

# **Quality Assurance Policy and Procedures: Publications and Information Products**

**Commission for Environmental Cooperation**

**November 2007  
Revised: January 2014**

**Commission for  
Environmental  
Cooperation**



## Document Status

### CEC Quality Assurance Policy and Procedures

Version: e6v3

Reference dates: 27 November 2007, revised 29 January 2014

Original language: English

#### Complementary and additional to latest versions of the following:

*NAAEC Article 16(6) requirements for JPAC review*

*NAAEC Article 13 provisions and associated procedures*

*Framework for Public Participation in CEC Activities*

*CEC English Style Guide*

*Guidelines for CEC Documents and Information Products*

*CEC Publication Policy and Procedures*

*CEC Social Media Policy and Guidebook*

*Guidelines for Submission on Enforcement Matters under Articles 14 and 15 of the NAAEC*

*Guidelines for Geospatial Data for Compatibility with the North American Atlas Framework*

**Note:** Where provisions of this document conflict with the NAAEC, the latter prevails.

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# Table of Contents

<b>1 Quality Assurance Policy</b> .....	<b>4</b>
1.1 Background and Purpose.....	4
1.2 Basis.....	4
1.3 Scope .....	5
1.4 Guiding Principles.....	5
1.5 Management Oversight.....	6
1.6 Implementation.....	7
<b>2 Quality Assurance and Review Process</b> .....	<b>8</b>
<b>3 Quality Assurance Procedures</b> .....	<b>9</b>
<b>3.1 Operational Planning Components</b> .....	<b>9</b>
3.1.1 Quality Assurance Project Plan (QAPP).....	9
3.1.2 Data and Information Quality Assurance Plan (DIQAP) .....	10
3.1.3 Annual Quality Assurance Plan .....	10
<b>3.2 Information Product Categories and Editorial Procedures</b> .....	<b>11</b>
3.2.1 Information Product Categories.....	11
3.2.2 Publication Planning .....	11
3.2.3 Publication Review and Approvals .....	12
3.2.4 Notice of Publication.....	17
3.2.5 Transparency.....	17
3.2.6 Dissemination of Publications.....	18
<b>3.3 Data and Information Management Procedures</b> .....	<b>19</b>
3.3.1 Overview.....	19
3.3.2 Procedures .....	20
<b>Annex 1: Quality Assurance Planning</b> .....	<b>22</b>
<b>Annex 2: Terms</b> .....	<b>25</b>
<b>Annex 3: Abbreviations</b> .....	<b>28</b>

# 1 Quality Assurance Policy

## **Policy Statement**

*The CEC strives to ensure the delivery of information for North American decision makers and the public that is at the highest level of scientific soundness (in its findings and analysis methodologies), that is objective and credible, and that is based on the best possible verified base information and data.*

## 1.1 Background and Purpose

The Environment Ministers of Canada, Mexico and the United States agreed in Puebla, Mexico, in June 2004, to set directions for the future research and information programs of the Commission for Environmental Cooperation. They stated:

*We want the CEC to be an organization recognized for its credible, balanced and timely information on the North American environment, and want to ensure that this information is available and accessible to all interested parties in order to provide governments, the private sector, and citizens alike with information to address the key environmental challenges and opportunities facing the region. – Puebla Declaration*

To achieve this goal, and at the request of the Council, a tripartite Expert Group on Scientific Integrity and Quality Assurance prepared a *Draft Quality Management Framework* “to insure scientific integrity and quality assurance for all projects, activities and publications” disseminated by the CEC. The Framework was developed in the context of CEC’s Information for Decision-making priority area, which takes a strategic and integrated approach to the application of information technology to information management in the North American context. The Framework was endorsed at the Regular Session of Council in June 2005. It has seven parts that provide structure and guidance for building on, consolidating, and documenting the existing quality management policies and practices of the CEC.

The present document, *Quality Assurance Policy and Procedures*, builds on the Framework and is divided into two chapters. The first articulates Sections 1 through 6 of the Framework as policy, while the second elaborates the components of Section 7 of the Framework as operational procedures. Thus, the CEC’s *Quality Assurance Policy and Procedures* establishes the principles and mechanisms for ensuring the objectivity, utility, accuracy and integrity of CEC’s research and information products and services.

## 1.2 Basis

The quality assurance policies and procedures contained herein are founded on the North American Agreement on Environmental Cooperation and CEC policies and directions from the Council and are congruent with existing documents and manuals, as well as:

- International standards ISO 9000 and 14000;
- Quality policies of key organizations in the three countries; and
- Published policies and practices of major international organizations, including guidelines for the Organization for Economic Cooperation and Development (OECD) statistical activities, and guidelines from the United Nations Economic Commission for Europe (UNECE) and Statistical Commission.

### 1.3 Scope

These quality assurance policies and procedures will apply to all:

- Scientific and technical products;
- Information products disseminated outside of CEC;
- Information products that support CEC decision-making (e.g., Council documents); and
- Data and information management activities.

The term “information product” is to be understood as being inclusive of information services, such as access to online databases (including maps and geo-spatial data).

These policies and procedures will apply to products commissioned or contracted by the CEC as well as those prepared by experts at the Secretariat.

It is recognized that not all information products require the same level of review and hence, a graded level of review for each category of information product is applied as specified in the table on page 16.

### 1.4 Guiding Principles

These quality assurance policies and procedures adhere to the following principles:

#### **Integration and completeness**

The CEC Secretariat supports quality assurance procedures and scientific processes consistently across programs and projects. Quality assurance procedures cover each step of a project’s lifecycle, including systematic planning, project development, oversight and assessment, pre-dissemination review, and maintenance, error correction and archiving.

#### **Collaboration and coordination**

The CEC seeks to carry out its technical and scientific activities in coordination with its partners and stakeholders, and to foster North American cooperation in the development of scientific and technical information. When engaging stakeholders in the accomplishment of quality objectives, the Secretariat will involve such partners as early as practicable in this process.

