

Operational Plan of the Commission for Environmental Cooperation 2013–2014



Commission for Environmental Cooperation

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This Operational Plan was approved by the Parties to the
North American Agreement on Environmental Cooperation.

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1 Introduction and Context

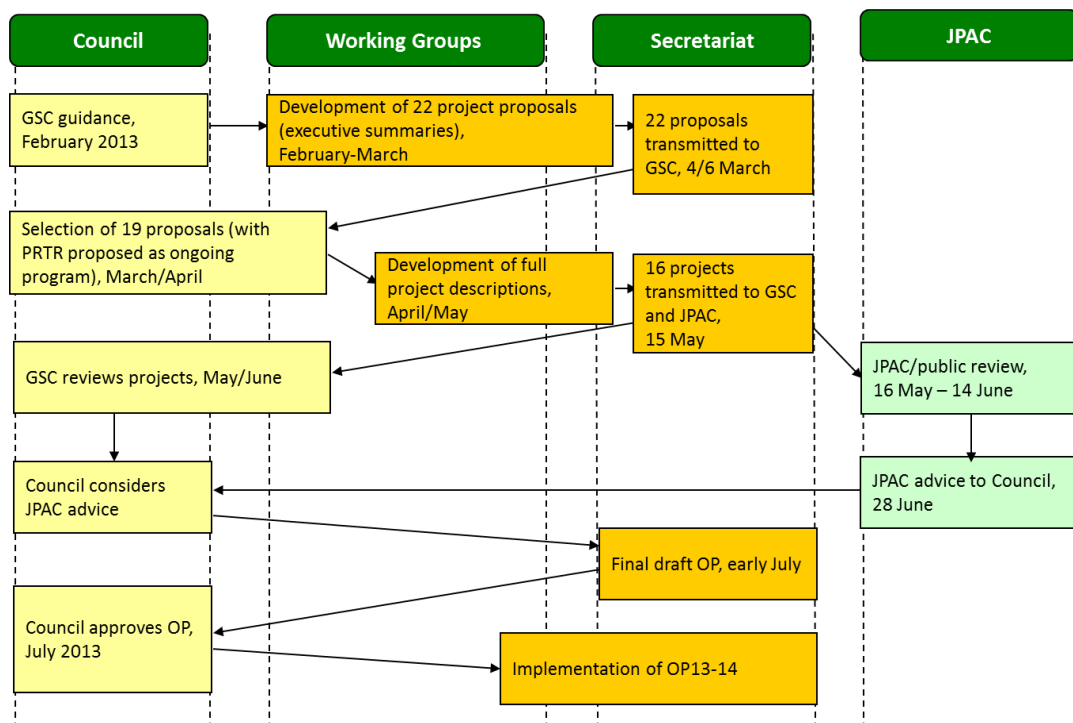
In 2009, the Commission for Environmental Cooperation's (CEC) Council—the federal environment ministers of Canada, Mexico and the United States—set forth an ambitious agenda with a new vision for the CEC to ensure it is positioned to deliver concrete results and is focused on North America's key environmental priorities under its Strategic Plan 2010-2015.

The Council further recognized that addressing environmental problems across North America could only be accomplished by partnering and engaging extensively with stakeholders and the public in all three countries, and by promoting a sense of shared responsibility and stewardship for the environment in our region. To accomplish this, the Council established the North American Partnership for Environmental Community Action (NAPECA), which added a new element to the bold vision of Council to create new synergies and provided the leadership required to ensure the integration of the environmental priorities. In 2013–2014, NAPECA will continue funding community-based projects engaging other levels of government, tribal nations/indigenous communities, nongovernmental organizations and other relevant stakeholders to support the delivery of CEC priorities and strengthen the opportunities for effective cooperative work.

Early in 2013, governmental officials and experts from the three countries met to determine the appropriate activities or projects that would continue to translate the Council priorities into concrete actions. These were also shaped by the advice and input of the public through the Joint Public Advisory Committee and the Secretariat's expertise. The process followed to develop the 2013–2014 Operational Plan is detailed in Figure 1.

Through this Operational Plan, the Parties will accomplish robust and efficient initiatives through the collaborative efforts of numerous officials and experts from the three Parties and the CEC. These initiatives will maximize the opportunities available to North America as a region and achieve common objectives in protecting our shared environment.

Figure 1. Operational Plan Development Process



2 2013–2014 Budget

The CEC's 2013 budget and the budget forecast for 2014 are based on a total of US\$9 million annually, of which each Party contributes an equal share, taking into account the allocation of unspent funds from previous years. The operational budget is complemented by staff time, expertise, and travel support, as well as other in-kind contributions from the Parties and project partners.

