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<b>Project 1</b>	<b>Mapping North American Environmental Issues</b>	<b>Responsible Project Manager at the CEC Secretariat</b>
<b>Planned Allocation</b>	C\$158,000	<b>Working Group(s) associated with this work</b> North American Atlas Coordination Group (NAACG)

## Objective of Project

The objective of this project is to enable the visualization of North American environmental information through maps. In 2010 this will be accomplished through the completion of 2009 mapping-related tasks and updates of the digital North American Environmental Atlas. No new maps layers will be developed in 2010; only map layers underway and identified in 2009 will be added to the North American Environmental Atlas's webpages and interactive map viewer. These layers and their associated data will also be available for download. (Delayed staffing for this activity in 2009 on the part of the CEC Secretariat and various data delays itemized herein combined to hold up completion of certain 2009 activities.)

This project will enhance awareness of environmental topics of continental scale, add value to other CEC projects, provide a framework for geo-referenced environmental data, and build networks among partner mapping organizations through collaboration on harmonized map layers of mutual interest.

## Background

### *Project History and Foundation*

As an initial activity, the CEC and representatives of the National Atlas agencies of Canada, Mexico and the United States—Natural Resources Canada, the *Instituto Nacional de Estadística y Geografía* (INEGI—National Institute of Statistics and Geography), and the United States Geological Survey (USGS)—collaborated to compile a number of base map layers, both in hard copy and as a digital platform. These base layers are now known as

the North American Atlas Framework (NAAF), and they provide a consistent, harmonized geographic framework for the display and analysis of thematic data at the North American scale.

The NAAF base layers are standardized geospatial data sets, with a scale of 1:10 million. Released for public access in June 2004, these base layers include political boundaries (international and state/provincial), major roads, railroads, populated places, hydrography (lakes, rivers, coastlines), glaciers and sea ice, and bathymetry (depths of water bodies). The completed base map layers are available for download from the online North American Environmental Atlas (NAEA) webpages, <http://www.cec.org/naatlas>. A North American watersheds base layer was also produced in a wall map format.

In October 2006, the National Atlas agencies, the Parties, and the CEC Secretariat formalized their working relationship through the creation of the North American Atlas Coordination Group (NAACG).

Over the last two years, this project has developed NAAF-compatible data layers for renewable energy capacity, marine and terrestrial ecoregions, pollutant release facilities, protected areas, priority conservation areas, important species ranges, elevation, land cover, and watersheds. Some of these data layers were developed in cooperation with other CEC projects, while other layers were contributed by the National Atlas agencies. All completed data layers and associated metadata are shared with the public through the North American Environmental Atlas webpages, <http://www.cec.org/naatlas/>. In the twenty months following its launch in

February 2008, this site has had approximately 140,000 page views, with significant spikes in traffic following the release of new map layers.

To improve the ease and efficiency of providing map layers to the public, the CEC has developed an interactive web-based map viewer that allows users to examine and download all of the maps in the Atlas in one place. This map viewer allows the user to overlay maps of interest and zoom in on specific areas. Several map layers, including industrial pollution, species of common conservation concern, marine ecoregions and anthropogenic biomes, have also been developed as interactive Google Earth layers. A wall map of land cover based on satellite images for 2005 was completed in 2009 as the first product of the North American Land Change Monitoring System (NALCMS). Lastly, outreach efforts have included the development of a short video, a brochure on the North American Environmental Atlas, presentations and exhibits at several large, international conference and targeted printed and web-based material. The land cover map was also featured as a centerfold poster in the December 2009 issue of Canadian Geographic.

#### ***Key Stakeholders, Resource Leveraging, Partnerships (to date)***

The key partners in this work are representatives of the national mapping agencies of the three North American countries—Natural Resources Canada, the USGS, and INEGI. These agencies have worked together to develop the base map layers and continue to produce North American maps of priority themes that are shared through the online Atlas. In addition, these mapping agencies provide publicity for the North American Environmental Atlas through their own webpages and activities (e.g., participation in international meetings and conferences).