#### **Openness and transparency**

The CEC’s quality assurance policy and procedures promote openness and transparency and reflect a commitment to greater public access to environmental information in North America. To meet scientific and international standards, the CEC will ensure the proper documentation of its information products and services so that an external reader or reviewer will know how the procedures, methods and data sources were used to make the findings and conclusions. The CEC will also ensure the objectivity and integrity of information products and services and document any uncertainty and variability in the information, or in procedures, measures, methods or models.

### **Expert review and advice**

The CEC will engage subject matter experts of the Parties, as well as independent experts, to review and provide advice for its scientific and technical data, methods, and products. (Management of the review process is described in section 3.2.3.)

### **Follow scientific principles and international standards**

The CEC will develop and disseminate technical information according to international or Party standards and scientific principles (with regard to methods and procedures that support the quality of data collected) and the employment of recognized analytical methods. The CEC will ensure the confidentiality of data and data sources, as appropriate.

### **Appropriateness**

Data and technical information products and services should be of the best quality possible within the constraints of resource availability, time, and scientific knowledge.

## **1.5 Management Oversight**

Quality assurance is recognized as being the responsibility of all employees and contractors. Responsibilities within the CEC are as follows:

- The Council oversees implementation of this policy. The Council will audit its implementation and effectiveness periodically and approve amendments as required.
- The Executive Director is ultimately responsible for the application of the Quality Assurance Policy and Procedures. Quality assurance audits will be initiated by the Executive Director from time to time, with independent input, as appropriate.
- The Executive Director approves the Annual Quality Assurance Plan concerning the CEC's planned publications and other information and data products (see section 3.1.3), and monitors and signs-off the completion of planned QA steps.
- The QA Coordinator, delegated by the Executive Director, is responsible for verifying completion of the graded review process, and that all quality assurance steps specified in the relevant Quality Assurance Project Plans, Data and Information Quality Assurance Plans and the Quality Assurance Policy are observed and authorized, before releasing information products and services.
- Program managers are responsible for preparing Quality Assurance Project Plans for each project output, and for ensuring that all quality assurance steps specified in those plans are observed and accomplished. All staff participating in a project share responsibility for identifying and reporting any observed quality issues and for recommending corrective actions.
- The Director of the Submissions on Enforcement Matters (SEM) Unit is responsible for ensuring that products related to Articles 14 and 15 are completed in accordance with the *Guidelines for Submission on Enforcement Matters under Articles 14 and 15 of the NAAEC*.
- The Manager, Web Development and Information Services is responsible for IT infrastructure and service provision and hence for ensuring the security and integrity of data held in files and databases, based on the corresponding Data and Information Quality Assurance Plans.
- The delegated QA Coordinator co-ordinates the preparation of the Annual Quality Assurance Plan, Quality Assurance Project Plans and Data and Information Quality Assurance Plans (see sections 3.1.1 to 3.1.3), and monitors and updates the operational procedures, as required.

## **1.6 Implementation**

This Policy is implemented through Quality Assurance Procedures that are fully integrated into the annual operational planning, implementation and reporting cycles. These procedures include:

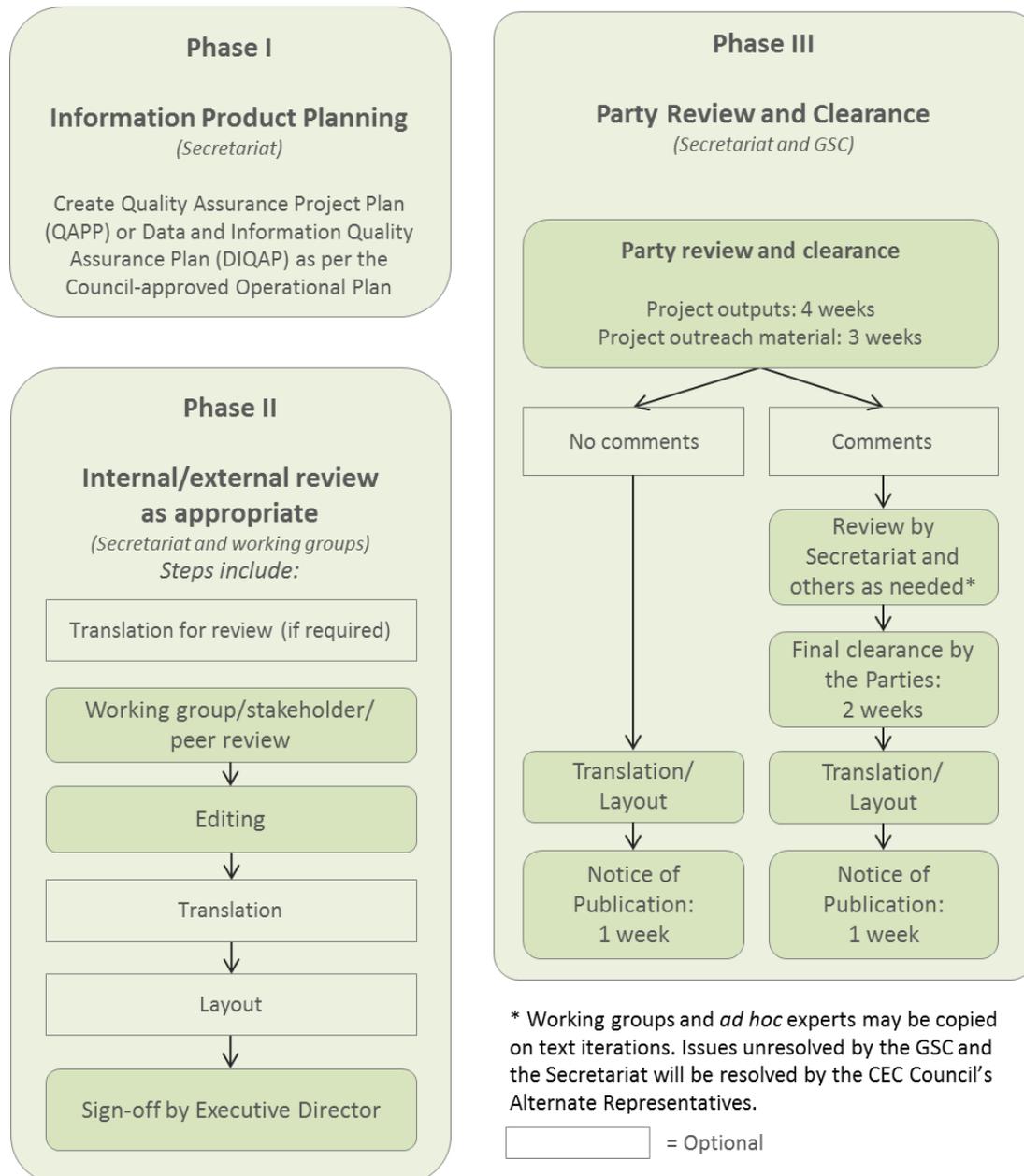
- an Annual Quality Assurance Plan
- specific Quality Assurance Project Plans; and
- specific Data and Information Quality Assurance Plans.

