, including with experts and representatives from the nature conservation and climate communities.
- Organize meetings with ENGOs and those responsible for program development, as well as stakeholder consultations to share views and monitor program implementation.
- Prioritize projects that support Indigenous governance and employment for First Nations or resource workers in transition.
- Review existing planting requirements in Canada, provinces and territories to ensure the Two Billion Trees program is additive and not subsiding or substituting work that was already required by law or regulation.
- Describe and design measurements for co-benefits, where applicable. Cultural, spiritual, socio–economic and other locally relevant values can improve uptake and support for projects.
- Engage governments (including Indigenous governments), NGOs, communities and industry to ensure there are criteria for different types and sizes of projects to be supported and fed into overall success. Government should:
    - Support and leverage industry investment in larger-scale projects, and
    - Build in opportunities for community-based organizations to independently implement projects that credibly contribute to program objectives.
- Redefine federal infrastructure grants to more easily support nature-based infrastructure.

2) Use scientifically rigorous best practices

It is necessary to plant the right species of trees, in the right places, for the right reasons and benefits. In addition, the benefits stated for planted trees must be scientifically rigorous in measurable, transparent and verifiable ways. This is especially true in relation to the timeframe in which net carbon sequestration benefits can be credibly claimed.

The right trees: Planting trees that can sequester carbon, store it over time, be managed for permanence and benefit ecosystem resilience or recovery will allow the program to meet its stated goals without creating negative consequences for ecosystem health, carbon mitigation or adaptation to a changing climate. We suggest the program:

- Support only an appropriate combination of native tree species capable of surviving the predicted future climate.
- Source trees from regionally appropriate genetic stock matched to local site and soil conditions.
- Not create incentives to plant species with the highest carbon sequestration potential irrespective of biological appropriateness.
- Rely on science and traditional knowledge to ensure tree planting supports forested ecosystems that are diverse, resilient and support native biodiversity[3].

The right places: Where trees are planted is an important indicator of how successful they will be at achieving the program's goals. In particular, the government's stated program goal of better supporting healthy ecosystems that help fight climate change and restore degraded ecosystems is dependent on where tree planting takes place. Strategic planting in the right locations will allow the program to:

- Be additive to replanting or restoration mandated by law and regulation (e.g. replanting by forest industry, regular replacement of municipal street trees, etc.).
- Restore degraded landscapes and not convert natural ecosystems.
- Reconnect the fragmented landscapes of human dominated southern Canada.
- Provide buffer plantings around Key Biodiversity Areas, protected areas and conservation lands associated with Canada Target 1.
- Enhance critical ecosystem services and restore natural infrastructure like flood protection and drought resilience, and creating a buffer from extreme heat.

The right reasons: Strategic tree planting can achieve multiple wins and benefits. We agree that planting should focus on achieving the highest possible combined biodiversity, climate mitigation and adaptation outcomes. There are also numerous co-benefits to people and communities that should be evaluated and accounted for. This will help build support for the program by demonstrating its real and immediate value to people, in addition to the high-level goals.

These *essential screening goals* should be met at maximum potential for any federally-sponsored projects:

- Climate change mitigation (carbon sequestration, helping Canada achieve its emissions targets)
- Biodiversity safeguards (protected and conserved areas, endangered species recovery, ecosystem restoration and ecosystem resilience)

These *additional screening goals* should be maximized wherever possible and in all cases have measurable indicators that are tracked and reported on. These goals could also be used to facilitate data gathering and reporting on citizen-led initiatives that may not meet all criteria for federal support but still contribute to formal national program goals:

[3] Seddon N, Chausson A, Berry P, Girardin CAJ, Smith A, Turner B (2020) Understanding the value and limits of nature-based solutions to climate change and other global challenges. Philosophical Transactions of the Royal Society B: Biological Sciences 375 (1794):20190120. doi:10.1098/rstb.2019.0120.

- Climate adaptation (enhanced human health and safety, flood and fire attenuation, reduced insurance costs, enhanced community resilience to a changing climate)
- Enhanced ecosystem services for human benefit (enhanced air and water quality, stable water flows, municipal infrastructure, aquifer protection)
- Job creation as part of an expanding green economy
- Achieving our Sustainable Development Goals, demonstrating that healthy ecosystems sustain societies that create economies

Achieving these goals will mean considering a number of factors. Important known factors are described below with recommendations for research and technical processes to define others.

