NRCan Report:
Recommendations on
Open Access Publishing

Canada

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Executive Summary

Open Access (OA) publishing in the federal context is a multifaceted effort that is challenging to advance without thoughtful integration of several perspectives. The purpose of the Natural Resources Canada (NRCan) Recommendations on Open Access Publishing is to provide NRCan senior managers with recommendations on a path forward to fulfill NRCan's mandate and federal requirements to make science more openly accessible by concurrently considering key themes: policy and guidance; governance, communication and culture; funding and incentives; infrastructure and enablement; and education and awareness. Implementation of the recommendations will enable NRCan to move closer to its goal of OA publishing by default, while considering research security and other relevant factors, as well as demonstrate to Canadians that NRCan is committed to sharing scientific knowledge equitably for society.

The NRCan Recommendations on Open Access Publishing are based on evidence collected through four main sources, including interviews with OA stakeholders across NRCan (Appendix B), a literature review (Appendix C), and an intranet scan (Appendix D), all supplemented by the experience of NRCan OA WG members.

The following are highlights of the OA WG's recommendations by theme:

Theme	#	Recommendation
Policy and Guidance	1	Communicate an explicit position on OA publishing within the NRCan S&T Publications Policy, supported by a framework that integrates all Open Science principles and guides authors to consider OA-related factors (e.g., legal and strategic Intellectual Property (IP) asset management, the Scientific Integrity Policy, the RES Progression framework, S&T publications policy and research security) in a clear, consistent, and transparent manner when making decisions on publications.
Governance, Communication and Culture	2	Create a comprehensive OA Communications Plan that leverages existing S&T governance and other channels, targets senior managers and researchers, and consistently and frequently communicates federal mandates, NRCan's OA position and commitments and benefits of OA.

Theme	#	Recommendation
Funding and Incentives	3	Provide continuous, forecasted funding to enable and support OA publishing for NRCan authors.
	4	OA funding to pay for Article Processing Charges (APC) should be centrally managed, monitored and reported. Clear guidelines should be provided about how to apply for APC funding to ensure a transparent and fair process.
	5	S&T authors should be encouraged to consider OA publishing via all OA routes.
Infrastructure and Enablement	6	Develop, deliver and promote department-wide IM-IT infrastructure that integrates OA mandated practices into S&T publishing workflows to facilitate consistent and transparent access to resources, platforms, tools and supports. Such infrastructure will promote informed decision-making on OA publishing while safeguarding Crown Copyright.
Education and Awareness	7	Provide education and awareness opportunities for authors, program managers and senior managers to learn about OA publishing as well as supporting tools and resources to navigate the process of OA publishing.

Background

Since the launch of the Open Government Initiative in 2011, NRCan has been committed to applying principles of openness and transparency to its scientific inputs, outputs and processes. Activities to advance Open Science (OS) at NRCan have been further strengthened by the reinforcement of open principles in the Roadmap for Open Science (2020) published by the Chief Science Advisor of Canada.

In alignment with whole-of-government policy direction, NRCan has developed an Open Science Action Plan (2021) that outlines an evergreen approach to providing greater access, transparency and openness to our scientific research and activities performed in support of the department's programs, policies and decision-making. NRCan's Action Plan strives to achieve the following Open Science principles:

- **People:** OS is a shared commitment between all stakeholders, partners, and collaborators. The scientific community is integral to Open Science and needs to be meaningfully engaged at every stage of the process, including the design, implementation and evaluation of its effectiveness and impact.

- **Transparency:** Scientific research outputs are "Open by Design and by Default"; they are "FAIR". Scientific research outputs require a valid reason, to be kept private or confidential.

- **Inclusiveness:** In achieving OS, diverse and inclusive approaches are used, reflecting the breadth of perspectives across scientific communities and knowledge systems.

- **Collaboration:** OS enables collaborations between and among intramural and extramural science communities, within Canada and globally.

- **Sustainability:** The practice of OS requires a sustainable approach with concrete steps forward and the commitment necessary to achieve the long-term vision.

With these OS principles in mind, NRCan recognises that activities by some foreign governments, or other threat actors pose real risks to Canada's national security and the integrity of its research ecosystem. NRCan authors are therefore encouraged to proactively identify and mitigate any potential national security risks related to publishing their S&T outputs in OA.