Based on identified priorities by the partners, the CEC supports several technical subgroups of the NAACG: 1) The North American Land Change Monitoring System (NALCMS) subgroup; 2) the 1:1 million-scale mapping subgroup; and 3) the North American Protected Areas subgroup. The NALCMS subgroup, composed of representatives from the remote-sensing and land cover groups of Natural Resources Canada, USGS, INEGI, the *Comisión Nacional para el Conocimiento y Uso de la Biodiversidad* (Conabio), and the *Comisión Nacional Forestal* (Conafor), produces annual land-cover and land-change information in a harmonized manner across North America. The 1:1 million-scale mapping subgroup, composed of representatives from the national mapping groups, produces harmonized

maps of North America at a scale of 1:1 million. The North American Protected Areas subgroup, composed of representative from Environment Canada, *Comision Nacional de Areas Naturales Protegidas* (Conanp), USGS, and several academic and non-government organizations, produces updated map data and information for marine and terrestrial protected areas consistent across the three countries. It also harmonizes data for North America with the World Database on Protected Areas (WDPA). The CEC facilitates the technical work of these partners. The agencies involved in these subgroups have become important stakeholders and partners of the CEC mapping project.

This project has also partnered informally with international organizations and academic institutions whose outputs include global maps of environmental data. These have included McGill University in Canada and Clemson University in the United States, and NGOs such as the International Union for Conservation of Nature (IUCN) and the World Protected Area Database (WDPA). The CEC has supported these international mapping activities by incorporating them into the North American Environmental Atlas as they have been developed. These arrangements are mutually beneficial to the CEC and the institutions contributing the data: the North American Environmental Atlas gains breadth by incorporating new information that supports the visualization of environmental issues on a continental scale, while the international participants gain a wider audience for their work.

#### ***Advisory Groups Related to This Project***

The North American Atlas Coordination Group (NAACG) serves an advisory role for the project and provides a focal point for trilateral collaborative activities. It is composed of representatives from Natural Resources Canada, INEGI, and the USGS.

#### ***Rationale***

##### ***Fulfillment of Strategic Objectives***

This project is linked to the Information for Decision-Making priority in the 2005–2010 Strategic Plan. The long-term goal for this priority is to support better decision-making by providing information on the key environmental challenges and opportunities facing North America.

The Strategic Plan specifically identifies the need for an initiative to provide for “the development over time of an online North American environmental atlas depicting environmental protection, conservation, biodiversity and other information on a continental scale.” The role of the CEC has been to bring together the three governments’ mapping experts to facilitate development of this atlas and to further the development of the Atlas through maps of information from CEC projects and other priority thematic areas. The proposed work for 2010 will complete work not completed in 2009 and will update existing layers in the North American Environmental Atlas. This work will contribute to fulfillment of these information objectives by increasing the breadth and depth of the North American Environmental Atlas content.

### ***Information for Decision-making***

The type of information made available through this project is map-based. The project is primarily aimed at furthering the visualization, display, and communication of information on continental-scale environmental topics, through maps. Maps are not a substitute for reports and other environmental information, but serve as a complementary communications resource for decision makers and the interested public by simplifying the geographical patterns associated with environmental data. Maps can help decision makers visualize the geographic nature of environmental issues and bring important patterns to light. Because the information from the North American Environmental Atlas is depicted at the continental scale, its value as a tool for decision makers is at a broad level. Specifically, the growing number of foundational and thematic layers allows decision makers to look at critical trends by combining and overlaying the information contained in the map layers such as watershed loading of specific PRTR chemicals, the map of human influence in relation to the location of protected areas and the location of industrial pollutants in relation to population density. The information can help decision makers to identify opportunities for collective action as well as the areas in which to focus their efforts.

### ***Trade and Environment***

The role of this project in the context of trade and the environment is to further the understanding of trade and environment-related topics through map-based display of information, whenever feasible. An example of trade and environment data within the North American Environmental Atlas is installed renewable energy across North America.

### ***North American Scope of the Project and Its Relevance to the Three Parties***

This project supports the visualization of the North American environment through maps. The online North American Environmental Atlas includes information that is harmonized and seamless across the continent. Thus it differs from national mapping activities and even binational mapping activities. Bringing together information in this manner requires coordination between the Parties to harmonize and reconcile existing data for a seamless North American view. The mapping project allows the three Parties to more effectively visualize the shared North American environment and identify opportunities for collective work. Moreover, because the data in the Atlas covers each of the countries, the project enables the Parties to visualize their own environment in the context of North America.

