

**Natural Resources Canada**  
**Policy on Scientific Integrity**

Adopted at NRCan Science & Technology Board on December 20<sup>th</sup>, 2018.

# NRCan Policy on Scientific Integrity

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# NRCan Policy on Scientific Integrity

## 1. Effective date

1.1. This policy takes effect on January 1<sup>st</sup>, 2019.

## 2. Context

2.1. This policy is issued pursuant to the May 15, 2017 and June 1, 2017 Memoranda of Agreement between the Treasury Board and the Professional Institute of the Public Service of Canada (PIPSC) in Respect of Scientific Integrity.

## 3. Authorities

3.1. This policy should be read in consultation with Treasury Board (TB) policies, the *Values and Ethics Code for the Public Sector*<sup>1</sup> as adopted April 2, 2012, the *Directive on the Management of Communications*<sup>2</sup>, the *Policy on Conflict of Interest and Post-Employment*<sup>3</sup>.

3.2. Where there is conflict or incompatibility between this Policy and legislation and/or a provision of any relevant collective agreement, the provisions of the legislation or relevant collective agreement take precedence.

3.3. Where there is conflict or incompatibility between this Policy and a mandatory Policy instrument of the Treasury Board (i.e. policy, directive or standard), the provisions of the Treasury Board mandatory Policy instrument take precedence.

3.4. Where there is conflict or incompatibility between this Policy and a voluntary Policy instrument of the Treasury Board (i.e. guidelines or tools), the provisions of this Policy take precedence.

3.5. NRCan will maintain a record of all instances of conflict or incompatibility between this Policy and legislation, collective agreements, or Treasury Board policy instruments and/or NRCan policy instruments, and submit this record as part of the performance evaluation as *per s. 7.9* of this Policy.

3.6. In consultation with representatives of PIPSC, the Deputy Minister has authority to support science integrity by establishing relevant and applicable standards for the design, conduct, management, review and communication of research and science within NRCan.

## 4. Objectives and expected results

The objectives of this Policy are to:

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<sup>1</sup> *Values and Ethics Code for the Public Sector*: <https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=25049>

<sup>2</sup> *Directive on the Management of Communications*: <https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=30682>

<sup>3</sup> *Policy on Conflict of Interest and Post-Employment*: <https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=25178>

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- 4.1. Foster a culture that supports and promotes scientific integrity in the design, conduct, management, review, communication, and use of research, science, and related activities.
- 4.2. Strengthen public, employee and stakeholder trust in the credibility and reliability of NRCan research and scientific activities.
- 4.3. Set expectations regarding the design, conduct, management, review, communication, and use of research, science, and related activities.
- 4.4 Enhance employee understanding of the contributions of research and science to evidence-informed decision-making, as well as the role of managers, communication and policy specialists, researchers and scientists in the development of government policy and advice.

The expected results of this Policy are that:

- 4.5. Employees involved in the design, conduct, management, review, communication or use of research, science, or related activities understand and conduct themselves in manner consistent with the principles of scientific integrity.
- 4.6. NRCan is recognized by employees, stakeholders, and the public as a reliable and credible source of research and scientific information.
- 4.7. As appropriate and to the extent possible, allegations of breach of the principles of scientific integrity as defined in s. 6 are addressed through a fair, impartial, efficient, confidential and respectful process.
- 4.8. Employees understand and seek to enhance the contributions of research and science to science advice, government policy and evidence-informed decision making.

## **5. Application**

- 5.1. This Policy applies to NRCan employees who design, conduct, communicate, manage, review, communicate or make use of research, science or related activities.
- 5.2. Nothing in this policy supersedes any relevant collective agreements.

## **6. Scientific integrity principles**

NRCan recognizes that stakeholder and public trust in the research and scientific information provided by governments depends upon the integrity of the process by which such information is produced, managed and communicated. So too does trust in the decision-making process that makes use of such information.

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Furthermore, NRCan recognizes that scientists and researchers must uphold and conform to standards of excellence accepted by the wider research and scientific community.