Open Access Working Group

OA means "literature is digital, online, free of charge, and free of most copyright and licensing restrictions." (Source: Creative Commons). NRCan has taken key steps towards addressing gaps in the findability and accessibility of the department's publications based on observations made in the Action Plan. This is exemplified by ongoing work to explore models to support and facilitate OA, taking steps to provide an open repository for NRCan S&T publications, and adding OA metrics to the Departmental Results Framework.

NRCan's Action Plan commits to action towards OA publications and is overseen by the OS Committee. Even with progress made based on the NRCan Action Plan, there is no uniform process or business model used for OA publishing activities across the department and federal government. There is a need for evidence-based recommendations on OA publishing activities at NRCan, and these may in turn galvanize similar approaches at other science-based departments and agencies (SBDAs).

Therefore, the OS Committee launched an OA Working Group (WG) in March 2023 to report on department-wide activities focused on OA best practices and resource needs, as well as make recommendations on forward-looking OA strategies. Due to its cross-sectoral and diverse representation within NRCan, the WG bridged various parallel work streams implicated in OA publishing, such as IP, publishing agreements, publication management, career progression for SE-RES, OA/OS metrics, scientific integrity, Inclusive Science, and existing publication policy/guidelines. Implementation of the recommendations and strategies for promoting Open Data are outside of the scope of this WG.

Recommendations

Note: Implementation of the recommendations will depend on departmental priorities and fiscal constraints.

Policy and Guidance

S&T publishing funded by NRCan is subject to guidelines, directives, policies, audits, and legislation that address OA and related topics, such as open government, OS, IP, scientific integrity, publication management, communications, accessibility, official languages, etc. (Appendix D). Authors, program managers and senior managers are responsible for making decisions along the publishing process that simultaneously consider all these guidelines, directives, policies, audits, and legislation.

The lack of a framework to guide authors and their managers to consider all these factors throughout the publication cycle is not only a substantial inconvenience, but also a business and legal risk due to liabilities that occur when laws, policies, directives or even guidelines are not followed. An OA Policy Framework within the NRCan S&T Publications Policy would make the information within the various guidelines, directives, policies, audits, and legislation more accessible to authors and their managers and, in turn, promote accessibility of NRCan science to the public.

What we heard

While there are many policies and directives applicable to scientific publishing at NRCan (Appendix D), the department lacks a framework that provides structure to the policies and directives such that they can be applied in a clear, consistent and transparent manner to decisions made on OA publications.

Recommendation 1

Communicate an explicit position on OA publishing within the NRCan S&T Publications Policy, supported by a framework that integrates all Open Science principles and guides authors to consider OA-related factors (e.g., legal and strategic Intellectual Property (IP) asset management, the Scientific Integrity Policy, the RES Progression framework, S&T publications policy and research security) in a clear, consistent, and transparent manner when making decisions on publications.

Actions

- Identify gaps in the OA commitments in NRCan S&T Publication Policy and Guidelines, RES Progression Handbook, Scientific Integrity Policy, Intellectual Property Policy, and Research Security Guidelines.

- Create a cross-sectoral working group to amend the NRCan S&T Publication Policy to include a framework for OA that leverages existing policies and explicitly communicates to authors about NRCan's OA position and associated best practices.

Governance, Communication and Culture

What we heard

While there is growing awareness of the benefits of OA publishing, there are opportunities to improve awareness and perceptions of OA publishing among authors, program managers and senior managers.

Recommendation 2

Create a comprehensive Communications Plan for S&T Publishing that focuses on the transition from traditional paywall publishing to OA publishing. The plan should leverage existing S&T governance and other channels, target senior managers and authors, and consistently and frequently communicate federal mandates, NRCan's OA position and commitments and benefits of OA.

Actions

- Develop an OA Community of Practice (CoP) at NRCan that fosters a culture of sharing knowledge horizontally on the development and implementation of OA initiatives.

- OS Committee continues to oversee and support the development and the implementation of an OA Communications Plan.

- Enhance the OS intranet page to provide a comprehensive section on OA.

- Prepare an article on OA for The Source to increase awareness within the department, including the NRCan S&T Community.