### ***CEC Niche and Value Added***

The CEC plays a key role in bringing together and facilitating the harmonization of a range of environmental maps on the continental scale. To this end, a major role of the CEC in this project has been to convene the three countries’ government experts, through the NAACG, NALCMS, 1:1 million-scale mapping and North American Protected Areas subgroups and coordinate their cooperative efforts in developing maps of priority environmental themes. In addition, the CEC seeks sources of environmental information that can be mapped at a continental scale, explores methods for sharing map-based North American environmental information, and provides the completed data and maps to the public through the North American Environmental Atlas webpages.

It is important to note that the NALCMS is a major, pre-existing scientific collaboration between science organizations within the Canadian, Mexican and US governments. It was initiated at the 2006 Land Cover Summit in Washington, DC, and is mentioned in the Summit proceedings as one of the most significant outcomes of the Summit. The NALCMS is also underpinned by Annex 17 to the Memorandum of Understanding between NRCan and the USGS. Annex 17 contains intellectual property clauses that apply to data and products resulting from the Canada/US portion of the NALCMS collaboration. The CEC and its Secretariat continue to support the NALCMS project through facilitation and convening of meetings.

Through this project, the CEC brings harmonized environmental data for North America and also facilitates the governments to continue to create maps of priority environmental themes. Other mapping initiatives exist in North America at the national level (e.g., National Atlas of the United States, the National Atlas of Canada) and sub-national levels (e.g., state, provincial, county, and municipal), but their maps do not typically span the continent and are not usually harmonized with each other. While international organizations and environmental NGOs undertake mapping work, the data does not always cover the continent in a consistent way, and these maps are focused on specific themes.

Working with the output of other project areas of the CEC has led to thematic maps that display a breadth of environmental information on a continental scale. Further, the CEC has identified and compiled North American data from international organizations, NGOs, and academic institutions and displayed this information in a manner consistent with the North American Environmental Atlas, to increase the breadth of the Atlas. The CEC has also developed an interactive map viewer for innovative map display, including an interface with the Google Earth platform, and used these platforms to more broadly disseminate North American environmental information.

### ***Linkages with Other CEC Projects***

This project is linked to other CEC projects that produce information that can be displayed through maps at the continental scale. Examples include biodiversity projects (e.g., maps of protected areas, priority conservation areas, and ecoregions), the PRTR project (e.g., maps of pollutant release and transfer facilities, maps of emissions from PRTR facilities), and the air project (e.g., maps of power plant emissions). The online North American Environmental Atlas serves as a clearinghouse for most of these program-related maps, enhancing the visibility of the issues that the projects address and the continental scale of the topics.

## **Activities and Outputs**

### ***Key Activities***

In 2010, project activity in support of the digital North American Environmental Atlas is limited to completion of tasks not completed in 2009 and updating of maps and information currently within North American

Environmental Atlas. No new map layers will be developed, however map layers underway and identified in 2009 will be added to the North American Environmental Atlas in 2010. The three main areas of work will include:

- Collaboration among the Atlas and the partner agencies of the three countries through in-person meetings and regular conference calls of the NAACG, NALCMS, 1:1 million-scale mapping and North American Protected Areas subgroups. This supports identification of issues of common interest and improved exchange of environmental mapping information.
- Supporting the completion of 2009 map layers planned for the North American Environmental Atlas including those stemming from other CEC project activities in various areas (PRTR and grasslands) and 2009 initiatives such as the North American Land Change System, 1:1 million-scale maps, marine and terrestrial protected areas and international pollutant transfers. This work will only focus on layers identified in the CEC's 2009 Operational Plan that were planned for development, completion, and inclusion in the online North American Environmental Atlas in 2009 and otherwise not completed in 2009. These include:
  - Watershed loadings of selected PRTR chemicals – Work underway in conjunction with the ongoing development of the 2006 *Taking Stock* report. Delay due to corrections to the watershed map by Canada, due for release in December 2009;
  - Marine priority conservation areas in eastern North America – Work underway in conjunction with the 2009 Conserving Marine Species and Spaces of Common Concern project;
  - Hazardous waste generating and receiving sites – Work underway in conjunction with the 2009 Trade and Enforcement of Environmental Laws project outputs. First draft of the map expected December 2009 to be refined and reviewed in 2010;
  - North American land cover (2006) and land cover change (2005–2006) Baseline map (land cover 2005) completed in November 2009. Discussion on process and methodology to release land cover 2006 and land cover change (2005–2006) expected to conclude in December 2009;
  - Forests. Data for all three countries have been collected. Process

to harmonize datasets underway with the North American Forest Commission. Data completion has been delayed and the process is to resume by January 2010;