Commission for Environmental Cooperation 2013-2014 - Budget (in thousands of Canadian dollars)						
Description			Budget 2013	% of total	Budget 2014	% of total
REVENUES						
Parties' Contributions (\$9,000 US at 1.00/C\$)			9,000.0		9,000.0	
TOTAL REVENUES			9,000.0		9,000.0	
EXPENSES						
Cooperative work program						
Projects			2,665.0	29.6%	2,385.0	26.5%
Work Program Salaries, Benefits and Professional Development			1,278.1	14.2%	1,275.7	14.2%
North American Partnership for Environmental Community Action (NAPECA)			600.0	6.7%	600.0	6.7%
Tracking Pollutant Releases and Transfers in North America (PRTR)			35.0	0.4%	164.5	1.8%
Development of Strategic Plan			0.0	0.0%	50.0	0.6%
Mexico Liaison Office			216.7	2.4%	211.0	2.3%
Managing CEC Environmental Information			57.8	0.6%	101.0	1.1%
Monitoring, Evaluation and Reporting			56.8	0.6%	59.1	0.7%
			4,909.4	54.5%	4,846.3	53.8%
Secretariat Report (Article 13)			7.5	0.1%	145.0	1.6%
Submissions on Enforcement Matters (Articles 14 & 15)*			717.9	8.0%	759.6	8.4%
Council Support*			301.9	3.4%	339.6	3.8%
JPAC Support*			403.7	4.5%	434.0	4.8%
Communications*			722.4	8.0%	548.7	6.1%
Administration & Management						
Executive Director's Office			63.4		75.2	
External Administrative Support (insurance, audit, fiscal expertise, banking, legal)			204.9		204.4	
Relocation/Orientation, Recruitment			67.0		96.0	
Operating Expenses (telecommunications, rent, operating equipment, office supplies)			686.3		732.1	
Administration & Management Salaries and Professional Development			915.6		819.1	
			1,937.2	21.5%	1,926.8	21.4%
TOTAL EXPENSES			9,000.0	100.00%	9,000.0	100.00%
*These components include related salaries, benefits and professional development.						

CEC Operational Plan 2013–2014

Project Number	CEC OPERATIONAL PLAN 2013-2014 Project Title	Budget 2013	Budget 2014	Total Budget for 2 Years
		(C\$)	(C\$)	(C\$)
	Tackling Climate Change and Improving Air Quality	1,190,000	1,000,000	2,190,000
1	North America's Blue Carbon: Assessing the Role of Coastal Habitats in the Continent's Carbon Budget	200,000	250,000	450,000
2	North American Black Carbon Emissions Estimation Guidelines	185,000	125,000	310,000
3	Integrated Modeling and Assessment of North American Forest Carbon Dynamics and Climate Change Mitigation Options	210,000	200,000	410,000
4	Improving Conditions for Green Building Construction in North America	220,000	90,000	310,000
5	North American On-line, Interactive Informational Platform on Climate Change	100,000	110,000	210,000
6	Improving Indoor Air Quality to Reduce Exposure to Airborne Contaminants in Alaska Native Population and Other Indigenous Communities in North America	150,000	100,000	250,000
7	North American AirNow-International Project	125,000	125,000	250,000
	Greening Transportation in North America	425,000	465,000	890,000
8	Greening Transportation at North American Land Ports of Entry (POEs)	145,000	245,000	390,000
9	Reducing Emissions from Goods Movement via Maritime Transportation in North America	150,000	100,000	250,000
10	Improving the Economic and Environmental Performance of the North American Truck and Bus Manufacturing Supply Chain	130,000	120,000	250,000
	Addressing Waste in Trade in North America	410,000	450,000	860,000
11	Enhancing Environmental Law Enforcement in North America	210,000	250,000	460,000
12	Environmentally Sound Management of Selected End-of-Life Vehicle Batteries, Including Spent Lead-Acid Batteries (SLABs), in North America	200,000	200,000	400,000
	Cross-cutting Initiatives	640,000	470,000	1,110,000
13	Catalyzing North American Grasslands Conservation and Sustainable Use Through Partnerships	200,000	200,000	400,000
14	North American Collaboration for Conservation of Transboundary Protected Areas	200,000	100,000	300,000
15	Enhancing Trilateral Understanding of Chemicals in Products in North America	150,000	150,000	300,000
16	Close-out of Past Environmental Monitoring/Assessment, Chemicals Inventory and Mercury Activities in Mexico	90,000	20,000	110,000
	GRAND TOTAL	2,665,000	2,385,000	5,050,000

3 Cooperative Work Program

3.1 Strategic Framework

This Operational Plan presents how the CEC's goals and objectives will be implemented through project activities and other initiatives in 2013 and 2014. CEC operational plans are updated every year for budget purposes, with project planning focused on a two-year horizon within the CEC's 2010–2015 Strategic Plan (Appendix B). The strategic framework for the regular project activity described in this plan stems from the CEC Council's adoption, in 2009, of three broad priorities for the cooperative work program of the CEC:

- Healthy Communities and Ecosystems;
- Climate Change – Low-Carbon Economy; and
- Greening the Economy in North America.