- Use the S&T distribution list to increase awareness of website updates.

- Prepare a presentation and infographic for use at information sessions to leverage gatherings of the science community to increase awareness of OA benefits.

Funding and Incentives

What we heard

Despite a mandate for OS and negotiated publishing and licensing agreements with some publishers, there are currently insufficient funds for all NRCan authors who want to publish OA to do so.

Recommendation 3

Provide continuous, forecasted funding to enable and support OA publishing for NRCan authors.

Action

- OS Committee explores and champions designated funding(s) to support OA publishing.

- NRCan Science sectors to consider OA publishing fees in the allocation of funding for scientific research programs, projects, and initiatives.

- NRCan Library to further establish transformative agreements with emphasis on enhancing or supporting OA publishing.

- NRCan could facilitate discussions with other SBDAs and the Office of the Chief Science Advisor for Canada to explore federal funding opportunities for supporting OA publishing as means of making science and scientific information openly accessible to Canadians to spur scientific and technological innovation.

What we heard

Costs of publishing in OA are largely funded in a decentralized manner across the department. Programs with more funding are better able to pay Article Processing Charges (APC), leading to inequities with some scientific disciplines and researchers able to publish in OA more easily than others.

Recommendation 4

OA funding to pay for APC should be centrally managed, monitored and reported. Clear guidelines should be provided about how to apply for APC funding to ensure a transparent and fair process.

Action

- OS Committee collaborates with sectors to explore funding models for OA that include mechanisms for centralized monitoring and reporting.

- Investigate what GoC departments are doing in terms of centralizing OA funding. Health Canada (HC) and Public Health Agency of Canada (PHAC) have experience creating and administering an OA author fund.

- Explore the possible incorporation of approved Crown copyright licences within transformative agreements (TAs) prior to TA approval by FSLN. This will prevent authors from facing delays in publishing, as the Crown must grant permission before external publishers can release NRCan content.

- Investigate the use of an off-the-shelf system that could help centralizing the management of OA funding requests, payment, and reporting (e.g., Oable)

- The NRCan Library will continue to convert the licences it has with publishers from a subscription or read-only licences to combined read and publish licences through TAs.

What we heard

The current Career Progression Management Framework for Federal Researchers disproportionally incentivizes publishing in prestigious journals, regardless of OA. Diverse OS commitments and contributions, as well as their incentives, are not clearly defined.

Recommendation 5

S&T authors should be encouraged to consider OA publishing via all OA routes.

Action

- OCS works with sectors and the departmental RES Career Progression Committee on adding weight to OA publications in consideration of all OA routes.

- OCS is in the process of expanding the NRCan SE-RES Evaluation Grid with examples of Inclusive Science related activities as a way of recognizing and supporting the efforts of scientists involved in Inclusive Science activities, as well as to demonstrate value for their career promotion/advancement.

- OCS to work in collaboration with NRCan sectors and the SE-RES Union in future updates of the NRCan RES Handbook to ensure recognition and support of scientists who publish in OA.

- NRCan to work collaboratively with other SBDAs and the Treasury Board Secretariat in future updates of the Federal RE Framework to recognize and support federal scientists who publish in OA journals to make science and scientific information openly accessible to Canadians.

Infrastructure and Enablement

What we heard

Authors, program managers and senior managers require information management and information technology (IM-IT) solutions that enable simple and intuitive navigation through publication workflows, and where OA decision points are integrated and supported with appropriate resources. The solutions should be consistent across NRCan and include appropriate safeguarding measures for the management of Crown Copyright, open collaboration with other authors and their institutions, delegated signing authority, due-diligence, and significantly improve the quality of reporting.

Recommendation 6

Develop, deliver, and promote department-wide IM-IT infrastructure that integrates OA mandated practices into S&T publishing workflows to facilitate consistent and transparent access to resources, platforms, tools and supports. This infrastructure would promote informed decision-making on OA publishing while safeguarding Crown Copyright.

Actions

- Embed OA resources, tools, and supports at key points in the publication workflows to guide researchers, program managers and senior managers on OA best practices. (OA Checklist- in progress)

- Implement and maintain an Open S&T Repository (OSTR) for NRCan and an S&T Publications System (STPS) with the scope of serving all NRCan (both solutions will launch imminently with the publishing of this report).

