Research Funding

Learning and Knowledge Hubs for Natural Climate Solutions

Nature Smart Climate Solutions Fund

November 16, 2023

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Executive Summary

The objective of this funding intake is to identify and fund research organizations that will host Learning and Knowledge Hubs (LKH) aimed at advancing fundamental and technical knowledge to support the implementation of natural climate solutions[1] in Canada. The selected organizations will receive and manage funding under Environment and Climate Change Canada's (ECCC) Nature Smart Climate Solutions Fund (NSCSF) for up to five years. Starting in 2024, ECCC intends to fund one LKH per targeted ecosystem (i.e., forests, grasslands, wetlands, peatlands) for up to a total of four LKHs. ECCC also intends to fund a fifth, Indigenous-led LKH to explore similar research questions with a specific focus on integrating Indigenous science[2] and knowledge and increasing capacity building of scholars and communities.

Research interests for the five LKHs could include the following:

- *Implementation:* support the development of data and information from natural and/or social sciences that can inform the implementation of natural climate solutions in Canada.
- *Policy:* research focused on the direct and indirect improvement of existing and/or development of new policies, tools or programs supporting natural climate solutions design and implementation in Canada.
- *Greenhouse gases (GHG) quantification:* capacity building for GHG quantification, including the development or improvement of methods for (1) monitoring and (2) quantification of mitigation outcomes, and (3) assessment of leakage[3].

The LKHs must also include:

- Plans indicating how expertise within and across organizations will be drawn. This will include capacity building components such as workshops and conferences.
- The generation of new, publicly available knowledge that can ultimately support the implementation of natural climate solutions in Canada.
- A strong plan to support Indigenous participation and to bridge, braid, and weave Indigenous science with western science approaches to inform and enhance decision-making.

Interested eligible organizations – *domestic not-for-profit organizations; and, Indigenous and non-Indigenous research, academic and educational organizations* – are invited to submit a Letter of Intent by **January 10, 2024**. Following this first review, selected organizations will be invited to submit a Final Application by **March 1, 2024**.

[1] Nature-based climate solutions (or natural climate solutions) include actions to reduce the loss, restore, and improve the management of ecosystems. These actions can help to store and capture carbon; mitigate the impacts of climate change; build resilience and improve water quality, and provide critical habitat for Canada's wildlife.
[2] Indigenous science is a distinct, time-tested, and methodological knowledge system that can enhance and complement western science. Indigenous science is about the knowledge of the environment and knowledge of the ecosystem that Indigenous Peoples have. Source: https://www.canada.ca/en/environment-climate-change/services/science-technology/indigenous-science.html
[3] Leakage refers to an unintended increase in GHG emissions or the shifting of emissions from one place to another due to a GHG mitigation project.

1 Purpose

This is an invitation for applications for a new funding intake under Canada's Nature Smart Climate Solutions Fund (NSCSF). The Learning and Knowledge Hub (LKH) for Natural Climate Solutions' intake is for research organizations aiming to support Western and Indigenous research initiatives to increase foundational knowledge and capacity to implement natural climate solutions in Canada. This funding may allocate up to $20 million to fund multiple LKHs for up to 5 years in duration (i.e., 2024-2029). One LKH per targeted ecosystem (i.e., forests, grasslands, wetlands, peatlands) as well as an Indigenous-led LKH may be funded, for a total of up to five LKHs.

The purpose of this guide is to help applicants assess whether their project would be a good fit for this intake, and to guide the application process.

2 About the Nature Smart Climate Solutions Fund

Climate change and the loss of biodiversity are connected, and natural climate solutions are required to tackle these crises. Canada is committed to implementing natural climate solutions to build climate resilience and help Canada meet its 2030 and 2050 climate change objectives.

To address climate change and biodiversity loss, the Government of Canada has established the Natural Climate Solutions Fund that will invest over $5 billion from 2021-2031. The Natural Climate Solutions Fund consists of three distinct, but related programs:

- 2 Billion Trees Program led by Natural Resources Canada ($3.19 billion)
- NSCSF led by Environment and Climate Change Canada ($1.41 billion)
- Agricultural Climate Solutions led by Agriculture and Agri-Food Canada ($855 million)

The goal of ECCC's NSCSF is to reduce greenhouse gas (GHG) emissions by 5-7 megatonnes (Mt) annually by 2030 and until 2050 in support of Canada's target to reduce GHG emissions 40-45% below 2005 levels by 2030 and to achieve net zero emissions by 2050. For more details, please visit the official website of the NSCSF.