Within these three broad strategic priorities, the Council is focusing this Operational Plan on addressing three key environmental areas:

- Tackling Climate Change and Improving Air Quality;
- Greening Transportation in North America; and
- Addressing Waste in Trade in North America.

The Parties will continue their cooperative work in support of healthy communities and ecosystems through a set of cross-cutting initiatives. Their collaboration on tracking pollutant releases and transfers in North America, including the analysis of data through the CEC's *Taking Stock* publication, will continue to be a regular program of the CEC.

The Council, as the governing body of the CEC, approves and oversees the implementation of the work program by officials and experts of each of the three Parties. The CEC Secretariat provides technical, administrative and operational support to the Council and to committees and groups established by the Council in the implementation of the cooperative work program. Throughout implementation of these projects, the Council and the Secretariat consult with the CEC's Joint Public Advisory Committee and stakeholders on an ongoing basis.

3.2 Projects 2013–2014

The following is a summary of the CEC's 2013–2014 projects that have been adopted by the Council to support the strategic priorities and key environmental areas mentioned above. Detailed project descriptions, including implementation tasks and budgets, can be found in Appendix A.

3.2.1 Tackling Climate Change and Improving Air Quality

In the 2010–2015 Strategic Plan, Council recognized that incremental trilateral collaboration, consistent with our respective circumstances and capacities, brings added value to each Party's individual efforts to address climate change and move toward a low-carbon economy. The Parties have undertaken a set of key initiatives to work toward aligning their domestic standards, regulations, and policies to support this transition in a way that is consistent with their respective national plans and priorities.

Through the 2011–2012 Operational Plan, the three Parties worked toward improved comparability of emissions data, methodologies and inventories, and strengthened the engagement of climate change experts and information-sharing. In particular, identifying where to address gaps in the comparability of data among the various greenhouse gas (GHG) and black carbon inventories, and providing and sharing the best information available on ecosystem carbon sources and storage remains crucial.

It also remains important that in tackling climate change, the progress made in addressing air quality not be abandoned. By continuing to establish rational comparability in the ways data are collected, analyzed, reported and disseminated, the three countries can build the foundation for developing complementary climate change programs in North America. Therefore, over the coming two years, the focus will be on the following for delivering results to tackle climate change and improve air quality.

North America's Blue Carbon: Assessing the Role of Coastal Habitats in the Continent's Carbon Budget

Adequately protected coastal ecosystems, including salt marshes, mangroves and seagrass beds offer carbon sequestration and long-term carbon storage. By contrast, when these coastal habitats are destroyed, they change from being net carbon sinks to net carbon emitters. This project advances the conservation and restoration of coastal blue carbon habitats by improving data, mapping and approaches necessary to develop and apply the appropriate carbon budgets.

North American Black Carbon Emissions Estimation Guidelines

Trilaterally coordinated identification/development of methodologies to improve the accuracy of black carbon and co-pollutant emissions estimates will provide the basis for reliable inventories to establish baselines and determine reduction priorities for these pollutants by source category or location. A guidance document for estimating black carbon from certain sources will be compiled.

Integrated Modeling and Assessment of North American Forest Carbon Dynamics and Climate Change Mitigation Options

Forests are important contributors to the global carbon cycle, acting as net sources or sinks of greenhouse gases, depending on land use, management and disturbance impacts (e.g., forest fires). This project will generate maps, data and computer models to improve our understanding of the role of land cover, land cover change, and forestry in the North American carbon cycle and identify opportunities for improved land management and climate change mitigation activities.

Improving Conditions for Green Building Construction in North America

Buildings in North America are major consumers of electricity and water and contribute an estimated 35 percent of the continent's total greenhouse gas emissions. Building greener, more environmentally sustainable structures can reduce the environmental impacts of our buildings. With a view to strengthening the environmental and economic performance of North America's built environment, this project will engage the private sector to advance green workforce training and resource use efficiency. This project will also explore opportunities to increase availability of green building construction in isolated communities across North America.

North American Online, Interactive Informational Platform on Climate Change

Long-term, science-based, up-to-date, and often complex data are essential in understanding how North America's climate is changing. This project builds on successes of the 2011–2012 Operational Plan and establishes an online, interactive platform for experts to access national emissions inventories (GHG, black carbon), associated methodologies, scientific studies, and links to other relevant platforms. This initiative will integrate data and methodologies developed in other projects as part of this Operational Plan.

Improving Indoor Air Quality to Reduce Exposure to Airborne Contaminants in Alaska Native Populations and Other Indigenous Communities in North America

Studies show that a combination of substandard housing, overcrowding, poor indoor air quality, and other environmental factors leads to a high incidence of acute and chronic respiratory disease in indigenous populations. Such susceptibility will be exacerbated by climate change. Through the 2011–2012 Operational Plan, CEC funds supported the development of a model and methods for improving air quality in the homes of high-risk children in indigenous communities. This project expands that study, with four or more homes in a selected community, and will generate a robust dataset that can support recommendations for healthy homes throughout North America.