OA refers to electronic resources and necessitates IM-IT. At NRCan, cross-sectoral collaboration in the development of IM-IT platforms and tools to manage publications and make them accessible has led to effective solutions that enable OA publishing.

Publication preparation requires writing the S&T product, writing a plain language summary and policy relevance statement, entering metadata for record keeping and accessibility, coordinating various reviews and approvals, and navigating publishing agreements and copyright retention. To support authors in considering OA factors along this process, OA information and resources must be integrated in the same workflow that includes those tasks. NRCan is moving towards a common system, the STPS, for all employees that enables dynamic and semi-automated publication workflows with OA resources and decision points integrated at key steps. During the writing of this report, two sectors will be launching this system within a few months with other sectors planned to onboard in 2024 and beyond.

In further support of publication workflows, the OA WG developed a checklist of OA policy requirements and best practices that can be added as help text or additional information within the web application. The checklist can also be added as an appendix to the NRCan Guidelines for Scientific and Technical Publishing. The checklist was developed by first outlining the main steps of the publication process, listing OA issues that are pertinent to each step, and identifying key points, policy material, internal resources and external resources that help address the issues.

Once workflows are complete and publications are ready to disseminate, NRCan requires a repository to facilitate OA. NRCan previously lacked an enterprise solution for the discovery of published outputs. In the writing of this report, NRCan is imminently launching the OSTR that will merge two of the largest publications databases at NRCan, GEOSCAN and CFS Publications Database, which primarily house publications by LMS and CFS respectively. Aging technology and extensive code customization have rendered these platforms at risk. The OSTR will link to the STPS and/or other interim workflow solutions to allow author-submitted publications to reside in the OSTR. The OSTR will be responsible for the discovery, distribution, reporting and preservation of NRCan published materials, ensuring the quality and longevity of publications.

One of the recommended ways to achieve OA is to provide access to research for users outside of NRCan. The OSTR will provide free, immediate, and permanent access to NRCan research outputs, in accordance with NRCan's IP and copyright licences and external publisher

agreements. The OSTR will be interoperable according to the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH), where search engines, such as the Open Science and Data Platform (OSDP), FSLN, and the Federal Open Science Repository of Canada (FOSRC), can harvest the OA content of our repository. Web feeds (Atom/RSS) will provide clients with updated content.

The OSTR will provide access to preprints/accepted manuscripts and departmental reports to enable persistence, credibility, and trustworthiness of NRCan science. The repository will be able to highlight our OA materials, bringing additional attention to these products.

Education and Awareness

What we heard

While there is growing awareness of the benefits of OA publishing, there are opportunities to improve awareness and perceptions of OA publishing among researchers, program managers and senior managers.

Recommendation 7

Provide education and awareness opportunities for authors, program managers and senior managers to learn about OA publishing as well as supporting tools and resources to navigate the OA publishing process.

Actions

- The Intellectual Property Division (IPD) at NRCan has created an OA Licence Comparison Chart[1] and a Journal Publication List to assist in publication decision-making. These tools will be integrated in publication workflow tools and will be added to the IPD intranet page.

- IPD is in the process of developing a comprehensive comparison chart for bibliometric tools that measure research impact. This will help NRCan research scientists compare the impact of OA publications vs non-OA routes.

- IPD has improved the library's web pages for OA publishing under TA to provide information about the copyright licence/publication agreement process. This procedure must be followed, even in the presence of a TA.

- IPD will collaborate with the FSLN to integrate newly negotiated Department of Justice-approved Crown copyright licence/publishing agreements for OA publishing alongside TAs coming into effect on January 1, 2024. This initiative will simplify procedures for researchers and guarantee conformity with the NRCan IP Policy.

- Offer regular training on topics related to OA (e.g., TA awareness and how to use them, persistent identifiers/researcher identity management such as ORCID, and Crown-copyright compliance). Use different delivery methods such as live and pre-recorded.

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[1] The web resources linked in this section are located on the NRCan intranet site, and are therefore directly accessible only through the NRCan network.