- 1:1,000,000-scale base maps – Work underway. Update from the International Boundary Commission on borders between Canada/US and US/Mexico and mapping of water bodies has delayed progress; and
- Seaports and airports – Work underway to gather data. Delay due to mid-year start of program manager. Work to be completed in early 2010.
- Updating outreach materials to better promote the North American Environmental Atlas to its users. This task aims to improve the utility of CEC information products through updating the web-based interactive map viewer as additional layers are made available, Web 2.0 applications and promotional material, including video clips, presentations and blog releases.

### ***Target Groups***

The primary target audiences for this project are: 1) the general North American public with an interest in understanding North American environmental issues, 2) users of other CEC reports and background papers who may be better served through enhanced mapping capacity, 3) researchers in environmentally related disciplines (such as ecology, earth sciences, biology, and geography) who may be interested in using harmonized North American environmental data, and 4) decision makers with an interest in understanding the continental scope of environmental topics.

### ***Partners, Stakeholders***

Key partners in this project in 2010 are the mapping agencies (Natural Resources Canada, INEGI, USGS) from the three countries. Partners in the land change monitoring activity include experts from the three countries' remote-sensing and land change organizations: Canadian Centre for Remote Sensing-Natural Resources Canada, USGS, INEGI, Conabio, and Conafor.

In 2010, the North American Environmental Atlas will incorporate maps of North American forests; in developing these maps, the CEC is partnering with the North American Forestry Commission (NAFC) of the FAO.

### ***Leveraging***

In 2010, this project will continue to leverage CEC resources by facilitating the efforts of mapping experts from a variety of government agencies to produce environmental thematic maps. In these initiatives, the CEC will continue to play a leadership and facilitation role while the government agencies will contribute their technical and cartographic expertise. Moreover, these agencies will promote the Atlas on their own webpages and through their participation in international meetings and conferences.

Outside of government, the project will continue to benefit from the in-kind use of North American environmental information from a variety of sources, including research institutions and international organizations.

The CEC has publicized and more widely disseminated some of its mapping products through the use of freely available mapping platforms, in particular Google Earth. While leveraging of funding from the private sector is not anticipated, use of the kml file format enables CEC map products to be viewed interactively in a variety of freely available mapping applications, such as Google Earth. This serves to increase the accessibility and utility of the North American Environmental Atlas.

This project will continue to encourage map-based display of environmental information, whenever feasible, in other CEC projects, thereby adding to the breadth of the North American Environmental Atlas while enhancing the work of other projects.

### ***Outputs and Associated Timelines***

The following map layer outputs are planned for completion, and inclusion in the online North American Environmental Atlas in 2010 (all carried over from 2009):

- Watershed loadings of selected PRTR chemicals;
- Marine priority conservation areas in eastern North America;
- Hazardous waste generating and receiving sites;
- North American land cover (2006) and land cover change (2005–2006);
- Forests;
- 1:1,000,000-scale base maps; and

- Seaports and airports.

Additional outputs in 2010 will include the following:

- Map layers agreed upon in 2009 from other CEC projects, including the updated PRTR layer and the updated grassland priority conservation areas layer, both already underway, in the Atlas;
- Annual in-person coordination meeting and monthly conference calls of national Atlas agencies and mapping agency partners; and
- North American Environmental Atlas outreach materials.

## **Anticipated Outcomes and Performance Indicators**

### ***Direct Outcomes***

- Regular collaboration among the three National Atlas programs and other mapping agencies with capacity to contribute to the North American Environmental Atlas;
- Updating and completion of identified map layers and geo-referenced datasets; and
- Ongoing maintenance of geospatial data, map layers, and metadata on webpages.

### ***Performance Indicators***

- Continued endorsement by and participation of the National Atlas programs (information available);
- Number of map layers added and updated to the North American Environmental Atlas (baseline and current information available); and
- Increased use of the North American Environmental Atlas products (baseline and current information available).