3 Vision of the Learning and Knowledge Hubs

3.1 Objectives

The main objective of the LKHs is to increase foundational knowledge and capacity to support the broader understanding and implementation of natural climate solutions in Canada while maximizing the co-benefits for biodiversity and human well-being. The organizations selected to host the LKHs will manage research funding aimed at supporting diverse research initiatives across natural and social sciences in different research organizations across Canada.

In addition to points above, the applicant must demonstrate how their project will meet the broader *objectives of this intake:*

- Support the development of data and information from natural and/or social sciences that can inform the implementation of natural climate solutions in Canada.

- Incentivize collaboration between different organizations and researchers across Canada on a specific ecosystem.
- Increase capacity building to implement natural climate solutions in Canada through knowledge creation and transfer. For example, organize knowledge transfer events such as multi-organizations workshops and conferences.
- Present a well-developed plan to support Indigenous participation, to bridge, braid, and weave Indigenous science with western science approaches to inform and enhance decision-making, and to increase capacity building of Indigenous scholars and communities.

Priority will be given to LKHs that increase the likelihood of successful implementation of natural climate solutions in Canada.

3.2 Targeted Ecosystems and Natural Climate Solution Activities

There are four targeted ecosystems for the LKHs: forests, grasslands, wetlands, and peatlands (Figure 1). One LKH per ecosystem will be funded, meaning that – depending on the quality of the applications received – a total of four LKHs will be funded (one per ecosystem). A fifth, Indigenous-led funded LKH – hosted by a domestic Indigenous research, academic and educational organization – will carry out research integrating one or multiple of the targeted ecosystems, with a focus on incorporating Indigenous science and knowledge and increasing capacity building of scholars and communities.

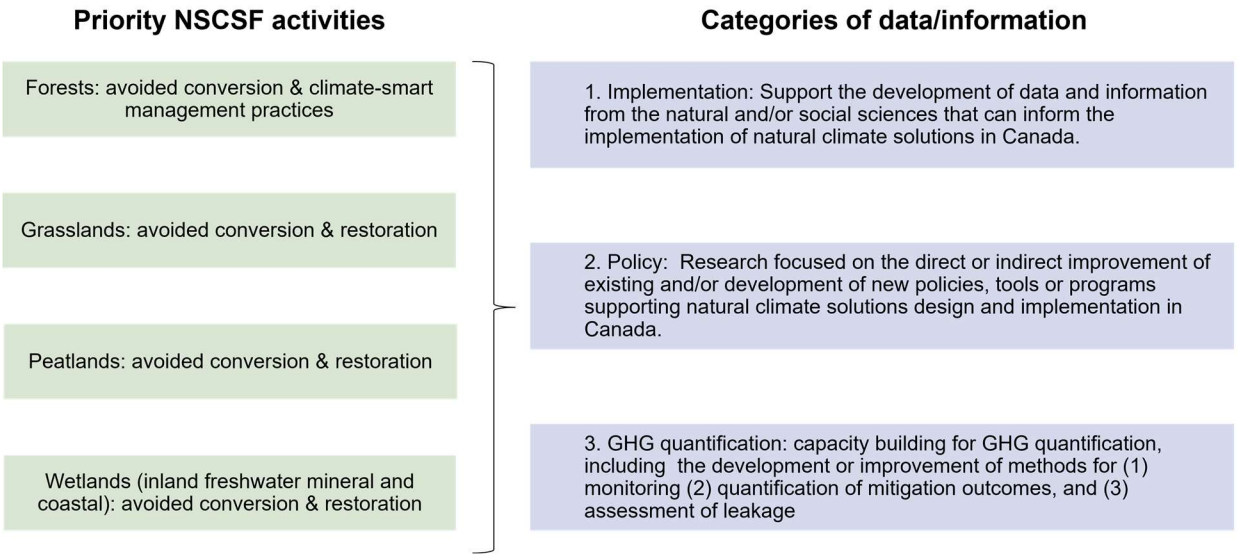
Ecosystem definitions used in the applications should generally be in line with the land use categories used in the National Inventory Report[4] (NIR) (e.g., forest land). Applications that have different ecosystem definitions from the NIR must clearly indicate how they differ and provide justification for the difference. For NSCSF purpose, the different ecosystems are structurally and geographically defined according to ECCC Ecological Land Classification information[5] and the Canadian Wetland Classification System[6]. Below are definitions of areas where research could take place for LKHs. However, if justified, research can focus anywhere that ecosystems are being threatened by anthropogenic activities that would cause GHG emissions.