These operational procedures are supported by CEC publications and editorial guidelines, review procedures, and other operational standards and guidelines, as required.

## 2 Quality Assurance and Review Process

The principles described in Section 1 above and the procedures set out in Section 3 below are implemented following a process that involves various review stages specific to each information product category (see table on page 16). The flow-chart below depicts the general review process particular to project outputs. Other CEC products (such as Secretariat Article 13 reports, SEM documents, etc.) may follow other QA review steps.

Figure 1. QA/QC flow-chart for project-related information products



### **3 Quality Assurance Procedures**

This Quality Assurance Policy is implemented through Quality Assurance Procedures that are fully integrated into the operational planning and reporting cycles. These procedures apply to the following:

- an Annual Quality Assurance Plan;
- specific Quality Assurance Project Plans (for each project); and
- specific Data and Information Quality Assurance Plans (for each planned database or information service).

The procedures set out below are supported by publications and editorial guidelines and review procedures, and other operational standards and guidelines as required.

These procedures will be reviewed periodically and recommended changes put forward for approval by the Council.

#### **3.1 Operational Planning Components**

The CEC has an established planning process. The principal components are:

- The Strategic Plan;
- The Operational Plan; and
- The project descriptions and budget.

Quality assurance procedures are an integral part of this process:

- Quality Assurance Project Plans (QAPP) and Data and Information Quality Assurance Plans (DIQAP) will be developed at the time a project is being designed and indicate all quality assurance processes. These plans form an integral part of the project work plan and will be reviewed and adjusted as the project progresses.
- A CEC-wide Annual Quality Assurance Plan will be prepared each year, concurrent with the Operational Plan, and will provide a summary of all key quality assurance milestones (particularly regarding publications), as well as any proposed policy changes, and updates on improved procedures and practices.

Examples of each of these planning components are given in Annex 1.

##### **3.1.1 Quality Assurance Project Plan (QAPP)**

Plans of this level are the most detailed and are incorporated into the work plans of the project descriptions. A separate QAPP (Annex 1 – Template 1) is completed for each anticipated information product, indicating in detail:

- Oversight and assessment procedures, including internal and external reviews;
- Early stakeholders involvement procedures;
- Anticipated milestones of review processes.

The responsible program manager for the project (in consultation with the publications, editorial, and web development and information services teams, where appropriate) prepares the QAPP concurrent with annual project work planning. The Executive Director reviews the QAPP and approves it. The QAPP is used to follow up on information products through an automated

tracking system. Updates to the QAPP, especially with regard to milestone dates, are reviewed and signed off by the Executive Director and the Parties are informed, as appropriate.

### **3.1.2 Data and Information Quality Assurance Plan (DIQAP)**

A plan for ensuring the integrity of all datasets and online services intended for projects is to be developed as part of the project work plan. A DIQAP (Annex 1 – Template 2) is completed for each planned database or service, indicating:

- The relationship to project objectives;
- Data sources, collection or acquisition requirements;
- Appropriate standard operating procedures;
- Data/information evaluation and verification procedures;
- Data dissemination plans; and
- Maintenance and archiving policies and procedures.

A DIQAP is completed for each case in which there is a plan to:

- Develop or establish a database that will be used to support program outputs;
- Provide an online service such as a searchable database or information resource; or
- Provide downloadable datasets (tables, databases, GIS files, etc.).

It is recognized that not all databases will be necessarily held at the Secretariat; however, the same QA measures apply and the DIQAP should be completed.

The DIQAP is prepared by the program manager responsible for the project, concurrent with project work planning. As appropriate, the program manager should consult with the web development and information services team and the Director of Administration and Finances regarding implications for the provision of IT and web-based services.

It is reviewed and signed off by the Executive Director and the Manager, Web Development and Information Services (where there are significant IT implications). The DIQAP is used to follow up on planned databases and information services through a database inventory. Updates to the DIQAP, especially with regard to milestone dates, are reviewed and signed-off by the Executive Director.

### **3.1.3 Annual Quality Assurance Plan**

This plan summarizes in one table all planned publications and other information and data products, as well as the anticipated schedule for Quality Assurance (QA) reviews and approvals. The annual plan provides an overview for the Operational Plan. It also highlights for review and approval any planned improvements and additions to the Policy or Operational procedures. The format is provided in Annex 1 – Template 3.

The Annual QA Plan is prepared from the QAPPs by the delegated QA Coordinator, in conjunction with the web development and information services team and the publications and editorial team.

## **3.2 Information Product Categories and Editorial Procedures**

### **3.2.1 Information Product Categories**

The CEC produces a variety of documents every year for distribution in print or online, via its website <[www.cec.org](http://www.cec.org)>. Six information product categories encompass the range of CEC publications:

#### **Council documents**

These publications are prepared by the Secretariat and/or Parties and reflect the decisions, views and opinions of the CEC. These include: Council Resolutions, Council Communiqués or Ministerial Statements, annual reports and the CEC's Strategic and Operational Plans.

#### **Reports**

This category comprises reports that present the output or conclusions of CEC project work, as well as reports, determinations, and factual records developed by the Secretariat pursuant to Articles 13, 14 and 15 of the NAAEC. Documents in this category are to be disseminated widely.