### ***Intermediate Outcomes***

- Identification of appropriate niche for CEC mapping activities;
- Consensus on priorities for improvements to existing products and understanding of requirements for thematic layers;
- Successful collaborative arrangements, including processes to maintain, update, and disseminate existing products;
- Digital atlas displaying continent-wide environmental topics,

available through CEC website;

- More effective use of maps and map-based displays in CEC reports and information products;
- Wider awareness of Atlas and CEC mapping products; and
- Additional attention to North American-scale research questions by academics and other researchers.

### ***Performance Indicators***

- Traffic on Atlas pages of CEC website (current information available);
- Use of Atlas map layers in poster presentations and academic research (no information available); and
- Specific use of Atlas maps in CEC reports (current information available).

### ***Final Outcomes***

- Common approaches, comparable data and information across North America on continent-wide environmental topics;
- Improved visualization and understanding of North American environmental topics through mapping products;
- Stronger regional information systems; and
- Facilitation of geographic analysis and decision-making on a broad range of environmental topics.

### ***Performance Indicators***

- Utilization of common approaches, comparable data and information consistent with the North American Atlas Framework;
- References to the North American Environmental Atlas, reproduction of the atlas map layers, and use of atlas data and products, in print and Web media sources.

## **Timetable, Project Completion and Sustainability**

### ***Culminating Steps in Achievement of Program Objectives***

Work described here for 2010 is intended to complete project activities as agreed in the 2009 project description and otherwise update existing data layers and information within the North American Environmental Atlas

### ***Target End Date for CEC Involvement***

Future work in support or continuation of these activities will be considered in the development of the CEC's 2010–2015 Strategic Plan and subsequent project-level descriptions.

### ***Sustainability Beyond 2010***

Project activity for 2010 will proceed as described herein. Future work in support or continuation of these activities will be considered in the development of the CEC's 2010–2015 Strategic Plan and subsequent project-level descriptions. In the event that the CEC's 2010–2015 Strategic Plan does not include any further support for the North American Environmental Atlas, the data and information contained in the Atlas would be transferred back to the national atlas programs in the three countries. All three national atlas programs already store copies of the data layers and have an agreement to rotate the hosting and achieving of the primary data between countries as necessary. All parties have already agreed to share data release responsibilities and the parties would need to resolve cooperative responsibility for updating, outreach, and maintenance of the North American Environmental Atlas.

### **Communications**

The target audiences are: 1) users of other CEC reports and background papers who will be better served through enhanced mapping capacity, 2) researchers in environmentally related disciplines (such as ecology, earth sciences, biology, and geography) who may be interested in using harmonized North American environmental data, 3) decision makers with a need to understand the continental scope of environmental topics, and 4) the general public with an interest in understanding North American environmental issues.

The web pages for the North American Environmental Atlas, including the interactive web-based map viewer, serve as the primary communications mechanism, with periodic announcements to CEC list-serve members about

new layers. In addition, the CEC incorporates currently available maps into CEC information products such as the *Taking Stock* series. The project manager and NAACG members take advantage of their ongoing participation in conferences and workshops to raise awareness of the North American Environmental Atlas. The widespread distribution to the public of the 2009 wall map of land cover (2005 data) and a brochure on the North American Environmental Atlas at conferences and meetings (e.g., of geographers, the mapping community, and of environmental policy makers and scientists), distribution by CEC staff at meetings and conferences (e.g., at international meetings, at meetings at universities and with NGOs), through the CEC website by request and through the reproduction of the map image in the December 2009 edition of Canadian Geographic (distribution, 250,000 readers) has raised the profile of the Atlas.

### **Information Management**

Upon completion, all metadata, shapefiles, keyhole mark-up language (kml) file formats, and geospatial databases assembled and developed by the CEC will be maintained on the North American Environmental Atlas webpages and on the interactive web-based map viewer. This will serve both archiving and distribution functions for mapping related data files. Some layers (in particular, base layers) will be mirrored on mapping agency partner websites. The CEC currently maintains licenses for ArcMap, Google Earth Pro, and Arc2Earth, but has limited in-house capacity for substantial analytical or cartographic work. To the extent that thematic layers and mapping products are produced by the CEC rather than through in-kind assistance by mapping agency partners, the CEC will require contracted GIS technical services which are not currently available in-house.