- **Forests** could include anywhere in Boreal Plains, Boreal Shield, Montane Cordillera, Pacific Maritime, Atlantic Maritime, or Mixedwood Plains Ecozones. Since the NSCSF does not fund large-scale tree planting activities (see Natural Resources Canada “2 Billion Trees” program), applications with a primary focus on reforestation and tree planting will not be considered for the LKH.
- **Grasslands** should be drawn mainly from the Prairie Ecozone, although applications covering Mixedwood Plains and Montane Cordillera Ecozones are also relevant. This program is interested in research on both native and tame grasslands.

[4]See Section 6 6.2. (p.176) of https://publications.gc.ca/site/archivee-archived.html?url=https://publications.gc.ca/collections/collection_2023/eccc/En81-4-2021-1-eng.pdf
[5] Ecozone and Ecoregion Maps and Descriptions (ecozones.ca)
[6]The Canadian Wetland Classification System, nawcc.wetlandnetwork.ca/Wetland Classification 1997.pdf

- **Wetlands** could be in any Ecozone. For this intake, wetlands will refer to both inland freshwater mineral wetlands and coastal wetlands (seagrass and saltmarsh habitats).
- **Peatlands** could be found in Taiga Plains, Hudson Plains, Boreal Plains, Boreal Shield, or Atlantic Maritime Ecozones.

Figure 1. Research focus of LKHs in terms of targeted ecosystems and natural climate solutions activities as well as categories of produced data and information



3.3 Research Activities and Questions of Interest

Figure 1 describes the three categories of data and information on which the LKHs should focus. While LKHs should aim to generate knowledge across multiple categories of data and information, priority will be given to LKHs that ultimately increase the likelihood of successful implementation of natural climate solutions in Canada. This means that applications with a strong focus on category 1 (implementation) and 2 (policy) will be prioritized (Figure 1). While submissions related to GHG quantification are not discouraged, ECCC is currently engaged with internal and external collaborators to fulfill knowledge gaps on category 3 (GHG quantification), and new applications only addressing category 3 may not be prioritized.

Here are examples of research questions that could be of interest for the three categories of data:

1. Implementation

- What affects private land prices, turnover in land ownership, and conversion risk of natural areas over time in key Ecozones or jurisdictions in Canada?
- How could different industrial practices or approaches be changed to reduce GHG emissions from land conversion or increase carbon sequestration in ecosystems while also increasing co-benefits for biodiversity and human well-being?
- How does the type of conservation tools affect uptake by landowners or sectors in Canada?

- Acknowledging the important roles and contributions of Indigenous peoples and local communities as custodians of biodiversity and partners in the conservation, restoration, and sustainable use, what are the best approaches to bridge, braid, and weave Indigenous science with western science approaches to inform and enhance decision-making?

2. Policy

- What are the policies that may create a perverse incentive contrary to natural climate solutions? How can these policies be improved to avoid perverse incentives?
- What are the linkages between different land use policies and land conversion and what policy options could help support the reduction of land conversion?
- What policies, programs or tools could be developed to address barriers delaying or limiting the implementation of natural climate solutions?

3. GHG quantification

- What new or improved method could be used/developed to project land-use change rates in native and perennial grasslands? Multidisciplinary approaches would be considered, including socio-economic models to determine cause–effect relationships.
- What are the regional rates of leakage associated with avoiding the conversion of forests, grasslands, wetlands, and peatlands in different regions of Canada?
- What new or improved method could be used to carry out monitoring of natural climate solutions across Canada at the lowest reasonable cost while balancing accuracy and precision?