#### **Background papers**

Background papers are publications prepared by CEC staff, consultants or collaborating centers as inputs to specific projects under the Council-approved Operational Plan. This category includes working and discussion papers. Such papers are prepared for target audiences, not for widespread distribution; key findings, however, may be presented in the form of executive summaries for more general audiences.

#### **Electronic information products**

These information products include databases maintained and presented online to external audiences; web-based analytical tools; published and web-based data layers of the North American Environmental Atlas.

#### **JPAC documents**

These are documents produced and approved by the JPAC. They include JPAC Advice to Council, letters to Council, summary records, plenary discussion summaries and occasional bulletins.

#### **Outreach materials**

CEC outreach materials are intended to support general awareness of the CEC and inform and update audiences on CEC activity and results. These include corporate and project brochures, fact sheets, periodic newsletters, news releases, and listserv announcements.

### **3.2.2 Publication Planning**

Project-related information products proposed as inputs (background and discussion papers, data bases, etc.) or outputs (reports) should be identified and described in the Quality Assurance Project Plans. The corresponding review process appropriate to each such product is similarly defined in each QAPP.

Supporting budget estimates must be reviewed and approved by the Executive Director before the Operational Plan is submitted for CEC Council approval. Detailed budget breakdowns are included in the project work plans.

Secretariat reports, determinations and factual records pursuant to Articles 13, 14, and 15 of the NAAEC are planned and developed in accordance with those sections of the Agreement.

Publications will adhere to the *Guidelines for CEC Documents and Information Products* and corresponding language style guide. Editorial and graphic standards adopted by the Secretariat shall be followed to ensure CEC publications maintain uniform appearance, graphic quality and consistent editorial approach.

No information products will be published or released without completion of the appropriate review and approval processes described in this document.

### **Council publications**

Planning for such documents is determined by Council activity (Resolutions, Ministerial Statements, summary records) or otherwise mandated by the NAAEC (i.e., annual reports).

### **Project reports, background papers and other information products**

Individual project plans should specify working papers, reports, databases, etc., anticipated as either input or output products required to accomplish project objectives. Details and corresponding review procedures are specified in each QAPP.

### **JPAC documents**

Planning for JPAC documents is the responsibility of the JPAC Liaison Officer and is a consequence of the committee's annual and strategic plans as well as the outcome of its periodic workshops and public meetings.

### **Outreach materials**

There are two broad types of CEC outreach materials:

- General outreach products are intended to support broad awareness of the overall purpose, operations, and results of the CEC. These include brochures, fact sheets, presentations, website content and newsletters.
- Program support products are developed to complement the activities and outputs of individual projects under the cooperative work program. To the extent possible, the description and promotion of project activities and results in the form of project brochures, fact sheets, media and other announcements, and/or website content, are "bundled" to support understanding of the CEC's priority areas.

### **3.2.3 Publication Review and Approvals**

Product reviews and approvals follow specific procedures for internal and external reviews.

#### **Internal reviews**

Preliminary internal reviews of draft publications will be carried out by the Secretariat and the Parties as soon as practicable. Revised publications are subject to a second review by the Secretariat and the Parties. The JPAC will be included in preliminary and second reviews of certain documents as defined in NAAEC Article 16(6) and as otherwise agreed.

#### **Secretariat reviews**

Secretariat review will assure compliance with QAPPs and associated procedures. Following working group, Party and any external reviews, documents will go through final review by program managers and editorial staff, and be signed off by the appropriate director according to

the type of document before requesting Council approval (as applicable, pursuant to the graded review categories in this section) for the publication.

### **Party reviews**

The Parties are routinely informed (at several stages) of all publications and information products. This is accomplished through the discussion and approval of the annual Operational Plan, specific Quality Assurance Project Plans and Data and Information Quality Assurance Plans, routine provision of a calendar of activities, quarterly reports, as well as the ongoing work relations and dialogue among Secretariat staff and government officials, including the activities of working and *ad hoc* advisory groups.

For quality assurance review purposes, the Secretariat's communication with the Parties is via the General Standing Committee (GSC). The GSC is responsible for the assignment and completion of such inter-agency and intra-governmental review and approval processes each Party may require.

Party quality assurance review may have as many as three stages (see also the flow-chart presented in Section 2, Figure 1 which describes the specific stages applied to project-related information products):

1. Review of preliminary draft materials, which may result in Party comments;
2. Review of the revised draft that describes how comments may have been addressed; and
3. Review of the final draft following all other (including external) reviews.

To ensure timely, appropriate, consistent, and coordinated review and advice by Party experts, the Secretariat will provide draft materials to the GSC as early as possible for these reviews. Unless otherwise specified, individual Party reviews and transmission of any comments to the Secretariat must be accomplished within three to four weeks for the first stage, and two weeks for each of any second- or third-stage reviews.

In all cases, inputs received by the Secretariat will be documented, and every effort made to resolve issues and incorporate changes into the final product. If comments or changes transmitted by the Parties are contradictory or cannot be resolved, the Secretariat will raise such matters with the GSC/Alternate Representatives for resolution.

As specified in section 3.2.5, an appropriate disclaimer is required to clarify that specific products may not necessarily reflect the views of the CEC or the governments of Canada, Mexico or the United States of America. Different disclaimers may be required on a case-by-case basis.

### **Party clearance**

The review process is concluded by Party clearance of the final information product as submitted by the Secretariat. Clearance will be assumed unless any Party communicates an objection to the Secretariat within ten working days of the Secretariat's transmittal of the final information product to the Parties. The Secretariat will refer any objections to the Council for resolution. Once clearance has been obtained from all Parties the Secretariat will proceed to notify the Council of pending publication or dissemination, as described in section 3.2.4

### **JPAC reviews**

NAAEC Article 16(6) stipulates JPAC review (coincident with submission to Council) of the CEC's draft Operational Plan, draft annual report, and any Secretariat report prepared pursuant to Article 13.

In addition to the specific documents referred to JPAC for review pursuant to NAAEC Article 16(6), the Secretariat should, where feasible, include JPAC in review of outreach products.