Mapping requirements, when anticipated in other CEC projects, will be supported by the project manager for Environmental Information and NAAF guidance documents as references.

## Implementation Plan

<b>PROJECT 1 – Mapping North American Environmental Issues</b>						
<b>Strategic Objectives:</b> <ul style="list-style-type: none"> <li>Strengthen the capacity of North American decision makers to understand continental environmental issues of common concern.</li> <li>Establish an environmental information and knowledge framework for North America.</li> <li>Make environmental information more widely available in order to facilitate local, national and regional action.</li> </ul>						
<b>2010 Tasks</b>	<b>Key Outputs</b>	<b>Timing</b>	<b>Expected Outcomes</b>	<b>Beneficiaries (Reach)</b>	<b>Budget (C\$)</b>	<b>Future Activities</b>
1. Strengthen and facilitate North American collaboration on Atlas development and use	Annual, in-person coordination meeting of national Atlas agencies (NAACG), annual meetings of NALCMS, 1:1 million-scale mapping and protected areas subgroup. Monthly conference calls for all four groups. Presentations at conferences and workshops.	Jan–Dec	Consensus on priorities for improvements to existing products and choice of dissemination methods. Successful collaborative arrangements, including processes to maintain and update existing products. Wider awareness of Atlas mapping products.	National Atlas programs.  National mapping agency partners.  Researchers with an interest in environmental topics at the North American scale.	\$60,000	Annual planning and coordination meeting of national Atlas agencies and mapping partners. Monthly conference calls. Presentations at appropriate conferences and workshops.
2. Completion of 2009 planned map layers in the North American Environmental Atlas	Output maps of: - Watershed loadings of selected PRTR chemicals. Work underway in conjunction with development of 2006 <i>Taking Stock</i>	Jan–Dec	Increased awareness and/or knowledge of North American environmental information through map-	Existing audiences for CEC information products and existing audiences for other CEC project activities,	\$63,000	Future work in support or continuation of these activities will be considered in the development of the CEC's 2010–2015



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	<p>report. Delay due to corrections in the watershed map by Canada, now due for release in December 2009.</p> <p>- Marine priority conservation areas in eastern North America. Work underway in conjunction with the 2009 Conserving Marine Species and Spaces of Common Concern project. Methodology report and process expected December 2009.</p> <p>- Hazardous waste generating and receiving sites. Work underway in conjunction with the 2009 Trade and Enforcement of Environmental Laws project. First draft of expected December</p>		<p>based visualization.</p> <p>Facilitation of geographic analysis and decision-making.</p>	<p>including individuals, organizations, students, NGOs</p> <p>Researchers with an interest in environmental topics at the North American scale.</p>		<p>Strategic Plan and subsequent project-level descriptions.</p>

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	<p>2009, to be refined and reviewed in 2010.</p> <p>- North American land cover (2006) and land cover change (2005–2006). Baseline map (land cover 2005) completed in 2009. Agreement on process and methodology to release land cover 2006 and land cover change (2005–2006) underway, expected in December 2009.</p> <p>- Forests. Data for all three countries have been collected. Process to harmonize datasets underway with the North American Forest Commission. Delay due to unexpected situation with the Canadian data. Process to resume by January 2010.</p> <p>- 1:1,000,000-scale base</p>					

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	<p>maps. Work underway. Data delays due to updates from the International Boundary Commission on borders between Canada/US and US/Mexico and mapping of water bodies.</p> <p>- Seaports and airports. Work underway to assemble data for all three countries. Delay due to mid-year start of Program Manager. Work to be completed in early 2010.</p> <p>- PRTR – industrial pollutants. Work in conjunction with the Monitoring and Assessing Pollutants across North America project.</p> <p>- Grassland priority conservation areas. Update of existing map.</p>					