To this end, in designing, conducting, managing, reviewing, communicating or using research, science and related activities, NRCan employees shall:

6.1. Ensure that all such activities are carried out in a manner that is consistent with all relevant and applicable standards of scientific excellence, research ethics, and responsible research conduct.

6.2. Ensure that the conduct of NRCan research and science and any research or scientific products, as well as any associated communications, are free from political, commercial, client and stakeholder interference.

6.3. Ensure NRCan research and scientific information is made publically available in a timely manner and in keeping with the Government of Canada's *Directive on Open Government*, unless there are clear and compelling reasons for limiting disclosure.

6.4. Accurately represent and appropriately acknowledge the contributions of both themselves and others to their research or scientific work.

6.5. Avoid conflicts of interest, and ensure that any real, potential or apparent conflict of interest is explicitly recognized, reported and appropriately managed.

6.6. Encourage discussion based on differing interpretations of research and scientific evidence as a legitimate and necessary part of the research and scientific processes and, where appropriate, ensure that these differences are made explicit and accurately represented.

6.7. Ensure that the significant and meaningful contribution of researchers and scientists to government programs, policies, regulations, and decision making is acknowledged in official publications or communications, including the names and roles of those who made significant contributions to these products and activities.

6.8. Report any breach of these principles (i.e., a breach of scientific integrity) to their supervisor, manager or designated official.

## 7. Requirements

### 7.1. Implementation

7.1.1. This Policy will be communicated to all employees by the Deputy Minister, with special attention to its implications to NRCan communications policies.

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- 7.1.2. NRCan will continue to develop and implement the additional procedures, policies, guidelines, tools, training and professional development opportunities necessary to support this Policy.
- 7.1.3. NRCan will ensure that contractors and/or collaborators involved in, or providing services in support of, research, science or related activities are informed of this policy and encouraged to comply with its provisions and intent.
- 7.1.4. This Policy, as well as any associated policies, directives, or guidelines, may be posted on the NRCan's public website in permission-less downloadable form.
- 7.1.5. As the current policy and any associated policies, guidelines or tools are amended and revised, NRCan will maintain an annotated electronic archive of all such changes, with all archive elements available in permission-less downloadable form.

### 7.2. *Fostering a culture of science integrity*

NRCan recognizes two complementary approaches to fostering a culture of scientific integrity. One focuses on instilling the virtues that underlie responsible conduct in research, science and related activities (s. 7.2.1). A second focuses on the procedure for bringing allegations of breaches forward, the investigation of these allegations, and the consequences of a finding that a breach has occurred (s. 7.2.2).

#### 7.2.1. *Science virtues*

In accordance with relevant collective agreements and the TBS *Policy on Learning, Training and Development*<sup>4</sup>:

7.2.1.1. NRCan recognizes the importance of research networking with national and international peers and active participation in the business and organization of relevant scientific and professional societies, which form an important part of ensuring scientists and researchers understand and are held to the standards of their communities.

7.2.1.2. NRCan recognizes the importance of the virtues underlying scientific excellence, including intellectual curiosity and honesty, constructive skepticism, meticulousness, avoidance of bias, humility in the discovery and use of science evidence, and the limitations of scientific inquiry. To this end, it will ensure that learning policies support training, education and professional development opportunities that allow employees to further their understanding of, and appreciation for, these virtues.

7.2.1.3. NRCan will ensure its learning policies support training, education, and professional development opportunities to inform and educate employees about responsible

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<sup>4</sup> *Policy on Learning, Training and Development*: <https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12405>

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conduct in research, research ethics, and the annotation, management and archiving of research and scientific data.

7.2.1.4. NRCan will encourage the development and implementation of a science integrity mentorship program for researchers and scientists, whereby mentors exhibiting exemplary science virtues in their conduct and work are paired with more junior employees.

### 7.2.2. *Breaches of scientific integrity*

7.2.2.1. In cases of alleged breaches of scientific integrity, employees at all levels shall seek to resolve the issue in a fair and respectful manner and consider informal processes such as dialogue or mediation. In such cases, employees are encouraged to discuss and resolve these matters with their immediate supervisor. They may also seek advice and support from other appropriate sources within NRCan.