### **External Reviews**

Following an internal review, certain documents may be subject to external reviews by experts, peers, CEC stakeholders and the public, in various combinations, as specified in Quality Assurance Project Plans.

- Peer Review – Verifies whether the work is accurate and satisfies specific criteria to ensure correctness of methods, content and data, identifies deviations from standards, and suggests improvements.
- Stakeholder Review – Beneficial in determining a product’s utility or in providing feedback on methods, processes or products, especially at early stages.
- Expert Review – Seeks the review and comment of qualified experts in the specific subject matter.
- Public Consultation – Conducted according to the CEC’s *Framework for Public Consultation in Commission for Environmental Cooperation Activities*.

### **Peer reviews**

Individual QAPPs will specify when peer reviews of CEC reports, background papers and information products may be required. Reviewers will be selected based upon criteria of expertise, balance among the three countries, independence and the absence of any conflict of interest.

### **Stakeholder reviews**

The Parties will be notified in advance of stakeholder reviews so that they may inform stakeholders in their respective countries about opportunities to be involved in the process.

### **Expert reviews**

The Parties will be notified in advance of the experts that the Secretariat intends to engage in expert review and have an opportunity to identify experts in their respective countries for consideration by the Secretariat on the expert panel.

### **Public reviews**

Certain CEC documents may be subject to public review as part of public consultation. Such reviews will be conducted according to CEC’s *Framework for Public Consultation in Commission for Environmental Cooperation Activities*. A call for public comments on such documents (e.g., the draft annual program) requires a minimum of 30 days.

### **Tracking system**

The Secretariat will maintain a comprehensive, standard document numbering and tracking system to follow individual documents and information products as they move through the review and approval processes outlined under the quality assurance plans. This tracking system will include a unique identifier for each document or information product, its Review Category, a coded revision number for each iteration, tracked changes, as well as information pertaining to its review or approval status, including dates and names of the persons/groups involved. This information will be embedded in or attached to each document or information product throughout the process.

## Translation of documents for review

For the purposes of efficiency and cost control, most documents will not be subject to translation until Party review is completed. Exceptions include documents that will be subject to public review and products of sufficient importance that may require full translation to expedite such internal review and approval processes as each Party may require.

**Table 1. Categories of Information Products/Services and Their Levels of Review**

This table describes the type of review accorded to the different categories and types of information products. Consult individual Quality Assurance Project Plans and Data and Information Quality Assurance Plans for specific information concerning more detailed review and approval procedures specified for individual products.

Information Product Category	Description	Reviewed by					Party Review and Clearance
		Secretariat	JPAC	Peer	Stakeholder/ Expert Group	Public	
<b>Council documents</b>	Ministerial statements	√					√
	Resolutions						√
	Summary records	√					√
	Annual reports	√	√				√
	CEC strategic plans	√	√			√	√
	CEC operational plans	√	√			√	√
<b>Secretariat documents/ reports</b>	Secretariat (Art. 13) reports	√	√	√ <sup>2</sup>		√	Council approval of publication only
	Executive Director reports	√					
	Factual records	√					Council approval of publication only
	Taking Stock report	√		√	√		√
<b>Project publications<sup>1</sup></b>	Project reports and publications (e.g., review and assessment reports, conservation plans, books/e-books, etc.)	√		√ <sup>1</sup>	√ <sup>1</sup>		√
	Background papers	√		√ <sup>1</sup>	√ <sup>1</sup>		√

<sup>1</sup> See flow-chart in Section 2, Figure 1 for details on the QA review stages.

Information Product Category	Description	Reviewed by					Party Review and Clearance
		Secretariat	JPAC	Peer	Stakeholder/Expert Group	Public	
	Glossaries, bibliographies, lists with information sources, initiatives, tools, etc.	√		√ <sup>1</sup>	√ <sup>1</sup>		√
	Discussion papers/meeting backgrounders	√		√ <sup>1</sup>	√ <sup>1</sup>		√
	Meeting proceedings (if considered project deliverable)	√			√ <sup>1</sup>		√
	Guidelines and manuals/handbooks on specific topics	√		√ <sup>1</sup>	√ <sup>1</sup>		√
	Online training material	√		√ <sup>1</sup>	√ <sup>1</sup>		√
	Project electronic information data/services: databases, map layers, analytical tools	√		√ <sup>3</sup>	√ <sup>3</sup>		√
<b>Non-project electronic information data/services</b>	Databases, map layers, analytical tools (e.g., Taking Stock Online, North American Environmental Atlas)	√		√ <sup>3</sup>	√ <sup>3</sup>		√
<b>Project-related outreach material<sup>2</sup></b>	Project brochures, summaries, fact sheets/backgrounders)	√			√ <sup>1</sup>		√
<b>CEC communication material</b>	News releases	√					√
	Posters and brochures	√					
	Webpage text/content	√					
	Social media postings	√					
	Newsletters	√					√ <sup>4</sup>

<sup>2</sup> See flow-chart in Section 2, Figure 1 for details on the QA review stages.

**Notes**

- √<sup>1</sup> As specified in Quality Assurance Project Plans, depending on importance, certain reports and background papers may require Party and/or external review.
- √<sup>2</sup> As determined by Article 13 procedures and the quality management procedures specified for individual Article 13 reports.
- √<sup>3</sup> Most published databases will be developed in support of reports subject to quality reviews of data and processes; certain data sets and analytical tools will require review by expert users and constituents. Additional steps will be specified in the Data and Information Quality Assurance Plans.
- √<sup>4</sup> Parties will have two weeks to review newsletter content before dissemination.

**3.2.4 Notice of Publication**

Following clearance, the Council will be notified of the pending publication or release of various information products according to established guidelines. Notification consists of provision of a final version (in the three official languages of the CEC, in full or in summary) and its release date. The following are minimum notification times. Exceptions involving longer notification periods will be noted in the Quality Assurance Project Plans.