North American AirNow-International Project

Building on work under the 2011–12 Operational Plan, this project continues work connecting Mexico's diverse air quality monitoring systems linking data and analyses to the AirNow System used by the US and Canada. This will support common air quality data management and information-sharing across North America, which would allow any person to access air quality conditions in specific locations.

3.2.2 Greening Transportation in North America

In the 2010–2015 Strategic Plan, Council committed to taking positive steps towards building a North American economy that minimizes the potential negative environmental impacts of economic growth, while enhancing the competitiveness of key industrial sectors in North America. Surface transportation—trucks, buses, cars and ships—play a significant role in the commercial and people-to-people ties between our three countries. It is also the greatest source of our GHG emissions. Through concerted action, there is potential to lower our emission levels from surface transportation so that our trade and travel do not come at the expense of the environment.

Through the 2011–2012 Operational Plan, the Parties built on the success of CEC work in the automotive manufacturing sector by further greening critical components of the supply chains across the continent, helping each link in the process to become more energy- and environmentally efficient, more effective in the use and recycling of materials, and ultimately contribute to lower emissions and fuel consumption.

This cluster of projects builds on the successful work conducted under the 2011–2012 Operational Plan by pursuing a suite of activities intended to better understand environmental issues related to surface transportation and to take practical measures to lower emissions. In the next two years, we will focus on delivering results that will yield more efficient, and greener transportation in North America.

Greening Transportation at North American Land Ports of Entry (POEs)

Building on recent cross-border initiatives, such as Beyond the Border, and broad interagency and stakeholder engagement in customs, transportation, foreign affairs and commerce, this initiative will assess vehicle emissions associated with border wait times; develop viable, integrated options to reduce vehicle emissions; and test the approach at land-based points of entry between Canada and the US, and the US and Mexico.

Reducing Emissions from Goods Movement via Maritime Transportation in North America

With a view to establishing a common North American approach to Emission Control Areas (ECA) for ships, this project identifies North American trends in the development and adoption of ship emission control technologies, fuel quality specifications and best practices to reduce air pollutants (nitrogen oxides, sulfur oxides, particulate matter) to meet requirements of US and Canadian Emission Control Areas. Trilateral work will also support Mexico in establishing an Emission Control Area under the International Maritime Organization, by assisting with technical analyses of marine source air pollutants, and the requisite monitoring, training, and steps necessary to establish its ECA.

Improving the Economic and Environmental Performance of the North American Truck and Bus Manufacturing Supply Chain

This project establishes a public-private partnership among the bus and heavy-duty truck manufacturing sectors to accelerate the adoption of innovative technologies and best practices to reduce environmental impacts by agreeing on realistic targets and commitments.

3.2.3 Addressing Waste in Trade in North America

In the 2010–2015 Strategic Plan, Council acknowledged the importance of engaging key industrial sectors and/or supply chains in activities that improve their environmental performance. Through the 2011–2012 Operational Plan, the Parties addressed gaps in our knowledge of the movement of used electronics and e-waste. Council also recognized that collaborative efforts

could lead to strengthened enforcement on importing and exporting electronic waste, hazardous waste and ozone-depleting substances.

Furthermore, in 2013, the CEC Secretariat issued an independent report under Article 13 of the North American Agreement on Environmental Cooperation (NAAEC) that examined recycling of spent lead-acid batteries within the region—an issue that is expected to benefit from concerted trilateral efforts. This cluster of projects will promote the greening of the end-of-life recycling of waste products, facilitate trade within the region, and put in place effective enforcement protocols. The next two years will focus on the following work to deliver results to address waste traded in North America:

Enhancing Environmental Law Enforcement in North America

By strengthening cooperation to further environmental compliance and intelligence-led enforcement, this project improves the Parties' capacities to target illegal trade in environmentally regulated materials, including e-waste, hazardous waste (e.g., spent lead-acid batteries), ozone-depleting substances, non-compliant motorcycles, and targeted species of wildlife in North America.

Environmentally Sound Management of Selected End-of-Life Vehicle Batteries, Including Spent Lead-Acid Batteries (SLABs), in North America

Building on the 2013 Article 13 report from the CEC Secretariat on the environmental hazards of transboundary lead-acid battery recycling, this project aims to enhance the environmentally sound management of the secondary lead processing industry by helping to strengthen the competitiveness of this sector globally and within North America, promoting safer working environments, and fostering the creation of new jobs.

3.2.4 Cross-cutting Initiatives

This cluster of projects continues or supports the completion of projects under the 2011–2012 cooperative work program to improve health within communities and ecosystems. Projects will consist of work on biodiversity conservation in the North American grasslands and on chemicals management. Over the coming two years, we will focus on the following activities to deliver results for healthy communities and ecosystems.