- Leverage and promote OA learning opportunities outside of NRCan (e.g., FSLN, Canadian Research Knowledge Network [CRKN], and Canadian Association of Research Libraries [CARL], Federal Intellectual Property Partnership [FIPP]).

- The library will keep up-to-date and expand its OA guide to offer information on TAs and related topics (e.g., predatory publishing).

The Future of Open Access at NRCan

In the NRCan Recommendations on OA Publishing, OA has been described objectively in terms of the availability of electronic resources for everyone. OA, however, is also a global social movement whereby current academic publishing models are increasingly scrutinized for their disproportional benefits to scientific publishers. As of late, attitudes towards the inequalities that result from these publishing models are shifting and represent a signal to all scientific institutions that there is an opportunity to adapt and adopt more equitable methods of S&T knowledge dissemination.

The Government of Canada and SBDAs, including NRCan, are involved in the global shift towards OA as both policymakers and participants in the "triple pay" model of academic publishing. In the triple pay model, NRCan funds the operation of their research programs as well as researchers' salaries who create and disseminate scientific works and provide free labour to publishers by voluntarily participating in peer review of scientific works. NRCan then pays publishers for subscriptions to their scientific journals for its employees to access. NRCan has actively promoted this model by promoting publications in prestigious journals, regardless of OA.

Recommendations in this report have proposed ways for NRCan to proactively adapt to a global shift in academic publishing models on the horizon. With a multifaceted approach that considers in parallel OA policy and guidance, governance, communication and culture, funding and incentives, infrastructure and enablement and education and awareness, NRCan is well-positioned to be an agent of change in OA publishing across the Government of Canada and improve the accessibility of NRCan science for the betterment of society.

Appendix A: Definitions, abbreviations and acronyms

Article Processing Charges (APC): charged to authors of scholarly articles during the publication process. APCs are used by OA journals in lieu of subscription fees that libraries and readers traditionally have paid to gain access to research articles.

Canadian Association of Research Libraries (CARL): provides leadership on behalf of Canada's research libraries and enhances capacity to advance research and higher education. It promotes effective and sustainable knowledge creation, dissemination, and preservation, and advocates for public policy that enables broad access to scholarly information.

Canadian Research Knowledge Network (CRKN) advances interconnected, sustainable access to the world's research and to Canada's documentary heritage content.

Career Progression Management Framework for Federal Researchers" (RE Framework): guides the SE-RES classification and levels through an incumbent-based approach. The Handbook to NRCan's Application of the RE Framework provides the practical information and tools for scientists, science managers and Career Progression Committees, to manage the career progression of SE-RES employees.

cOAlition S – Plan S: an international consortium of research funding and performing organizations who are committed to making full and immediate OA to research publications a reality.

Community of Practice (CoP): a group of people who share a common concern, a set of problems, or an interest in a topic and who come together to fulfill both individual and group goals.

Crown copyright: protects literary, artistic, dramatic, and musical works as well as sound recordings, performances by performers, and communication signals that have been created under the direction and control of the Government of Canada.

Dissemination (scientific and research findings): any activity that includes communication of material or content with the purpose of conveying research and scientific findings, such as scientific publications, conference presentations and posters.

Inclusive Science: An inclusive approach to science involves a renewed appreciation for all forms of diversity, calls for understanding and respect for the contributions of people from different backgrounds, and a reconsideration of assumptions about under-represented groups that are often the target of bias and stereotype in activities that occur both inside and outside of the classroom, as well as in professional contexts.

Information management and information technology (IM-IT)

Intellectual property (IP): a category of property that includes intangible creations of the human intellect.

Intellectual Property Division (IPD)

Natural Resources Canada (NRCan)

Office of the Chief Scientist (OCS)

Office of the Chief Science Advisor to Canada (OCSA/CSA)

Open Access (OA) is "Open access literature is digital, online, free of charge, and free of most copyright and licensing restrictions." (Source: Creative Commons).

OpenAIRE: a Non-Profit Partnership, established in 2018, to ensure a permanent open scholarly communication infrastructure to support European research.

Open Government

Open Science (OS)

Open Science Action Plan

Open S&T Repository (OSTR): The NRCan Open S&T Repository provides free and OA to publications, science and research published by Natural Resources Canada.