**Table 2.**

<b>Information Product Category</b>	<b>Council Notice Period</b>	<b>JPAC Notice Period</b>
Project outputs (reports, background papers, electronic information products, outreach material, etc.)	Final versions are distributed for the attention of the Parties at least one week prior to their publication, according to the QA flow-chart (Section 2, Figure 1)	Draft Operational Plans, draft annual report and Article 13 reports provided to JPAC coincident with submission to Council, as provided in NAAEC Article 16(6)
SEM documents	According to <i>Guidelines for Submission on Enforcement Matters under Articles 14 and 15 of the NAAEC</i>	
Non-project electronic information products	Databases and web-based analytical tools are shared with the Parties ten days prior to posting/releasing	
Communication materials	Pending news releases are provided to Council at least three working days prior to release date  Newsletters are distributed for review of the Parties two weeks before dissemination	

**3.2.5 Transparency**

To ensure transparency, publications require specific information contained in a statement (located on the inside cover page or in an otherwise prominent location) that includes:

- the name of the person and/or organization that prepared the publication;
- a description of the publication or report's specific quality assurance procedures;
- the role the Council, the Parties, the Secretariat, the JPAC, stakeholders, and/or independent experts played in preparing the publication; and

- an appropriate disclaimer on all CEC publications other than Council or JPAC publications. Different disclaimers may be required on a case-by-case basis. The standard disclaimer language is as follows:

*This publication was prepared for the Secretariat of the CEC as a (report, discussion paper, background paper, etc.). The information contained herein does not necessarily reflect the views of the CEC or the governments of Canada, Mexico or the United States of America.*

### **3.2.6 Dissemination of Publications**

All publications will be disseminated—in full or in summary—in the three official languages of the CEC: English, French and Spanish (exceptions are defined in the Quality Assurance Project Plans). Translations should be identified as such, and the original language noted in the inside cover page.

The CEC may publish studies/reports and conclusions that result from a CEC meeting, project or program, when there is an identified audience and a clearly identified goal or benefit to making such publication. All contractors and consultants will be advised that such writings are the sole possession of the CEC, as specified in the CEC standard contract, and that the CEC reserves the right to publish and distribute any materials produced under a CEC contract.

The authorship of the report/paper/study and relevant individuals or working groups may be credited in an acknowledgments page, as determined by the program manager coordinating the publication.

Every CEC publication will contain the following copyright information: *Reproduction of this document in whole or in part and in any form for educational or non-profit purposes may be made without special permission from the CEC Secretariat, provided acknowledgment of the source is made. The CEC would appreciate receiving a copy of any publication or material that uses this document as a source..* It will also include a note regarding how the CEC publication should be cited in other documents.

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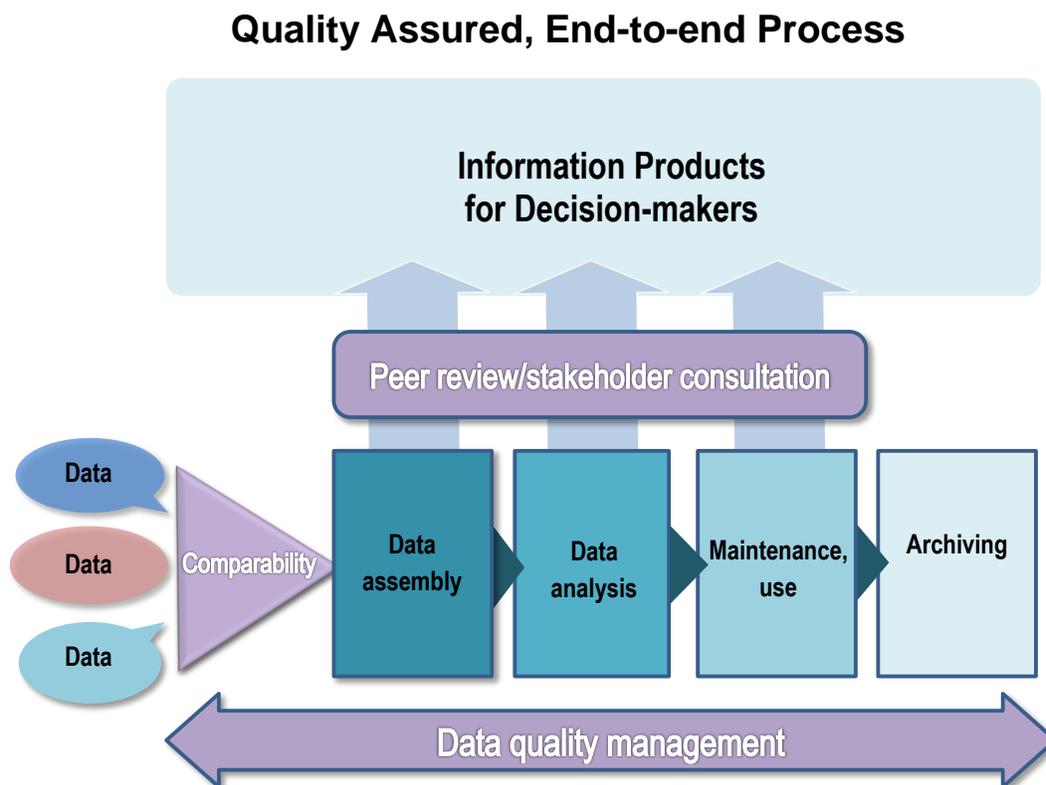
### 3.3 Data and Information Management Procedures

#### 3.3.1 Overview

Following the principles outlined in the Quality Assurance Policy, data quality management should be integral to a quality-assured, end-to-end process.

The diagram below illustrates how data and information management procedures contribute to the CEC quality management regime.

Figure 2.



The upper part of the diagram refers to the quality assurance procedures, including peer and Party reviews and stakeholder consultation, that apply to the output information products and services, as detailed in section 3.2.

The lower portion of the diagram reflects data quality assurance elements that are essential to ensuring that information products are based on high quality data. It is recognized that in almost all cases data will be assembled (or accessed) from existing sources within Party agencies where QA regimes are in place. It is the obligation of the CEC to ensure that the quality and integrity of data and associated data processing continues to be maintained throughout at all stages from **data assembly** through **data analysis** and **use** in support of information products and services, through to **archiving** for future use; hence, data quality management procedures apply continuously to ensure the quality and integrity of the data that are used for analysis and assessment.

