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# Environment and Climate Change Canada Policy on Scientific Integrity

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This policy upholds integrity in designing, conducting, managing, reviewing, communicating or using research and science.

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## 1. Effective date

1.1. This policy takes effect on April 1, 2019, aligned with progress in development of the implementation plan.

## 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 (TB) 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 the following Government of Canada (GoC) policies, the *Values and Ethics Code for the Public Sector* <sup>1</sup> as adopted April 2, 2012, the *Policy on Communications and Federal Identity* <sup>2</sup> and its associated Directive on the Management of Communications <sup>3</sup>, the *Policy on Conflict of Interest and Post-Employment* <sup>4</sup>, the *Copyright Act* <sup>5</sup>, the *Public Servants Inventions Act* <sup>6</sup>, the *Security of Information Act* <sup>7</sup>.

3.2. In addition, the policy should be read in conjunction with *Environment and Climate Change Canada (ECCC) Values and Ethics Code* <sup>8</sup>.

3.3. 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.

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

3.5. Where there is conflict or incompatibility between this policy and a voluntary GoC policy instrument (i.e. guidelines or tools), the provisions of this policy take precedence.

3.6. ECCC will maintain a record of all instances of conflict or incompatibility between this policy and legislation, collective agreements, or GoC policy instruments and/or ECCC policy instruments, and will submit this record as part of the performance evaluation as per s. 7.9 of this policy.

3.7. In consultation with representatives of PIPSC, the Deputy Head has authority to support science integrity by establishing relevant and applicable standards for ECCC employees regarding the design, conduct, management, review, communication and use of research and science and, revise this policy as needed according to policy performance review.

## **4. Application**

4.1. This policy applies to ECCC employees who design, conduct, manage, review, communicate or make use of ECCC research and science.

4.2. Nothing in this policy supersedes any relevant collective agreements. Neither does this policy extend provisions of relevant collective agreements to employees not subject to those agreements.

## **5. Objectives and expected results**

The objectives of this policy are to:

5.1. Foster a culture within ECCC that supports and promotes scientific integrity in the design, conduct, management, review, communication and use of research and science.

5.2. Maintain and strengthen public, employee and stakeholder trust in the credibility and reliability of ECCC research and science.

5.3. Set out expectations for ECCC employees regarding the design, conduct, management, review, communication and use of research and science.

5.4. Enhance employee understanding of the contributions of research and science to evidence-informed decision-making, as well as the role of managers, communication, policy and regulatory specialists, researchers and scientists in the development of government policy and advice.

The expected results of this policy are that:

5.5. ECCC is recognized as a reliable and credible source of research and scientific information by employees, stakeholders, and the public.

5.6. Employees understand and seek to enhance the contributions of research and science to science advice, government policy and evidence-informed decision-making.

5.7. ECCC employees involved in the design, conduct, management, review, communication or use of research and science understand and conduct themselves in a manner consistent with the principles of scientific integrity.

5.8. 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.

## **6. Scientific integrity principles**

ECCC 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.

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

In designing, conducting, managing, reviewing, communicating or using research and science, ECCC 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 ECCC 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. In the absence of clear and compelling reasons for limiting disclosure, ensure that ECCC research and scientific information is made available to the public in a timely manner and in keeping with the Government of Canada's Directive on Open Government.

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 contributions of ECCC researchers and scientists to government programs, policies, regulations, and decision-making is acknowledged in official publications or communications.

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 Head, with special attention to its implications to ECCC communications policies.

7.1.2. This policy, as well as any associated policies, directives or guidelines, may be posted on the ECCC's public website in a permission-less downloadable form.

7.1.3. ECCC will continue to develop and implement the additional procedures, policies, guidelines, tools, training and professional development opportunities necessary to support this policy.

7.1.4. As the current policy and any associated policies, guidelines or tools are amended and revised, ECCC will maintain an annotated electronic archive of all such changes, with all archive elements available in permission-less downloadable form.

7.1.5. ECCC will ensure that contractors and/or collaborators involved in, or providing services in support of ECCC research and science are informed of this policy and encouraged to comply with its provisions and intent.

7.1.6. The Deputy Head will appoint an ECCC Science Integrity Lead to address allegations of breaches of this policy.

## 7.2. Fostering a culture of scientific integrity

ECCC recognizes two complementary approaches to fostering a culture of scientific integrity. One focuses on instilling the virtues that underlie responsible conduct in research and science (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 TB *Policy on Learning, Training and Development*<sup>9</sup>:

7.2.1.1. ECCC 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. ECCC 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. ECCC will ensure its learning policies support training, education, and professional development opportunities to inform and educate employees about responsible conduct in research, research ethics, and the annotation, management and archiving of research and scientific data and information.