7.2.2.2. The Deputy Minister will appoint an NRCan Science Integrity Lead to address allegations of breaches of this Policy.

7.2.2.3. The Science Integrity Lead will ensure that alleged breaches of this Policy shall be promptly and thoroughly reviewed and investigated by the NRCan.

7.2.2.4. NRCan will endeavor to protect personal information and otherwise provide safeguards to ensure that employees may bring forward, in good faith, allegations of breach of scientific integrity or participate in an investigation procedure without prejudice or fear of reprisal.

7.2.2.5. When public servants have information that could indicate a serious breach of the *Values and Ethics Code for the Public Sector* they can avail themselves of the procedures laid out in the *Public Servants Disclosure Protection Act*<sup>5</sup>.

7.2.2.6. A breach of this Policy may result in disciplinary measures being taken, up to and including termination of employment.

### 7.3. *Openness, transparency and timeliness*

NRCan recognizes and understands the importance of openness and transparency about all elements of the research and scientific process as well as the timely release of scientific and research information. NRCan nonetheless also recognizes that there may be legitimate and compelling reasons that may limit the disclosure or availability of research or scientific information to employees, stakeholders or the public.

7.3.1. No NRCan employee shall suppress, alter or otherwise impede the timely release of research or scientific information in the absence of clear and compelling reasons for doing so.

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<sup>5</sup> *Public Servants Disclosure Protection Act*: <http://laws-lois.justice.gc.ca/eng/acts/P-31.9/>

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7.3.2. NRCan employees shall ensure that research and scientific information (including that produced by contractors, grantees, or other partners who participate in, or assist with, the design, conduct, management, review, communication or use of research, science or related activities) is produced and disseminated in a timely and transparent manner, in the absence of clear and compelling reasons for not doing so.

7.3.3. In cases when an employee is unsure or disagrees with the reasons for suppressing, altering, or impeding timely release of research or scientific information, the employee may consider informal processes, such as dialogue or mediation, or seek guidance from appropriate sources within NRCan to resolve the issues in a fair, respectful and timely manner.

### ***7.4. Public communication of research and scientific information***

NRCan recognizes the right to freedom of expression by researchers and scientists on matters of research or science. It also recognizes the important role of researchers and scientists in communicating research and scientific information to the public.

Moreover, NRCan recognizes that as public servants, scientists, researchers and indeed all employees are subject to the *Values and Ethics Code for the Public Sector* as adopted April 2, 2012. It further recognizes the need for caution and prudence in the public communication of classified or sensitive scientific or research information, as well as existing legal constraints on information disclosure. Finally, NRCan recognizes that effective public communication requires certain skills, and that researchers and scientists may have different degrees of comfort with public fora.

7.4.1. Researchers and scientists<sup>6</sup> have the right, and are encouraged, to speak about or otherwise express themselves on science and their research without approval or pre-approval, and without being designated as an official spokesperson. In doing so, they must respect the information disclosure provisions of the *Access to Information Act*<sup>7</sup>, and the *Values and Ethics Code for the Public Sector* as adopted April 2, 2012.

7.4.2. In any public communications, employees must be familiar with and respect any legal restrictions on information disclosure such as privacy rights, matters before the courts, and cabinet confidences. They must also respect the *Values and Ethics Code for the Public Sector* as adopted April 2, 2012, and the *Access to Information Act*. Unless explicit approval to do so has been given by supervisors or managers, classified or sensitive research or scientific information shall not be discussed in any public communication.

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<sup>6</sup> For the purposes of Article 7.4, the term “researcher(s)” and “scientist(s)” are understood to mean researchers (RE) and applied scientists (SP) as specified in the occupation group definitions for the public service – see s. 9 of the Policy. This definition may expand as additional bargaining units sign on to similar scientific integrity agreements.

<sup>7</sup> *Access to Information Act*: <http://laws-lois.justice.gc.ca/eng/acts/A-1/>

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7.4.3. In the case of planned formal public communication events with sufficiently long lead times (e.g., public talks or lectures), employees should notify their supervisor/manager of the upcoming event and, if required, provide a copy of their communication material for information purposes only and without prejudice.