Another important supporting element for data quality is the North American Atlas Framework (NAAF), a continentally harmonized reference base to support analysis and depiction of geographically located environmental data. The Framework is designed to ensure consistency, reliability, and cross-connection of datasets, and should be used, whenever appropriate, in the spatial analysis and cartographic presentation in information products from all programs and projects. For more information, refer to the Secretariat's *Guidelines for Geospatial Data for Compatibility with the North American Atlas Framework*.

Data quality procedures—elaborated in section 3.3.2 below— apply to the development and use of all significant datasets, databases, spatial datasets (GIS), and planned web-based data access services, including information resource libraries (searchable document collections, case studies, bibliographies, etc.).

### **3.3.2 Procedures**

The development and assembly of datasets and databases that support program activities should be done in a planned way that follows recognized good practices and incorporates quality management steps in the project plan.

As stated in Section 3.1.2, data quality assurance is the responsibility of the program manager, who prepares the DIQAPs as part of the project planning cycle. In particular, the DIQAP should identify:

#### **The responsible data custodian**

Person or institution who has overall responsibility for ensuring quality and authority to edit, change, maintain and dispose of data.

#### **The quality assurance process**

All steps and controls, including:

- Data sources, collection, and acquisition requirements;
- Data validation checkpoints from input through to archiving;
- Data manipulation steps and required documentation; and
- Applicable standards.

#### **Information product availability**

Details for each digital information product that may result—such as online databases, downloadable datasets, query services, GIS maps, etc.

#### **Maintenance and archiving plans**

Plans and processes for dataset/database maintenance and updating, as well as their eventual disposal. Particular attention should be paid to recording all metadata that are essential to effective future use of the datasets in future projects.

#### **IT systems implications and requirements**

All of the above information is developed by the responsible program manager in close collaboration with the web development and information services team, and is recorded in the Data and Information Quality Assurance Plan that forms part of the project work plan template. DIQAPs are signed off by the Executive Director and, where appropriate, the Manager, Web Development and Information Services (in his/her role as controlling IT authority).

**Standards**

All standards and requirements for QA apply equally to contractors and will be included in contract specifications.

**Databases**

Wherever possible, datasets will be organized in fully documented relational databases in which validation criteria have been implemented. Specifications will be identified in the project plan reflecting current technology requirements. Some databases may reside outside the CEC.

**GIS data**

The North American Atlas Framework has been adopted by the CEC as the standard for the analysis presentation of continental-scale data. All spatial data must be compatible with the NAAF, and maintained in fully documented form in “.shp” files or OGC-conforming files.

# Annex 1: Quality Assurance Planning

## Template 1: Quality Assurance Project Plan

This template is to be completed for each planned information product in each project. It forms part of the project work plan.

Quality Assurance Project Plan Project:	
<b>Information Product Deliverable</b>  Title: Information product category: Description: Responsible manager:	<b>Target Completion Date</b>
<b>Internal Review Process</b> <b>Secretariat Review</b> <i>Describe plans for internal review of outline, drafts, products, etc.</i>  <b>Working Group/Stakeholder Consultation/Expert Review</b>  <i>Describe plans for stakeholder consultation or participation in process and/or expert review as appropriate to the information product category.</i>	<b>Milestones</b> <i>(sequence of specific review events)</i>
<b>External Review Process</b> <b>Public Review</b>  <i>Describe, if applicable, plans for public review or participation in process as appropriate to the information product category.</i>  <b>Peer Review</b> <i>Describe, if applicable, plans for peer review of product and/or analysis methodologies as appropriate to the information product category.</i>	<b>Milestones</b> <i>(sequence of specific review events)</i>
<b>Party Review – Quality Assurance and Clearance</b> <i>Describe plans for Party review and clearance in process as appropriate to the information product category.</i>	
<b>Authorization</b> <i>Signature of responsible program manager and director</i>	

**Template 2:  
Data and Information Quality Assurance Plan**

This template will be completed by the responsible project manager for each dataset, database or information service that is planned in a project. This will be done as much as possible at the time of project planning and forms part of the project work plan.

<b>Data and Information Quality Assurance Plan</b>
<b>Project:</b>
Project and Task:
Database/Dataset/Online service – Name and description:
Data custodian: <i>(Name of individual staff member responsible for the data – authority to edit, change, maintain, dispose of, etc.)</i>
Database Category: <i>(project, ongoing)</i> <sup>3</sup>
Data quality assurance process: <i>(Describe steps to ensure data validation and integrity from input data sources through to archiving)</i> Typical steps: <ul style="list-style-type: none"> <li>- Data acquisition – sources and methods</li> <li>- Data assembly – validation and harmonization processes</li> <li>- Data quality review and assessment</li> <li>- Data entry into databases and documentation (metadata)</li> <li>- Ongoing data quality/integrity</li> </ul>
<i>Data dissemination plans</i>
Technical information: File locations, file naming (e.g., T:\PRTR\cement-plant-emissions) Database technology; (e.g., Access 4.2) Appropriate standards and operating procedures
Maintenance and archiving plans: <i>(Describe plans and processes for maintaining (annual updates, no update, etc.) and archiving (from “disposable” to maintained live online forever). Note if responsibility for ongoing maintenance is different from the custodian)</i>
IT Systems implications and requirements: <ul style="list-style-type: none"> <li>- Database development required</li> <li>- GIS requirements</li> <li>- Software/hardware implications</li> </ul> <i>(Identify new licenses, increased capacity required)</i>
Sign-off: Head of program: Manager, Web Development and Information Services (and/or designated IT personnel):

<sup>3</sup> **Database categories:**

**Project**

Data assembled that supports the research and outputs of a project. Shared among project staff and partners. Needs full documentation and transparent quality assurance. May be “published” or made available in conjunction with project outputs. Archived for future use in other studies and projects or for the potential addition of data for later period (example: power plant database).

Rule-of-thumb: Databases that support any published project output should be archived.