Climate mitigation considerations:

- Risks to tree survival due to climate impacts should inform species selection; maintaining an accurate understanding of these effects requires ongoing research.
- Replanting efforts supported by government should focus on areas where forests occurred historically or where co-benefits for biodiversity are maximized and unintended negative consequences on other societal challenges are prevented.
- In order to contribute to Canada's climate targets for 2050 and beyond, trees will need to be maintained for at least 100 years[4].

Biodiversity considerations:

- Prioritize projects that provide critical habitat for species at risk or otherwise demonstrably accelerate the implementation of species at risk action plans. Restoring degraded ecosystems that are within Critical Habitat but not currently the responsibility of another party also provides opportunity for investment from provinces and companies.
- Planting should be screened for its ability to contribute to the percentage of land in Protected Areas, Indigenous Protected and Conserved Areas or Other Effective Conservation Measures that satisfy national and international commitments under the Convention on Biological Diversity.
- Ensure planted areas are managed in the long term for in situ conservation of biodiversity, with associated ecosystem functions and services.
- Provide for habitat connectivity, including a mix of locations and scales, including urban, peri-urban, rural and natural / wilderness areas.
- Ensure the carbon sequestration (and flux) for soil-bound carbon and carbon sequestered in marine or aquatic ecosystems are evaluated in any replanting or restoration proposal.
- Ensure harvesting constraints and processes for planted trees destroyed by insect infestation and forest fires are in place prior to project implementation.
- Determine whether projects to replant trees destroyed by wildfire are eligible for support and, if so, how to account for their mitigation value given carbon release during fire.

[4] Moomaw W, Masino S, Faison E (2019) Intact Forests in the United States: Proforestation Mitigates Climate Change and Serves the Greatest Good. Frontiers in Forests and Global Change 2 (Article 27):1-10. doi:10.3389/ffgc.2019.00027 or Rijal B, LeBel L, Martell DL, Gauthier S, Lussier J-M, Raulier F (2018) Value-added forest management planning: A new perspective on old-growth forest conservation in the fire-prone boreal landscape of Canada. Forest Ecology and Management 429:44-56. doi:https://doi.org/10.1016/j.foreco.2018.06.045

3) Focus on realistic logistical targets

Designing and implementing a program that will work in the near term and last over the long term is essential for program success and growth, including public and political support for the effort.

Seed source is important in relation to available supply and success over time.

- The demand created by the Two Billion Trees program greatly exceeds the supply of appropriate native seedlings for a national tree-planting program, say experts in the field[5].
- A national seed strategy is needed to scale up genetically appropriate native tree seed and seedling supply to match future demand. This includes seed forecasting, collection, processing, and storage, and nursery stock production.

Physical capacity and specialized knowledge to actually plant this many trees across Canada, relative to proposed principles and criteria, needs to be assessed and possibly enhanced.

- To create capacity to plant this many trees successfully under the required conditions will require a network of experienced planting delivery agents, post plant survival assessments and monitoring, database development and management, and climate change adaptation specialists (Forests Ontario and its Forests Recovery Canada Division have a model).
- Long-term, sustainable funding is needed to incentivize organizations and businesses to invest in the infrastructure needed to scale-up activities required to meet targets.
- Opportunities can be created for First Nations impacted by industrial resource extraction activities within their traditional territories by inviting them to play a leadership role in restoration.

4) Leverage and support a variety of actors to achieve program goals

Numerous parties – starting with Indigenous nations and including industrial land users, contractors to those industries, landscape companies, municipalities, conservation organizations and community-based nature groups – could be engaged to help ensure this concept of rebuilding ecosystems and fighting climate change with trees is a success.

Government may not be able to fully run every effort, but it should work to support actors and sectors that can help develop, maintain and implement the high quality, rigorous and achievable program standards described above.

Our organizations have staff expertise, time and resources for providing support with technical advice, public communications and external partnership development. We can help make Canada's national tree planting program a success for climate, biodiversity and communities.

We are available and interested in participating in an advisory capacity on all elements described above and would welcome conversations on how the program can be carried out via a wide range of partners.

[5] Pers Comm: Steve Hounsell, Ontario Biodiversity Council, 2020-07-26

In Closing

Thank you for your consideration. We look forward to meeting with you soon to discuss this submission.

Sincerely,

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