Catalyzing North American Grasslands Conservation and Sustainable Use through Partnerships

Diverse pressures on North America's central grasslands are threatening grassland ecosystems and the economies they support. Building on the success of cooperative work through 2011–2012, this project implements and promotes economic and conservation solutions by sharing information and beneficial management practices through the North American Grasslands Alliance that address the root causes of deterioration and loss in the grassland ecosystems.

North American Collaboration for Conservation of Transboundary Protected Areas

Building on the cooperative work through 2011–2012, this project aims to increase the health and resiliency of transboundary ecosystems and communities, and elevate transboundary planning in the Big Bend-Río Bravo (BBRB) region by maintaining or restoring ecological health, connectivity, and resilience to climate change of shared ecosystems and the communities and natural resource-based sectors that depend on them.

Enhancing Trilateral Understanding of Chemicals in Products in North America

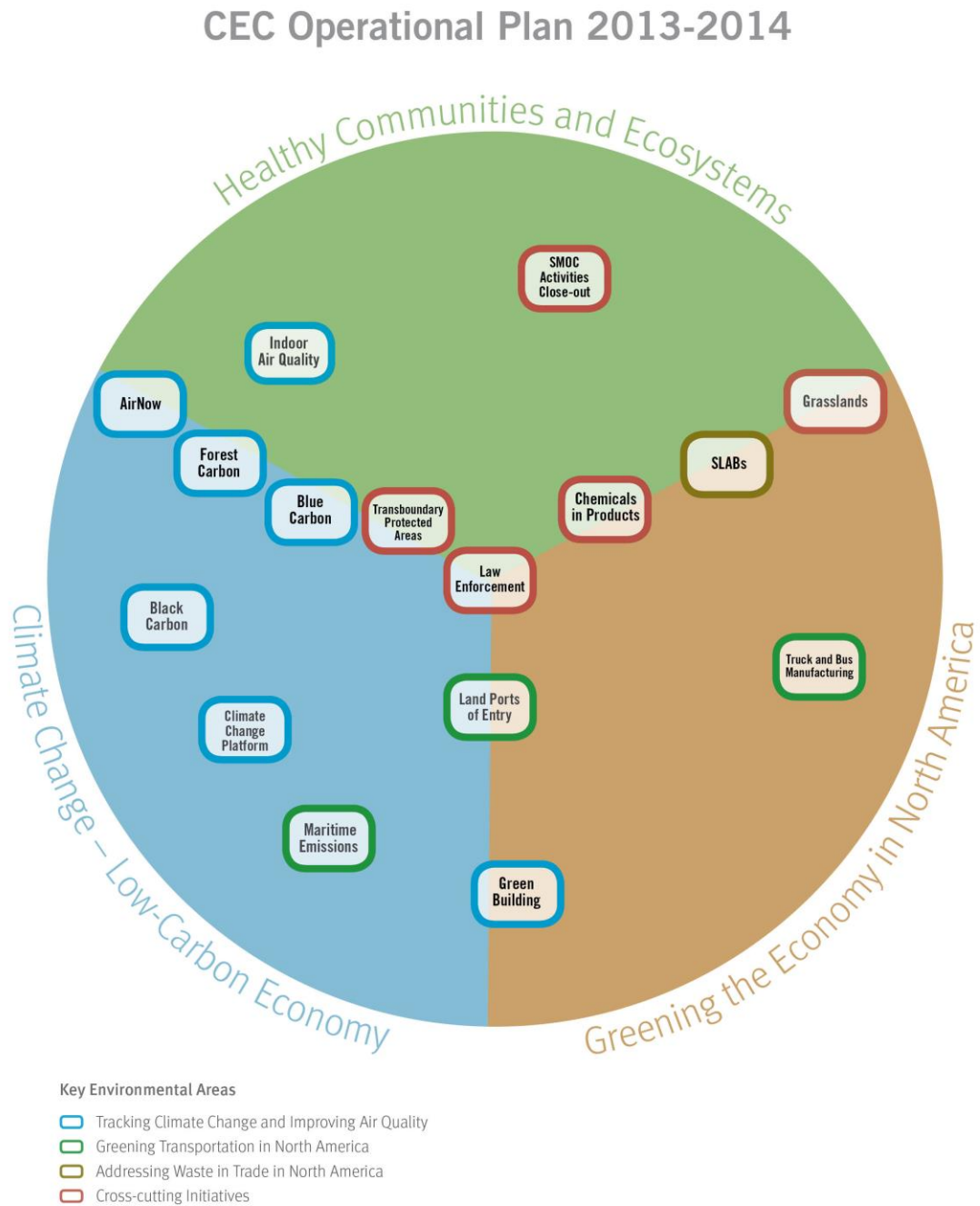
International and North American communities have recognized that chemicals in products can have a significant and adverse effect on the environment and human health. Contributing to international activities under the Strategic Approach to International Chemicals Management (SAICM) program of work, this project advances a North American approach to identify the sources, uses and associated risks of emerging flame retardants in products, in order to assist in developing strategies to manage those chemicals.