7.4.4. In the case of formal public communication events with short lead times (e.g., media interviews) that effectively preclude prior notification, employees should notify their supervisor/manager as soon as possible after the event for information purposes only and without prejudice.

7.4.5. Pursuant to s. 7.4.2 and 7.4.3, NRCan will ensure that employees are provided with guidelines consistent with relevant collective agreements and the *Directive on the Management of Communications*, to assist them in determining the types of public communications for which supervisor/manager notification is desirable or required, and the appropriate timing and form of any such notifications.

7.4.6. Researchers and scientists are under no obligation to act as public NRCan subject matter experts or appear in public fora, and may decline any such invitation or request without prejudice, unless explicitly given this task by management.

7.4.7. Any public communication which describes work conducted by NRCan researchers or scientists must be reviewed and approved by them or their designates before publication or dissemination, and must acknowledge their contribution(s). In cases where a researcher or scientist does not wish authorship and/or their contribution to be acknowledged, they should be consulted as to whether, in their view, the work is accurately described and findings interpreted appropriately.

7.4.8. Researchers and scientists are encouraged to participate in media training provided by the NRCan, but this is not a requirement for them to express themselves about science or their research.

7.4.9. Where a researcher or scientist is speaking in the role of an official spokesperson, they must identify themselves by name and position and speak on the record for public attribution.

### ***7.5. Dissemination of research and scientific findings***

NRCan recognizes that communication among researchers and scientists is critical to the development of scientific and scholarly knowledge. Moreover, NRCan recognizes that its researchers and scientists are part of a global community of scientific and scholarly expertise, their contribution to which is critical to maintaining and enhancing the credibility and reputation of NRCan experts, the reputation and credibility of NRCan, and the contribution of NRCan to the knowledge economy.

As with public communications, researchers or scientists disseminating or communicating information through research or scientific media are subject to, and bound by, the *Access to*

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*Information Act*, the *Values and Ethics Code for the Public Sector* as adopted April 2, 2012 and must abide by Treasury Board of Canada's *Directive on the Management of Communication* where it does not conflict with the relevant collective agreements. To this end, NRCan must have publication approval processes that are compatible with the relevant collective agreements. Approval to publish will not be unreasonably withheld.

NRCan dissemination of research and scientific findings shall refer to the *NRCan Scientific Publications Policy* (2019), which is consistent with the following principles and procedures:

7.5.1. Final drafts of publications authored by NRCan researchers or scientists should be submitted to their manager or supervisor prior to formal submission, and discussed in a timely fashion. An electronic copy of the final version should be provided to the supervisor after acceptance and prior to publication by a publisher or other third party acceptance of the product.

7.5.2. If the submitted research or scientific communication, as per 7.5.1., does not contain explicit comments about or recommendations on federal statutory, regulatory or policy matters, approval of publication content by managers, supervisors or other relevant personnel is not required before submission for publication, communication or dissemination. In such cases, any requirements for approval shall not concern the content of the submitted publication.

7.5.3. If the research or scientific communication contains explicit comments about or recommendations on federal statutory, regulatory or policy matters, approval of publication content by managers, supervisors or other relevant personnel is required before submission for publication, communication or dissemination. The approval process shall adhere to and apply the principles of this policy and shall not suppress, alter, or impede the timely release of research or scientific information as per s. 7.3.1.

7.5.4. For communications requiring approval under s.7.5.3, they may be contingent on revisions or editorial changes. In such cases, if author(s) disagree with the suggested changes, the author(s) may consider informal processes, such as dialogue or mediation, or seek appropriate sources within NRCan to resolve the issue in a fair, respectful and timely manner. In the event that the approval of the publication content is withheld, the author(s) shall be informed in writing of the reasons and can request that the work not be attributed to them.

7.5.5. In support of Articles 7.5.2 -7.5.4 and in consultation with PIPSC representatives, NRCan will provide guidelines in the *NRCan Scientific Publications Policy* (2019) to assist researchers, scientists, managers and supervisors in identifying and distinguishing publications that do/do not require manager or supervisor approval.