3.4 Funding and budget

A total of up to $20 million will be allocated to a maximum of five LKHs. Each LKH can apply for funding of a maximum of $4 million for up to 5 years starting in 2024. Management overhead should not account for more than 20% of the total budget. Organizations proposing competitive management fees <20% will be prioritized.

This is **not** a Grant, which typically advances all funds up front upon successful notification with limited reporting thereafter. This is a **Contribution Agreement**, with detailed work plans and budgets required up front, and full payment based on reimbursement at year-end upon submission of detailed reports.

LKHs will be led and managed by one organization (e.g., university, research NGO, Indigenous research organization). The research organizations managing the LKHs are strongly encouraged to support research in collaboration with partners/researchers located in other organizations. The organizations with the capacity to leverage strong and diverse collaboration between multiple research organizations will be prioritized.

NSCSF has a match objective of 1 to 1, but matching is not mandatory. While there is no minimum required match, projects with higher and confirmed match will be scored higher than those with lower and unconfirmed match. Projects with higher than 1:1 match will be advantaged. Matching can be cash or in kind for the full amount and must be directly related to the delivery of the project.

Indigenous applicants are invited to describe any match they have as a demonstration of their commitment to the project, but match levels will not be part of the evaluation of the project as it will be for non-Indigenous applicants.

3.5 Eligible Participants

This intake is open to the following groups:

- Domestic not-for-profit organizations;
- Domestic research, academic and educational organizations;
- Domestic Indigenous research, academic and educational organizations.

Applicants may have collaborators or co-applicants outside those aforementioned. When applying as a collaborative group, one organization must be designated as the principal applicant and will be the legal entity who has authority to sign and manage a contribution agreement on behalf of the group.

4 The Application Process and Key Dates

Applicants that have received an invitation to participate into the LKH Intake are encouraged to review the applicant guide and contact NSCSF at ec.fscan-nscsf.ec@ec.gc.ca to discuss the eligibility and suitability of their project for this intake if they so wish.

- **January 10, 2024:** Deadline to submit Letter of Intent.
- **January 19, 2024:** Applicants invited to submit a Final Application are invited.
- **March 1, 2024:** Intake closes. Deadline to submit Final Application. At that time, all applications will go through an evaluation process.

Successful applicants will be notified early in 2024, for funding in fiscal year 2024-25.

5 Information Required for the Application

5.1 Letter of Intent

The Letter of Intent should not be longer than 750 words. The goal of the letter of intent is to identify applicants that will be invited to submit a Final Application. The Letter of Intent should include:

- Main applicant's contact and information (Organization, Address, Name of main contact, Phone number, Email)
- Project overview
- Brief overview of how the project meets the 4 evaluation criteria described in section 6:
    - **Team management capacity and expertise.**
    - **Research strength**, with a particular focus on briefly highlighting the research gaps being targeted, main research objective of the LKH, and general location and types of activities.

- **Value**, particularly in terms of potential collaborations.
- **Budget and timeline.**

5.2 Final application

The main text of the application should not be longer than 3000 words (excluding contact information, bibliography, budget, and appendices). The application should include the following sections:

1. Main applicant's contact and information: Identify main organization, address, name of main contact, phone number, email.
2. Team and experience (250 words): Describe how the team (mix of expertise type, diversity and gender equity, productivity, and impact of contributions to research, capacity to design and manage multidisciplinary research), organization and potential partners (e.g., capacity of facilities, access to data, experience managing similar funding) make the applicants qualified to manage an LKH. Do not include full CVs, but instead provide links to organizational or faculty webpages, linked-in pages, and other sources where qualifications can be further verified.
3. Expertise with targeted ecosystem (250 words): Describe why the organization and team is qualified to manage the LKH for a given ecosystem. Provide an overview of the team's existing research program and how additional funding would contribute to that research program. Cite any high impact research/publications carried out by the team/organization on relevant topics for the ecosystems as supporting examples. Links to Digital Object Identifies (DOI) can be used to conserve space instead of writing out references in full.
4. Research gaps and opportunities (500 words): Review and identify the main research gaps and opportunities associated with the targeted ecosystem, and how these relate to the key categories and data/information for this intake (e.g., GHG quantification, implementation, and policy). Cite any relevant literature to support claims about gaps and opportunities.
5. Research objectives and plan (750 words): Describe the main research objectives that the applicants plan to support and carry out through the LKH. Describe the general methods to be used (e.g., field experiments, social surveys, extension activities) but do no go into details about analytical or statistical methods or site and community descriptions. Instead, focus on describing how proposed research will help reduce research gaps previously identified, and identify why/how this research will be important to support the development and success of natural climate solutions in Canada. Also indicate the geographic focus of the research (national or regional focus).
6. Collaboration and networking (500 words): Describe how the main applicant to the LKHs plans to collaborate internally (e.g., with other faculty and departments) and externally with researchers from different organizations.
7. Engagement of Indigenous communities (250 words): Describe how the LKH will engage Indigenous communities and scholars, bridge, braid, and weave Indigenous science with western science approaches to inform and enhance decision-making, and support capacity building of Indigenous scholars and communities. If working with specific Nations or communities, provide a memorandum of understanding (MOU) between the applicant and Indigenous groups or a letter demonstrating community support for the project.

8. Knowledge Transfer Plan (500 words): Describe a plan on how information and knowledge identified and researched through the project will be shared to a broader community resulting in an increased in nature climate solution implementation.
9. Budget: Provide an overview of how the budget will be allocated for different research initiatives over the proposed duration of the LKH. In addition, a budget template is provided in MS Excel *.xlsx. In this template describe your planned activities for each fiscal year (2024-25 to 2028-29), use the eligible activity and cost categories provided in the dropdowns, describe your other financial and in-kind contributions (confirmed, applied for, proposed), and provide your official contact information and affiliation. This document will not count towards the 2500 words.
10. Bibliography: Provide full citations of any references used in the application.
11. Appendices: Submit any appendices in support of the sections highlighted above. Appendices could include letters of support from partners and potential contributors, and any other documents judged relevant for assessing the quality of the applications. Do not include CVs or biographies and lists of publications by team members, and instead provide links to organization webpages or linked-in pages to allow verification of qualifications.

6 Project Evaluation

The final applications will be assessed on the extent to which they contribute to the objectives of the LKHs in a cost-effective and timely manner. Criteria that will be used to evaluate the applications include:

- Team management capacity and expertise:
    - Project team has the expertise and capacity to manage an LKH. Project team has the project management experience and expertise to deliver on the project's activities and demonstrated an effective approach to project management.
    - Project team has experience working on multidisciplinary research (research partners contributing from multiple disciplines) or demonstrates an effective approach to implementing multidisciplinary research planning.
    - Project team has experience or the ability to establish a Community of Practice for sharing and communicating ideas and research through the Hub via webinars, newsletters, websites, etc.
- Research strength:
    - Application clearly identifies existing scientific knowledge gaps and how the project will help address these gaps.
    - Application provides a clear picture of how results of the project could enhance scientific knowledge and information on natural climate solutions in terms of the three following categories of data described above.

- Value:
    - Application provides good value for money by incorporating diverse expertise and skills, leveraging pre-existing infrastructure, data, and relationships. Application includes the training of highly qualified personnel or trained personnel, which will enhance Canadian expert capacity.
    - Application leverages government, non-government and research network partnerships, expertise, resources, data, and/or infrastructure.
    - Application proposes a detailed and well-developed plan for capacity building and knowledge transfer.
    - Application includes a detailed and well-developed plan to engage Indigenous communities and scholars, bridge, braid, and weave Indigenous science with western science approaches to inform and enhance decision-making, and support capacity building of Indigenous scholars and communities.
- Budget and timeline:
    - Project timeline is detailed, well-developed, and allows for adequate time to complete project activities within 5 years from the project start date.
    - Project budget is detailed, well-costed, and adequate to complete deliverables. Application provides an estimate of how much of the budget will be spent on each activity.
    - The proposed administrative and overhead costs are competitive.
    - Application describes an estimate of how much match funding might be available for research activities.

7 Contact Information

Please contact ec.fscan-nscsf.ec@ec.gc.ca for further information. All applicants are welcome and encouraged to discuss their application with NSCSF staff until the application period is closed.