7.2.1.4. ECCC 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 can also seek advice and support from other appropriate sources within ECCC.

7.2.2.2. The Science Integrity Lead will ensure that alleged breaches of this policy shall be promptly and thoroughly reviewed and investigated by ECCC.

7.2.2.3. ECCC will endeavour 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.

7.2.2.4. 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>10</sup>.

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

ECCC recognizes and understands the importance of openness and transparency about all elements of the research and scientific process as well as of the timely release of scientific and research information. It 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 ECCC 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.

7.3.2. ECCC 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 and science) is produced and disseminated in a timely and transparent manner, in the absence of clear and compelling reasons for not doing so.

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

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

Moreover, ECCC 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 defined in s. 9), as well as existing legal constraints on information disclosure. Finally, ECCC 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>11</sup> shall have the right, and are encouraged, to speak about or otherwise express themselves on their science and their research without approval or pre-approval and without being designated as an official spokesperson. In doing so, they should not make explicit comments or recommendations on, or explicit discussions

about, federal statutory, regulatory or policy matters and must respect the information disclosure provisions of the *Access to Information Act* <sup>12</sup>, the *Values and Ethics Code for the Public Sector*, as adopted April 2, 2012 and *ECCC Values and Ethics Code*.

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, cabinet confidences. They must also respect the *Values and Ethics Code for the Public Sector* as adopted April 2, 2012, *ECCC Values and Ethics Code* 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.

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 as well as ECCC's Communications Directorate of the upcoming event and 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 and the Media Relations Unit 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, ECCC will ensure that employees are provided with guidelines consistent with relevant collective agreements and the *Policy on Communications and Federal Identity* and its associated 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. ECCC researchers and scientists are under no obligation to act as public ECCC 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 primarily and explicitly describes work conducted by 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. ECCC researchers and scientists are encouraged to participate in media training provided by ECCC, 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. Publication of research and scientific findings

ECCC recognizes that research and scientific publications by researchers and scientists is critical to the development of scientific and scholarly knowledge. Moreover, ECCC 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 ECCC experts, the reputation and credibility of ECCC, and the contribution of ECCC to the knowledge economy.

As with public communications, researchers or scientists disseminating or communicating information through research or scientific publications are subject to, and bound by, the *Access to Information Act*, the *Values and Ethics Code for the Public Sector* as adopted April 2, 2012, *ECCC Values and Ethics Code* and must abide by Treasury Board of Canada's *Policy on Communications and Federal Identity* and its associated Directive on the Management of Communications where it does not conflict with the relevant collective agreements. To this end, ECCC must have publication approval processes that are compatible with the relevant collective agreements. Approval to publish will not be unreasonably withheld.

ECCC publication policies shall be examined to ensure that they are

consistent with the following principles and procedures:

7.5.1. Final drafts of ECCC research and scientific publications (as defined in s. 9) should be forwarded by the author(s) to their manager or supervisor and discussed in a timely fashion. An electronic copy of the final version should be provided to the manager or supervisor after acceptance and prior to publication by a publisher or other third party acceptance of the product.

7.5.2 Notwithstanding article 7.5.1, ECCC research and scientific publications that do not contain explicit comments or recommendations on, or explicit discussions about, federal statutory, regulatory or policy matters do not require approval of managers, supervisors or other relevant personnel before being submitted for publication or otherwise communicated or disseminated to relevant audiences.

7.5.3. Contents of ECCC research and scientific publications that include explicit comments or recommendations on, or explicit discussions about, federal statutory, regulatory or policy matters do require the approval of managers, supervisors or other relevant personnel before submission for publication or being otherwise communicated or disseminated.

7.5.4. Publications requiring content approval under s.7.5.3 may be contingent on revisions or editorial changes. In such cases, if the author(s) are not in agreement with the suggested changes, the author(s) can consider informal processes such as dialogue or mediation from appropriate sources within ECCC to resolve

the issue in a fair and respectful manner. In the event that approval is withheld, the author(s) shall be so 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, ECCC will provide guidelines on the publication process to assist researchers, scientists, managers and supervisors in identifying and distinguishing contents of research or scientific publications that do/do not require manager or supervisor approval.

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

- Approval of all listed authors and contributors (ECCC and external) is obtained;
- 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);
- ECCC authors' federal affiliations are listed;
- The publication 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.

Moreover, researchers and scientists should seek credible and reputable outlets for academic publication that conform to established practices and standards of academic publishing, including particularly rigorous peer review practices.