Close out of Past Environmental Monitoring and Assessment, Chemicals Inventory and Mercury Activities in Mexico

The work of the Sound Management of Chemicals Working Group through 2011–2012 allowed Mexico to produce data on mercury, chemical inventories and environmental monitoring, and implement sound management strategies in a manner that is consistent with North American standards. This project will finalize key tasks, communicate achievements and identify policy measures to help advance its ability to manage chemicals.

The projects presented in this Operational Plan will lead to results that meet the Council's strategic priorities and objectives in an integrated manner, while also addressing the key environmental areas that are currently on the Council agenda. These cross-linkages are shown in Figure 2.

Figure 2. CEC Operational Plan 2013–2014



4 Secretariat Reports

Article 13 of the North American Agreement on Environmental Cooperation (NAAEC) gives the Secretariat authority to prepare reports on important environmental issues and present them to the governments and people of Canada, Mexico, and the United States. The Secretariat may obtain the assistance of independent experts to assist in the preparation of such a report.

In early 2013 the CEC Secretariat completed its latest independent study under Article 13 of the North American Agreement on Environmental Cooperation, with a view to create an opportunity for the North American Free Trade Agreement (NAFTA) partners, the North American battery and secondary lead industry, and public stakeholders to continue to improve the relevant laws and regulations and their enforcement, and to share the human health and positive environmental outcomes that come from ensuring that the highest possible standards apply to the handling and recycling of lead-acid batteries across all three countries.

The report, *Hazardous Trade? An Examination of US-generated Spent Lead-acid Battery Exports and Secondary Lead Recycling in Mexico, the United States and Canada*, examines the trends in the North American trade in spent lead-acid batteries (SLABs), as well as the management of SLABs in all three North American countries, whether domestically generated or imported. One goal of this study is to offer ideas on ways to improve the environmental management of SLABs in Mexico, no matter their origin.

For more information on this report, please go to

<www.cec.org/Page.asp?PageID=1293&SiteNodeID=1075&BL_ExpandID=486>.

5 Submissions on Enforcement Matters Process

The Submissions on Enforcement Matters (SEM) process enables the CEC Secretariat to consider citizen submissions on matters of effective enforcement of domestic environmental law in Canada, Mexico and the United States. The SEM process can facilitate an exchange of views among citizens and Parties to the NAAEC on what effective enforcement of environmental law entails, and thereby plays a valuable role in advancing the public participation objectives of the NAAEC.

The CEC Secretariat endeavors to ensure timely processing of submissions, while also paying attention to detail in the consideration of citizen submissions and any Party responses. Moreover, the Secretariat must—to the extent possible—be able to act in an independent, neutral, fair, and transparent manner. The SEM process must be understood by both the public and the Parties as non-adversarial and is aimed at providing objective, fact-based information on the effective enforcement of environmental law in North America.

The SEM budget for 2013 primarily covers the processing of submissions, from their receipt through possible development and publication of factual records. It is based on a projection of the existing workload at the end of 2012, taking into account new submissions estimated according to the historical average, and using average costs at each stage of the submissions process. The budget also considers activities to promote the process with persons and organizations not presently engaged in it, efforts aimed at increasing the efficiency of the process, and official CEC participation in activities related to it.

In 2012, the Secretariat has engaged regularly with Party officials to achieve Council's goals for modernizing the SEM process, including in the design and execution of an online submissions portal and a timeliness tracking utility.

Information on the SEM process is available at: <www.cec.org/citizen>.

6 Institutional Support

The Secretariat provides support for and coordinates the operations of the Council to ensure that the directives and initiatives of the latter are carried out in a timely fashion. It also provides logistical and administrative support to JPAC.

6.1 Council

The Council, the governing body of the CEC, is composed of cabinet-level or equivalent environmental representatives of each country, or their designees. The Council convenes at least once a year in a Regular Session for the purpose of making decisions and developing recommendations on matters within the scope of the NAAEC, and to provide oversight on the operations of the CEC Secretariat. The Council's Regular Session also features a public meeting that provides an opportunity to exchange with the North American public on environmental issues of importance.

It is the Secretariat's responsibility to submit the two-year Operational Plan and Budget of the CEC for the approval of the Council and to ensure that its directives and initiatives are carried out in a timely way. This entails liaison throughout the year with the Council's designees, as well as administrative and logistical arrangements relating to the planning and conduct of Regular Sessions of the Council and the Council's designees. In 2013, the Regular Session of the Council was held on 10–11 July in Los Cabos, Baja California Sur, Mexico.

The CEC will celebrate its 20th anniversary in 2014 and special activities are planned to underline this milestone throughout the year. The Council's Regular Session for 2014 will be held in Canada.