**Ongoing**

Databases assembled to support project outputs and ongoing programs or online services, which are intended to be maintained an ongoing basis. Needs full documentation and transparent quality assurance. Needs documented procedures and identified responsibilities for ongoing maintenance. If externally available, then user documentation is required. Such databases may be of two kinds:

- Updated: changes made to the **current** content as they occur (e.g., updates or revisions made to a database of current state laws and policies on renewable energy whenever such laws or policies change)
- Time-series: New data are **added** to an archive of previous data (which are kept, not replaced) on a periodic basis (e.g., PRTR/Taking Stock data).



## Annex 2: Terms

### **Council Approval**

Formal approval by vote or consensus of the CEC Council. Council approval may be expressed in the form of a Resolution.

### **Data and Information Quality Assurance Plan**

The plan that specifies the quality assurance process, steps and standards that apply to the development, maintenance use and archiving of datasets, databases and digital information products that will result from the project.

### **External Review**

External reviews are those carried out by the public, CEC stakeholders, and CEC partners in various combinations, depending on the type of document. Subcategories are:

#### ***Expert Review***

Expert review seeks the review and comment of qualified experts in the specific subject matter. (Differs from peer review in lack of required independence, and expectation of being more contributory.) This may be done through reference to formal or *ad hoc* working groups or by specific individuals (academics, scientists, government officials, etc.) or organizations that have recognized expertise in the field.

#### ***Peer Review***

Peer review is a process by which qualified individuals (or organizations), independent of those who performed the original work and collectively equivalent in technical expertise to them, check the work to ensure it meets specific criteria. Generally, the goal of peer review is to verify whether the work addresses the topic of the project or responds to the hypotheses posed for the investigation, follows commonly accepted methodological standards, and achieves verifiable results. A further aim of a peer review is to provide suggestions for improvements to the work.

#### ***Public Consultation***

Public consultation can take on different forms depending on the circumstances, including forums open to the public or by invitation, and circulation or web-posting of documents for comment. Public consultation will be conducted according to the CEC's *Framework for Public Consultation in Commission for Environmental Cooperation Activities*.

#### ***Stakeholder Review***

Stakeholder review refers to invited critical comment by stakeholders on a draft product, service or proposed decision or action. Stakeholder review can be beneficial in determining a product's utility or in providing feedback on methods, processes or products, especially at early stages. Stakeholders can include, for example, working groups, *ad hoc* governmental advisory groups, nongovernmental organizations, and individuals.

**Information Products**

In addition to formally realized papers, proceedings, reports, etc., information products are inclusive of such information services as access to online databases (including maps and geo-spatial data).

**Internal Review**

Reviews of draft documents and information products performed by the Secretariat, the Parties, and, in some circumstances, JPAC. These are conducted according to this policy, individual Quality Assurance Project Plans, and the NAAEC.

**JPAC Review**

NAAEC Article 16(6) requires the Secretariat to provide JPAC with copies of the proposed annual program and budget of the Commission, the draft annual report, and any report the Secretariat prepares pursuant to Article 13, at the time they are submitted to Council.

**Party Review**

Party review contemplates scrutiny of an information product by government organizations of the Parties, for example, those with scientific and/or policy expertise. The Secretariat's communication of information for this purpose is via the General Standing Committee. The GSC is responsible for the timely completion of Party reviews and transmission and settlement of comments. In all cases, inputs received by the Secretariat should be documented, and every effort made to resolve issues and incorporate changes into the final product. If comments/changes transmitted by the Parties are contradictory or problematic, the Secretariat will raise these to the Council for resolution.

**Publication**

A publication is defined as a document that is published in either a printed or electronic form for dissemination to the public and other audiences. Agendas, registration forms, speaker's biographical profiles, presentations (PPTs), etc., are not considered as publications for the purposes of this policy and are not subject to its review and approval procedures.

**Quality**

The totality of characteristics of an entity that bear on its ability to satisfy stated and implied needs (ISO 9000).

**Quality Assurance**

All the planned and systematic activities implemented within the quality system, and demonstrated as needed, to provide adequate confidence that an entity will fulfill requirements for quality (ISO 9000).

**Quality Assurance Project Plan**

A document describing in comprehensive detail the necessary quality assurance, quality control, and other technical activities that must be implemented to ensure that the results of the work performed will satisfy the stated performance criteria (from *EPA Quality Manual*).

**Quality Audit**

A systematic and independent examination to determine whether quality activities and related results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve objectives (ISO 9000).

**Quality Control (QC)**

The operational techniques and activities that are used to fulfill requirements for quality (ISO 9000 definition). That includes the specific tests, inspections, etc.

**Quality Management**

All activities of the overall management function that determine the quality policy, objectives and responsibilities and implement them by such means as quality planning, quality control, quality assurance and quality improvement, within the quality system (ISO 9000). Quality management is a general term that includes QA, QC, etc., as well as the quality assurance policies and infrastructure to be implemented.

**Quality Policy**

The overall intentions and direction of an organization with regard to the quality of its processes and outputs, as formally expressed by top management (ISO 9000). That is, the broad statement of intent of the organization.

**Secretariat Review**

Secretariat review comprises two categories of effort:

- Content assurance: Carried out by qualified expert program staff to ensure correctness and appropriateness of methods, content, and data, and signed off by the appropriate authority.
- Editorial review: Examines style, clarity, and correctness of expression, and compliance with standards and practices of language, format and presentation.

**Stakeholder**

An individual (or organization) likely to be affected (positively or negatively) by a specific decision or action.

## **Annex 3: Abbreviations**

CEC	Commission for Environmental Cooperation
DIQAP	Data and Information Quality Assurance Plan
EPA	United States Environmental protection Agency
GIS	Geographic Information Systems
GSC	General Standing Committee
JPAC	Joint Public Advisory Committee
NAAEC	North American Agreement on Environmental Cooperation
NAAF	North American Atlas Framework
OECD	Organization for Economic Cooperation and Development
OGC	Open GIS Consortium
QAPP	Quality Assurance Project Plan
QA	Quality Assurance
QC	Quality Control
SEM	Submissions on Environmental Matters