7.5.6. The responsible NRCan author(s) of any research or scientific communication must ensure that:

- Consent from all listed authors and contributors is obtained;

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- The work in question is not a republication of original work except when the republication involves translation or dissemination to diverse audiences and is consistent with existing standards on republication;
- All contributions to the work are appropriately acknowledged in a manner conforming to accepted standards of the relevant discipline(s) and publication(s);
- NRCan authors' federal affiliations are listed;
- The communication has been subjected to appropriate independent peer review and that technical and/or editorial changes that may result from this review have been addressed;
- Matters related to acknowledgements and official languages have been appropriately managed and administered;
- The possibility of publishing in Open Access journals for scientific and technical papers has been explored;
- They have exercised due diligence in ensuring that all issues related to intellectual property and related matters have been resolved;
- They understand relevant terms and conditions for publication, including copyright and level of authority required for approvals; and,
- They seek credible and reputable outlets for academic publication that conform to established practices and standards of academic publishing, including peer review practices.

7.5.7. In cases where NRCan scientists or researchers have provided data or information to be used in a government document (e.g., a report, briefing note, etc.), management and those responsible for preparing the documents should consult with the scientist or researcher concerned to ensure that the data/information is used and interpreted appropriately.

### ***7.6. NRCan scientific capacity, leadership and contributions to the scientific community***

NRCan recognizes that the participation of NRCan researchers and scientists in the global scholarly community depends upon domestic and international collaboration and partnerships. Such collaborations and partnerships provide important opportunities for NRCan researchers and scientists to leverage and share their expertise, knowledge and infrastructure in developing research and scientific knowledge to the benefit of Canadians, as well as enhancing NRCan's scientific capacity and leadership.

To this end, NRCan shall:

7.6.1. Encourage and facilitate domestic and international research or scientific collaborations and partnerships between NRCan researchers and scientists, and the external research and development communities in universities and colleges; provincial, territorial or indigenous governments; industry and business; and, civil society.

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7.6.2. Make a reasonable effort to appropriately resource participation in relevant scientific and professional societies, working committees, conferences, workshops and symposia identified by both researchers and scientists as well as management.

7.6.3. Make a reasonable effort to ensure appropriate engagement or participation of researchers and scientists in international science and research-based fora of which Canada is a formal member.

Furthermore:

7.6.4. NRCan encourages activities related to collaboration with the extramural research and development communities, including the appointment of NRCan researchers and scientists to adjunct professorships.

### ***7.7. Role of employees in science advice and evidence-informed decision making***

NRCan recognizes that researchers and scientists have important roles to play in providing advice that informs federal programs, policy, regulations and law. Research and scientific findings are an important source of evidence that must be appropriately considered in evidence-informed decision making.

Moreover, NRCan researchers and scientists have an important role to play in providing advice not only on the research required to resolve today's issues, but also to identify emerging scientific and technical issues, research directions and opportunities.

To this end and in consultation with PIPSC representatives, NRCan will develop and deploy transparent and systematic mechanisms and procedures for:

7.7.1. Gathering, evaluating and incorporating scientific advice into policy and regulatory decision-making process.

7.7.2. Engaging employees in the design, development, and evaluation of robust and resilient research programs that will be able to meet the research needs of the future.

7.7.3. Identifying and prioritizing areas of federal authority for which the current federal science or research capacity is inadequate or where federal investment in research and development is likely to provide substantial benefits to Canadians.

In addition, NRCan will:

7.7.4. Support the development of training and professional development opportunities devoted to the roles of science and research in developing evidence to support evidence-informed decision making. Such opportunities may be made available to all employees who engage in, supervise, manage, support, review, use or report on research and scientific

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activities; analyze, curate or communicate data or information generated by these activities; and/or, seek to use information derived from these activities in decision making.

### 7.8. *Responsible conduct of research and science*

NRCan is committed to ensuring that its research and science conforms to the highest standards of responsible research and science conduct and shall strive to follow the relevant and applicable research practices honestly, accountably, openly and fairly in the development and dissemination of research and scientific knowledge.