ORCID (Open Researcher and Contributor ID) is a global, not-for-profit organization that strives to enable transparent and trustworthy connections between researchers, their contributions, and their affiliations by providing a unique, persistent identifier for individuals to use as they engage in research, scholarship, and innovation activities.

OS Committee: a multi-sectoral oversight and advisory forum that is responsible for discussion, guidance and review of key implementation priorities to advance OS in NRCan and facilitating opportunities for collaboration to support and advance OS initiatives within and across NRCan.

Publishing agreements: a legal contract between the Crown, which owns the copyright to works produced by all public servants, and an external publisher. This agreement must be established before the external publisher can make the manuscript available to the public, whether behind a paywall or direct to OA.

Roadmap for Open Science

Science and Technology (S&T)

S&T Publication System (STPS): a web application to coordinate preparation, review, translation, production, approval, publication and reporting processes for NRCan publications.

Science-based departments and agencies (SBDAs)

Scientific integrity: the condition resulting from adherence to concepts of transparency, openness, honesty, high quality work, avoidance of conflict of interest and ensuring high standards of impartiality and research ethics.

Scientific Researcher (SE-RES): employees primarily involved in the application of comprehensive scientific and professional knowledge to the planning, conduct, evaluation and management of fundamental or applied research, knowledge enhancement, technology development and innovation.

Transformative Agreement (TA): contracts negotiated between institutions (libraries, national and regional consortia) and publishers that transform the business model underlying scholarly journal publishing, by moving from one based on subscriptions for accessing a publisher's titles to one that additionally permits OA publication of a specified number of manuscripts by that same publisher.

Appendix B: Interviews

The OA WG members have diverse and rich experience in topics related to OA publishing and established themes from which to create questions for semi-structured interviews (Interview Guide below). The WG then developed and finalized a list of 13 individuals from different NRCan sectors (and one former NRCan employee) to interview that included senior managers, researchers, publication managers, and program managers (Appendix B). Interview notes were synthesized into narratives to build evidence for recommendations. Each interviewee was contacted to confirm the accuracy of the notes taken during their interview and salient points. Interviewees were also given the opportunity to provide feedback on the recommendations once they were drafted.

Interview Guide

Open access is literature that is digital, online, and free of charge." (Source: Creative Commons)

Type	Subtype	Who Pays?
Gold	"Diamond"	Institution (subsidy)
Gold	Gold, not for profit	Author (fee)
Gold	Gold, for profit	Author (fee)
Gold	Hybrid gold, for profit	Author (fee) + Library (subscription)
Green	Last author version in repository (embargo)	Library (subscription)
Green	Pre-prints	Library (subscription)
Green	Working papers	Working paper archive

Open Access Repository: An open access repository is defined as a collection of full-text documents available in online databases on the Internet that can be accessed freely and instantly.

People interviewed:

Sector	Name
CFS	Paul Gaskin
CFS	Elisabeth Gauthier
CMSS	Tina Bradford
EETS	Karen Arvelo

Sector	Name
EETS	Greg White
LMS	Keith Dewing
LMS	Jack Jensen
LMS	Annie Laviolette
LMS	Malaika Ulmi
LMS	Alex Zagorevski
LMS	Éric Boisvert
SPI	Anne Jensen
SPI	Karl Rasmussen

Interview Questions:

1. What current efforts do you see happening in your sector in promoting open access publishing to researchers? You may comment on any services, any technology set-up, and investments to support, enable or sustain open access publishing?

(Further sub- questions)

    a. Tell us how open access publishing is paid currently.

    b. Are you aware of any incentives provided in your sector on OA publications.

2. What are the top THREE barriers and challenges you see in open access publishing for (scientists/administrators/program managers) in your sector?

3. (If training is not mentioned in the first two questions) What are the key areas of training do you perceive are required for researchers to consider or decide on open access publishing?

4. In your opinion, name ONE new approach NRCan should take when working towards meeting the federal OA mandate?

5. Can you comment on the overall awareness of open access publishing for scientists in your sector?

6. Do you have any success stories in your sector about open access publications you would like to share with us?

Appendix C: Literature Review and Intranet Scan

Literature Review

A comprehensive literature review was conducted by the NRCan Library on OA publishing frameworks and models in any government. Preliminary searches were conducted on April 11-12, 2023, to identify search terms and databases/resources that might have articles and reports on the topic. Library subscription-based databases and Google searches were employed, with database results focusing on OA publishing in academia, whereas Google searches produced results focusing on both academic and government OA publishing.