7.5.7 In cases where ECCC scientists or researchers have been tasked and 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. Enhancement of ECCC scientific capacity, leadership and contributions to the scientific community**

ECCC encourages its researchers and scientists to participate in domestic and international collaborations and partnerships. Such collaborations and partnerships also provide important opportunities for ECCC researchers and scientists to leverage their expertise, knowledge and infrastructure in developing research and scientific knowledge to the benefit of Canadians.

To this end, ECCC will:

7.6.1. Encourage and facilitate domestic and international research or scientific collaborations and partnerships between ECCC 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, in addition to collaboration within ECCC and the federal government.

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

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

ECCC 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, 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.

Within the context of ECCC's governance framework and in consultation with PIPSC and other union representatives, ECCC will develop and deploy transparent and systematic mechanisms and procedures for:

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

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

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

In addition,

7.7.4. ECCC will 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 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**

ECCC is committed to ensuring that ECCC research and science conforms to the highest standards of responsible research 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, 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 data, methodologies and findings, including graphs and images, are maintained in a manner consistent with best practices in data/information management. 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, organizations or institutions who have 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 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.
- 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 Research Involving Humans* <sup>13</sup> and the *Canadian Council on Animal Care Guide to the Care and Use of Experimental Animals* <sup>14</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. **Mismanagement of conflict of interest:** Failure to appropriately identify and address any real, potential or apparent conflict of interest;
  - viii. **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;

- ix. **Inaccurate statement of collaborations:** Listing of co-applicants, collaborators or partners without their agreement.

## 7.9. Monitoring, assessing compliance, and performance evaluation

ECCC should review this 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, ECCC 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.) adjustments, modifications or changes likely to improve policy performance. Any such plan must have regard for other government initiatives or circumstances that may affect estimated performance independent of, or in concert with, the policy.

7.9.2. Any plan developed under article 7.9.1 must explicitly identify (a) the performance indicators that will be monitored; (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. 3.5 of this policy, will be forwarded annually to OCSA, the appropriate National Union-Management Consultation Committee 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 Head

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

- ensuring that this policy is communicated to all ECCC employees;
- monitoring compliance with this policy within ECCC and taking corrective action as needed;
- performance evaluation of this policy as needed;
- 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.

### **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;
- 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.

### **ECCC employees who conduct research, science or related activities**

All ECCC employees involved in the design, conduct, management, review, communication or use of research and science will have primary responsibility for:

- ensuring their behaviour and conduct conforms to the principles of scientific integrity;
- ensuring that they design, conduct, manage, review, communicate or use research or science in a manner fully consistent with this policy;
- reporting a 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 of 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 under the *Access to Information Act* 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 an ECCC employee undertakes the design, conduct, management, review, communication or use of research and science 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 reasons:**

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

**Deputy Head:**

as defined in section 11(1) of the *Financial Administration Act*.

**ECCC Research and Scientific Publications:**

Dissemination of research and scientific findings through formal (e.g. journal articles, monographs, books, etc.) and complementary (e.g. proceedings, databases, posters, technical newsletters, etc.) publications, authored by ECCC researchers and scientists, for public information or for limited circulation outside of government.

**Employee:**

this is in most cases to be interpreted broadly to cover all employees 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.

**Research:**

any undertaking intended to extend knowledge through a disciplined inquiry or systematic investigation <sup>15</sup>.

**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>16</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>17</sup>.

**Scientific integrity:**

the condition resulting from adherence to concepts of transparency, openness, 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>18</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.

**Timely manner:**

within a time frame that is consistent with usual review and approval processes, and consistent with logistical and resource constraints. The ECCC or external collaborators may impose reasonable embargo periods to respect the right of a principal investigator to first publication.

## 10. Enquiries

For further information on this policy, contact the Science and Technology Strategies Directorate: [ec.integritescientifique-scientificintegrity.ec@canada.ca](mailto:ec.integritescientifique-scientificintegrity.ec@canada.ca).

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- 1      *Values and Ethics Code for the Public Sector*
  - 2      *Policy on Communications and Federal Identity*
  - 3      *Directive on the Management of Communications*
  - 4      *Policy on Conflict of Interest and Post-Employment*
  - 5      *Copyright Act*
  - 6      *Public Servants Inventions Act*
  - 7      *Security of Information Act*
  - 8      *ECCC Values and Ethics Code*

- 9      *Policy on Learning, Training and Development*
- 10      *Public Servants Disclosure Protection Act*
- 11      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.
- 12      *Access to Information Act*
- 13      *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*
- 14      *Canadian Council on Animal Care Guide to the Care and Use of Experimental Animals* (PDF), Vol. 1 (2nd edition)
- 15      Adopted from the 2008 Tri-Council definition of research (PDF)
- 16      *Research Group Definition*
- 17      Adopted from the Science Council
- 18      *Applied Science and Patent Examination Group Definition*
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**Date modified:**

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