7.8.1. Scientific integrity involves the application of concepts of transparency, openness, honesty, high quality work, avoidance of conflict of interest and ensuring high standards of impartiality and research ethics. Employees involved in science or research shall conform to the standards of responsible research. Such standards include, but are not limited to ensuring that:

- (i) All research and scientific activities (including study design and implementation; recording, analyzing, and interpreting data; and, in reporting and publishing data and findings) are conducted with the highest scientific rigour;
- (ii) Complete and accurate records of collections, data, methodologies and findings, including graphs and images, are maintained in a manner consistent with best practices. This curation is essential to the verification and/or replication of the work by others;
- (iii) Referencing and, where applicable, obtaining permission for use of all published and unpublished work, including data, source material, methodologies, findings, and images as appropriate;
- (iv) Authorship consent is obtained, and that all those and only those who have made a substantial (conceptual and/or material) contribution to, and who accept responsibility for, the contents of the publication or document, are included;
- (v) Individuals, communities, organizations or institutions who have supported, sponsored and/or funded the research are appropriately described and acknowledged;
- (vi) All and only those individuals who have participated in the research are appropriately recognized and acknowledged;
- (vii) The contribution of those and only those who have contributed to research, including communities, funders and sponsors, is appropriately described and acknowledged;
- (viii) Any real, perceived or potential conflict of interest is reported and appropriately managed;
- (ix) Information included in grant or award applications is accurate and complete, including information on partners, collaborators, co-applicants, and that their permission to be listed has been obtained; and,
- (x) Research involving humans or animals conforms to the Tri-council principles and procedures as specified in the *Tri-Council Policy Statement: Ethical Conduct for*

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*Research Involving Humans*<sup>8</sup> and the *Canadian Council on Animal Care Guide to the Care and Use of Experimental Animals*<sup>9</sup> respectively.

7.8.2. Employees involved in science or research shall avoid breaches of responsible research conduct. Such breaches include, but are not limited to:

- (i) *Fabrication*: Making up data, source material, methodologies or findings, including graphs and images;
- (ii) *Falsification*: Manipulating, changing, or omitting data, source material, methodologies or findings, including graphs and images, without acknowledgement and which results in inaccurate findings or conclusions;
- (iii) *Destruction of research records*: The destruction of one's own or another's research data or records to specifically avoid the detection of wrongdoing or in contravention of this or any other applicable policies and/or laws, regulations, and professional or disciplinary standards;
- (iv) *Plagiarism*: Presenting and using another's published or unpublished work, including theories, concepts, data, source material, methodologies or findings, including graphs and images, as one's own, without appropriate referencing and without permission where required;
- (v) *Redundant publication or self-plagiarism*: The re-publication of one's own previously published work or part thereof, including data, in any language, without adequate acknowledgment of the source, or adequate justification;
- (vi) *Invalid authorship or contributions*: Inaccurate attribution of authorship, including attribution of authorship to persons other than those who have made a substantial contribution to, and who accept responsibility for, the contents of a publication or document. Invalid authorship also includes the failure to acknowledge those who have made substantial contributions to the work in question;
- (vii) *Peer review abuse*: non-disclosure of conflict of interest, unfairly delaying a rival's publication;
- (viii) *Mismanagement of conflict of interest*: Failure to appropriately identify and address any real, potential or apparent conflict of interest;
- (ix) *Misuse of research funds*: Failure to comply with the prescribed funding conditions and requirements;
- (x) *Inaccurate grant and awards application*: Providing incomplete, inaccurate or false information in a grant or award application or related document, such as a letter of support or a progress report;
- (xi) *Inaccurate statement of collaborations*: Listing of co-applicants, collaborators or partners without their agreement.