However, despite promising work and advances in OA such as OpenAIRE (a pan-European project) and cOAlition S – Plan S (an international coalition including numerous national research councils), there is currently no existing framework, which NRCan can leverage in developing and implementing internal OA initiatives. Existing policies and initiatives reviewed vary in terms of coverage, copyright retention, article processing fees and funding, as well as technical infrastructure. The literature review also highlighted the recognition of financial barriers to implementing OA.

Intranet Scan

Searches were conducted by the Office of the Chief Scientist (OCS) on the NRCan Intranet with the goal of capturing past events and programs that are related to OA, including OA publications and Open Data. The first 30 pages of results were assessed for relevance. The list of relevant results is listed below. In brief, the results of the intranet scan included open data resources, a list of OA publications curated by the NRCan Library, a link to a new IP policy, and an article on Mis-/Disinformation. Of note, the results did not include any internal policy framework on OA or resources for NRCan employees to navigate decision-making on OA during the publishing process.

The following were the results of the Intranet Scan[2]:

- Check out the largest collection of Open Canadian Geospatial Data! | The Source (nrcan.gc.ca)

- Highlights and takeaways from the 121st Open Geospatial Consortium Member Meeting | The Source (nrcan.gc.ca)
  - Home - Open Geospatial Consortium (ogc.org)

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[2] Disclaimer: The web resources linked in this section are located on the NRCan intranet site, and are therefore directly accessible only through the NRCan network. For readers without access to this network, links displayed here provide an overview of the results of the Intranet Scan."

- [Science Matters: Mis-/Disinformation and the Future of Science | The Source (nrcan.gc.ca)](#)

- [A new Intellectual Property Policy is now available | The Source (nrcan.gc.ca](#))

- [New Available Geospatial Data Product : LiDAR Point Clouds | The Source (nrcan.gc.ca)](#)

- [Open access to free eBooks and eJournals: a curated list by the NRCan Library | The Source](#)

- [Geospatial Data and Science Take to the World Stage | The Source (nrcan.gc.ca)](#)

- [NRCan's CCMEO Introduces FAIR+: Making scientific data easier to find and access to benefit all communities | The Source](#)

Appendix D: OA-related Legislation, Policies, Directives and Guidelines

NRCan Policies and Guidelines[3]

- NRCan Values and Ethics Code

- Guide on Information Management

- Publishing and Exhibits Policy

- A Framework for Managing Communications and Public Participation at Natural Resources Canada

- Audit of NRCan's Publishing Activities (AU1706)

- Audit on Intellectual Property Management Control Framework (AU1704),

- NRCan Intellectual Property Policy (2023);

- NRCan Scientific Integrity Policy (2018);

- NRCan Scientific and Technical Publications Policy (2019).

- NRCan Data Policy (in development)

Open Government - Open Science

- Canada's Third Biennial Plan to the Open Government Partnership 2016-2018

- The Federal Science Library (Launched March 2017)

- Open Access Toolbox

- Open Government

- Public Library of Science (PLoS)

- Tri-Agency Open Access Policy on Publications

Legislation

- Access to Information Act

- Copyright Act and Regulations

- Library and Archives of Canada Act

- Official Languages Act

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[3] The web resources linked in this section are directly accessible only through the NRCan network. For readers without access to this network, links displayed here provide an outline of OA-related Legislation, Policies, Directives and Guidelines at NRCan.

- Patent Act and Rules

- Privacy Act

- Values and Ethics Code for the Public Service

Treasury Board Policy, Directives and Standards

- Directive on the Management of Communications

- Directive on Official Languages for Communications and Services

- Directive on Open Government

- Directive on Recordkeeping

- Policy on Access to Information

- Policy on Communications and Federal Identity

- Policy on the Planning and Management of Investments

- Directive on the Management of Procurement

- Policy on Official Languages

- Federal Identity Program Manual

- Procedures for Publishing

- Standard on Web Accessibility