6.2 Joint Public Advisory Committee

The Joint Public Advisory Committee (JPAC) was established as a cooperative mechanism to advise the Council in its deliberations and to advise the Secretariat in its planning and activities. Its vision is to promote continental cooperation in ecosystem protection and sustainable economic development, and to ensure active public participation and transparency in the actions of the CEC.

JPAC is composed of fifteen citizens, five from each country, who serve on the committee as volunteers. As part of their efforts to engage the North American public, they host three public meetings annually, rotating among the three countries. JPAC organized an energy forum in Calgary in early 2013 and held a round table discussion on sustainable transportation this summer in Mexico, in conjunction with the annual session of the Council. A third session took place this fall in Washington DC, centering on the 20th anniversary of NAFTA and the NAAEC. JPAC's work plan for 2014 will be developed in the coming months, and the main topics for their public sessions are expected to be closely related to the projects under this Operational Plan. JPAC will also continue with its efforts to engage stakeholders across North America, with support from the Secretariat.

7 Communications

Raising awareness of North American environmental issues and the opportunities and challenges presented by continent-wide free trade is fundamental to the CEC's mission. Moreover, effective communication of the results of CEC work is integral to its success. Specifically, the CEC's ability to fulfill its mandate depends, in part, upon the extent to which good communication practices generate visibility and support for its work with audiences throughout North America.

In recognizing the role of effective communications and responding to input from the public, the Secretariat developed a 2010–2015 Communications Strategy in collaboration with Council representatives and JPAC members. This strategy includes specific communication actions, CEC-wide messages and outlines roles and outreach opportunities for Secretariat staff as well as government representatives, JPAC members and CEC partners. This strategy will be updated to reflect new goals, products and audiences outlined in this two-year Operational Plan.

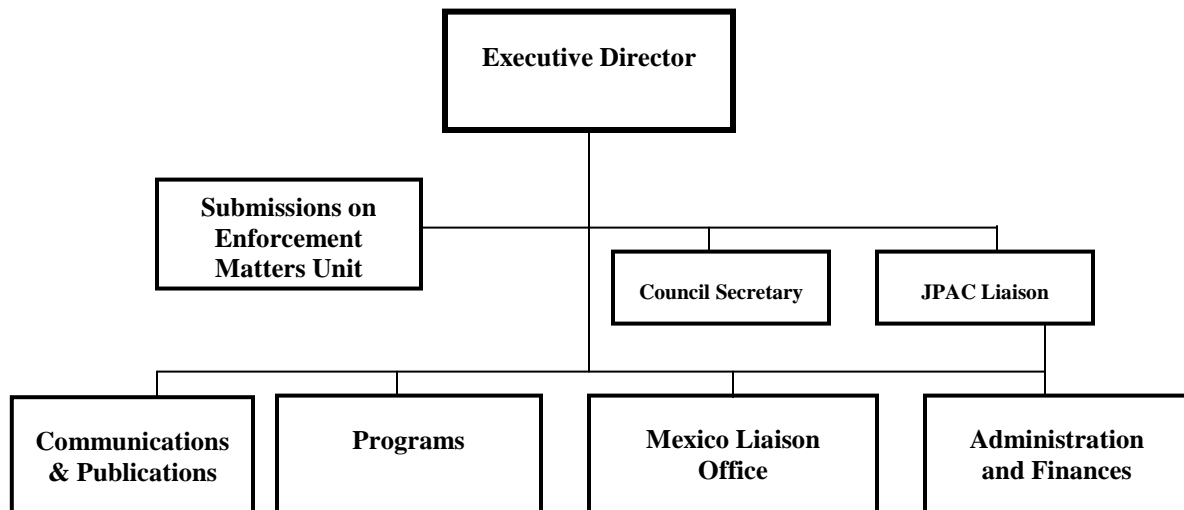
As part of the CEC Secretariat's efforts to reach the widest possible audience in an efficient and cost-effective manner, all publications are made available in digital formats for online reading or download without cost from the CEC's website. Publications are only printed upon request or as part of distribution strategies developed to ensure that groups with limited Internet or computer resources can access CEC information.

8 Administration and Management

The Secretariat is responsible for providing technical, administrative and operational support to the Council and to committees and groups established by the Council. Headed by an executive director, the Secretariat has an expert and highly motivated staff of 48 people drawn from each of the CEC's three countries. Programs, Communications, Administration and General Service staff provide support integral to implementation of the cooperative work program and institutional objectives.

The CEC Secretariat is headquartered in Montreal, with a regional liaison office in Mexico City. The Mexico liaison office is engaged in facilitating CEC's work with environmental stakeholders in Mexico.

Figure 3. CEC Secretariat Organization



8.1 Quality Assurance

The CEC's Quality Assurance Policy and Procedures document establishes the principles and mechanisms for ensuring the objectivity, utility, accuracy and integrity of CEC research and information products and services. This Operational Plan has been prepared in accordance with that policy. Individual quality assurance project plans will specify the particular steps required for each information product or service (including Party, peer and expert review, where appropriate) to meet the requirements of the CEC's quality assurance policy.