## 7.9. Monitoring and assessing performance and compliance

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<sup>8</sup> *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*:

<http://www.pre.ethics.gc.ca/eng/policy-politique/initiatives/tcps2-eptc2/Default/>

<sup>9</sup> *Canadian Council on Animal Care Guide to the Care and Use of Experimental Animals*, Vol. 1 (2<sup>nd</sup> edition):

[https://www.ccac.ca/Documents/Standards/Guidelines/Experimental\\_Animals\\_Vol1.pdf](https://www.ccac.ca/Documents/Standards/Guidelines/Experimental_Animals_Vol1.pdf)

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NRCan should review this Policy and associated policies, guidelines or tools to ensure they remain relevant and seek employee and applicable bargaining agent input and feedback on the implementation of this Policy and provide performance indicators as practical.

7.9.1. In consultation with the Office of the Chief Science Advisor (OCSA) and PIPSC representatives, NRCan will design, develop and implement a monitoring plan for this Policy that will provide information on (a) the extent to which the policy has achieved its objectives (that is, policy performance); and, (b) future policy and associated instrument (e.g., guidelines, directives, etc.) development, adjustments, modifications or changes likely to improve policy performance.

7.9.2. In consultation with PIPSC representatives in its workplace, NRCan will identify (a) performance indicators to be monitored by any plan developed under article 7.9.1; (b) how the data on these indicators will be collected, annotated and curated; (c) how performance baselines will be characterized; and, (d) how changes from baseline will be estimated and evaluated.

7.9.3. A copy of all data and information collected as part of the monitoring plan, including a record of all instances of conflict or incompatibility between policy authorities as per s.3.6. of this Policy, will be forwarded annually to the Office of the Chief Science Advisor (OCSA), the appropriate National Union-Management Consultation Committee (NUMCC) and the Governance Committee for Implementation of Government-Wide Scientific Integrity Policy comprised of the Secretary of the Treasury Board, the Chief Science Advisor and the President of the Professional Institute of the Public Service of Canada.

## 8. Responsibilities

### *Deputy Minister*

The Deputy Minister (DM) and its executives are responsible for fostering an environment that encourages excellence and integrity in research, science and related activities, and for promoting a culture of open communication where employees may disclose, in good faith, information concerning breaches of scientific integrity. The DM is also responsible for:

- Ensuring that this Policy is communicated to all employees;
- Monitoring compliance with this Policy within NRCan and taking corrective action as needed;
- Performance evaluation of this Policy;
- Discussing the annual report on this Policy at the appropriate departmental Labour-Management Consultation Committee; and,
- Providing an annual confirmation of the compliance and reporting with this Policy as requested by the Governance Committee for Implementation of Government-Wide Scientific Integrity Policy.

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## *Directors, managers and supervisors*

Directors, managers and supervisors are responsible for implementation of this Policy. Such responsibilities include:

- Informing employees about this Policy and ensuring that they are aware of their rights and responsibilities and obligations under the Policy;
- Ensuring compliance with this Policy, providing to employees information about the processes available to them if they wish to make an allegation under this Policy, and addressing all allegations of breach of scientific integrity that are brought to their attention or of which they are aware; and,
- Ensuring that employees are aware of professional development and training opportunities that may be available in support of this Policy.

Specific responsibilities will be articulated in procedures and guidelines that will be developed to support this Policy.

## *NRCan employees*

All NRCan employees involved in the design, conduct, management, review, communication or use of research, science or related activities, and all persons conducting research, science or related activities under the auspices of NRCan will have primary responsibility for:

- Ensuring their behaviour and conduct conforms to the principles of scientific integrity;
- Ensuring that they design, conduct, manage, review, use or communicate research or science in a manner fully consistent with this Policy;
- Reporting any suspected breach of scientific integrity as soon as possible; and,
- Participating in good faith in any inquiry or investigation conducted pursuant to this Policy.

## **9. Definitions**

*Alteration* (of a scientific or research work): any change in the form or content of a research or scientific work that may affect the interpretation of the work and/or its implications.

*Breach* (of scientific integrity): failure to abide by any of the provisions described in s. 6 or s. 7 of this Policy.

*Classified or sensitive research or scientific information*: research or scientific information which would be normally be considered to be exempt from disclosure under the *Access to Information Act*.

*Clear and compelling reasons* (for withholding publication of scientific or research information): legitimate reasons include, but are not limited to: (a) disclosure of such information is exempt

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under the *Access to Information Act*<sup>10</sup> or the *Security of Information Act*; (b) technical or technological constraints limit or prevent making the information available.