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	Work in conjunction with the Conserving North American Grasslands project output.					
	Quality Assurance Summary. Project Database/Dataset: Map-based analysis of watershed loadings for <i>Taking Stock</i> special feature chapter.	Development: In coordination with the project Tracking Pollutant Releases and Transfers in North America Party Review: In coordination with the project Tracking Pollutant Releases and Transfers in North America Availability online within <i>Taking Stock 2006</i> report and as a jpg and GeoPDF image, kml, GIS shapefile, MXD file and metadata for download: June 2010				
	Quality Assurance Summary. Project Database/Dataset: Priority conservation areas along Atlantic coast.	Development: In coordination with the project Conserving Marine Species and Spaces of Common Concern. Party Review: In coordination with the project Conserving Marine Species and Spaces of Common Concern. Availability online as jpg and GeoPDF image, kml, GIS shapefile, MXD file and metadata for download: December 2010.				
	Quality Assurance Summary. Project Database/Dataset: Hazardous waste	Development: In coordination with the project Trade and the Enforcement of Environmental Laws. Party Review: In coordination with the project Trade and the Enforcement of Environmental Laws. Availability online as jpg and GeoPDF image, kml, GIS shapefile, MXD file and metadata for download: June 2010				

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	generating and receiving sites.					
	Quality Assurance Summary. Project Database/Dataset: North American land cover (2006) and land cover change (2005–2006)	Development: December 2009–April 2010(2006 land cover), April 2010-October 2010 (land cover change). Party Review: April 2010 (2006 land cover), November 2010(land cover change). Availability online as as jpg and GeoPDF image, kml, GIS shapefile, MXD file and metadata for download: May 2010 (2006 land cover) December 2010(land cover change).				
	Quality Assurance Summary. Project Database/Dataset: 1:1,000,000-scale base maps	Development: January–September 2010. Party Review: October 2010 Availability online as as jpg and GeoPDF image, kml, GIS shapefile, MXD file and metadata for download: November 2010				
	Quality Assurance Summary Project Database/Dataset: North American forests thematic map layers.	Development: January–July 2010 Party Review: August 2010 Availability online as jpg and GeoPDF image, kml, GIS shapefile, MXD file and metadata for download: September 2010				
	Quality Assurance Summary.	Development: January–September 2010 Party Review: October 2010				

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<b>2010 Tasks</b>	<b>Key Outputs</b>	<b>Timing</b>	<b>Expected Outcomes</b>	<b>Beneficiaries (Reach)</b>	<b>Budget (C\$)</b>	<b>Future Activities</b>
	Project Database/Dataset: North American transportation infrastructure thematic map layer (sea ports and airports).	Availability online as jpg and GeoPDF image, kml, GIS shapefile, MXD file and metadata for download November 2010				
	Quality Assurance Summary. Project Database/Dataset: Pollutant Transfer and Releases	Development: In coordination with the project Tracking Pollutant Releases and Transfers in North America Party Review: In coordination with the project Tracking Pollutant Releases and Transfers in North America Availability online as as jpg and GeoPDF image, kml, GIS shapefile, MXD file and metadata for download: December 2010				
	Quality Assurance Summary. Project Database/Dataset: Grassland Priority Conservation Areas	Development: In coordination with the project Conserving North American Grasslands Party Review: In coordination with the project Conserving North American Grasslands Availability online as as jpg and GeoPDF image, kml, GIS shapefile, MXD file and metadata for download: December 2010				
3. Outreach material	Updated outreach strategy for use by CEC Secretariat and NAACG. Updated outreach materials, e.g. brochure,	Jan.-Dec.	Raise awareness of and participation in the North American Environmental	Cartographic community; government agencies; research and academic community; GIS	\$35,000	Development of outreach materials to promote map-based products from the 2010–2015 Strategic Plan

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2010 Tasks	Key Outputs	Timing	Expected Outcomes	Beneficiaries (Reach)	Budget (C\$)	Future Activities
	display materials.		Atlas initiative by the target audiences throughout the region.	practitioners; identified target audiences (e.g., students, academic researchers, indigenous groups, NGOs, others from general public).		Re-evaluation of GIS software requirements.  Evaluation of efficiency
	Quality Assurance Summary. Outreach Material	Secretariat review: Periodic Party review–Quality assurance: Ongoing Publication: Ongoing				
<b>Total Cost: \$158,000</b> <b>Key Partners:</b> Natural Resources Canada Environment Canada <i>Instituto Nacional de Estadística y Geografía (INEGI)</i> Semarnat <i>Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (Conabio)</i> <i>Comisión Nacional Forestal (Conafor)</i> US Geological Survey (USGS) US EPA						