*Client*: any person, institution or organization, whether internal or external to government, who is the recipient and/or user of research or scientific data, products, services or information, and who is involved with establishing the question or topic of the research or scientific work in question.

*Collaborator*: any person, organization or institution with whom/which a NRCan employee undertakes the design, conduct, management, review or communication of research, science, or related activities and who/which does not receive direct or indirect remuneration.

*Communication (of science)*: science communication involves any exchange of scientific or research information (including research results and interpretations thereof, methods, protocols, data, and products) in any form, between or among researchers or scientists (science and research producers) and the consumers or users of this information, including the public, other scientists or researchers, other government employees, and clients.

*Compelling evidence*: evidence of sufficient strength to convince the decision-maker that it is likely that the claim for which the evidence is adduced is true.

*Employee*: this is in most cases to be interpreted broadly to cover all employees, at all levels, within a department or agency, all of whom have a greater or lesser role to play in the scientific integrity procedures described in this Policy.

*Interference*: any action that alters or suppresses the work or the impartiality of a scientist or researcher, as understood within the *Values and Ethics Code for the Public Sector*, including the expectation that they provide decision-makers with all the information, analysis and advice they need, while striving to be open, candid and impartial. Interference also includes alteration or inappropriate suppression of research methodology and results or dissuasion of reporting of results by any party, including clients.

*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.

*Related activity*: any activity that (a) supports science or research (e.g., laboratory operations and management; infrastructure (including information and communication infrastructure)); (b) uses research or scientific information as an input (e.g., solicitation or preparation of science advice; evaluation of research or scientific evidence); and, (c) involves the curation, communication or archiving of scientific or research data or information.

*Research*: any undertaking intended to extend knowledge through a disciplined inquiry or systematic investigation<sup>11</sup>.

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<sup>10</sup> *Access to Information Act*: <http://laws-lois.justice.gc.ca/eng/acts/A-1/>

<sup>11</sup> Adopted from the 2008 Tri-Council definition of research, available at: [http://www.pre.ethics.gc.ca/policy-politique/initiatives/docs/Definition\\_of\\_Research\\_-\\_January\\_2008\\_-\\_EN.pdf](http://www.pre.ethics.gc.ca/policy-politique/initiatives/docs/Definition_of_Research_-_January_2008_-_EN.pdf)

## NRCan Policy on Scientific Integrity

*Researcher*: 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 relevant to defence science, historical research and archival science, mathematics and the natural sciences. (*N.B.* These definitions follow the RE occupational group definition for the public service<sup>12</sup>.)

*Science*: the pursuit and application of knowledge and understanding of the natural world through application of one or more elements of the scientific method. In the context of the current policy, it is understood to include both fundamental and applied natural, physical, biomedical and social science, as well as engineering and mathematics<sup>13</sup>.

*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.

*Scientist*: employees primarily involved in the application of comprehensive scientific and professional knowledge to one of the applied science programs involving actuarial science, agriculture, biology, chemistry, forestry, meteorology or physical sciences, which include physics, planetary and earth sciences, scientific regulation and patents. (*N.B.* These definitions follow the SP occupational group definition for the public service<sup>14</sup>.)

*Suppression* (of a scientific or research work): the deliberate withholding of a scientific or research work, or any portion thereof, from publication or dissemination, in the absence of clear and compelling reasons for doing so.

## 10. Enquiries

For further information on this policy, contact NRCan's Office of the Chief Scientist.

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<sup>12</sup> Research Group Definition: <https://www.canada.ca/en/treasury-board-secretariat/services/collective-agreements/occupational-groups/research.html#grp-re>

<sup>13</sup> Adopted from the Science Council: <https://sciencecouncil.org/about-science/our-definition-of-science/>

<sup>14</sup> Applied Science and Patent Examination Group Definition: <https://www.canada.ca/en/treasury-board-secretariat/services/collective-agreements/occupational-groups/applied-science-patent-examination.html#grp-sp>