Appendix A: CEC 2013–2014 Project Descriptions

Project 1: North America’s Blue Carbon: Assessing the Role of Coastal Habitats in the Continent’s Carbon Budget		Operating Year(s): 2013–2014
Planned Budget for two years: \$450,000 Year 1: \$200,000 Year 2: \$250,000		
Strategic Priority/Objective: Climate Change–Low-Carbon Economy / Healthy Communities and Ecosystems		
<p>Project Summary</p> <p>Blue carbon is the carbon captured by living coastal and marine organisms and stored in marine and coastal ecosystems, including coastal habitats such as salt marshes, mangroves, and seagrass beds. This project only considers the component of blue carbon sequestered in these coastal habitats. Among the services provided by these habitats that occur in many places along North America’s coastlines are: 1) carbon sequestration—the process of capturing carbon dioxide from the atmosphere and incorporating it into living biomass, measured as a rate of carbon uptake per year; and 2) carbon storage—the long-term confinement of carbon in plant materials or sediments, measured as total mass of carbon stored. Blue carbon storage habitats, when adequately protected, provide one of the few natural mechanisms for counteracting ocean acidification and other climate change impacts, and can result in other co-benefits such as food security and shoreline protection.</p> <p>Current studies suggest that mangroves and coastal salt marshes annually sequester carbon at a rate two to four times greater than mature tropical forests and store three to five times more carbon per equivalent area compared with tropical forests. Most coastal blue carbon is stored in the soil, not in aboveground plant materials, as is the case with tropical forests. While coastal habitats provide a great service in capturing carbon, their destruction has several negative effects. When these habitats are damaged or destroyed, not only is their carbon sequestration capacity lost, but stored carbon is released and contributes to increasing levels of greenhouse gases in the atmosphere and increased acidification of coastal waters. As a result, damaged or destroyed coastal habitats change from being net carbon sinks to net carbon emitters. The role of coastal habitats in storing and sequestering carbon is also affected by up-river watershed processes, such as nutrient loading, sedimentation, and carbon fluxes.</p> <p>This project is part of the Climate Change–Air Quality group of projects that supports work on measuring emissions and quantifying carbon sinks, mapping ecosystem carbon and developing approaches to mitigate black carbon. Parts of these cross-disciplinary projects integrate coastal/marine carbon and forest cycle research to obtain an improved understanding of the current and future role of these ecosystem-based systems in North America’s carbon cycle.</p> <p>Specifically, this project will advance the conservation and restoration of blue carbon habitats (i.e., salt marshes, mangroves and seagrass beds) by improving data, mapping, and approaches for developing and applying appropriate carbon budgets. The project will also identify and help fill research gaps concerning this critical and emerging component of ecosystem carbon, including social science gaps contributing to the economic valuation of blue carbon habitats. Because blue carbon habitats also have a wide range of other ecosystem benefits, including fish and wildlife habitat, flood protection and water quality improvement, the project will also contribute to and support the goals of the Healthy Communities and Ecosystems priority and, in particular, the Increased Resilience of Shared Ecosystems at Risk</p>		

strategic objective.

This project will:

1. Develop standardized methods and protocols to measure and map coastal blue carbon sequestration values and variability, through a workshop, in order to better estimate carbon sequestration, storage, and emissions from North America's blue carbon habitats.
2. Improve accuracy of geospatial data related to coastal blue carbon habitats (focusing primarily on salt marshes and mangroves) across the three countries and map them following consistent mapping standards.
3. Establish strategic on-the-ground partnerships to jointly conduct research addressing key gaps and through these partnerships collect, synthesize and analyze data at selected research sites around North America.

The project will develop a joint dataset on blue carbon habitats, including maps, carbon accounts and sequestration and emissions potential and will document the methods, data, and results. Information will be displayed through the North American Informational Online Platform on Climate Change and the *North American Environmental Atlas*.

Results from this project will improve our understanding of the current and future role of coastal systems in the North American carbon cycle. The results will inform improved management of these systems to foster carbon sinks and reduce carbon sources to achieve climate change mitigation objectives. In particular, the project will: a) help establish protocols and emissions factors for coastal blue carbon; b) improve the mapping, monitoring, carbon stock assessments, and modeling of the carbon dynamics of salt marshes, mangroves and seagrass beds (to a lesser extent, since it is least understood), including emissions from disturbed habitats; and c) foster enhanced management and protection of blue carbon habitats by identifying the best available approaches to reduce emissions and/or protect current carbon storage and sequestration in the three countries.

Short-term Outcomes (at halfway point)

- Findings and recommendations from one expert workshop on best practices for blue carbon measurements
- Inventory of coastal blue carbon geospatial data in the three countries
- Compilation of maps of coastal blue carbon habitats well advanced
- Network of experts involved in coastal blue carbon science, monitoring and management in the three countries
- Synthesis of blue carbon research projects in the three countries, including an analysis of gaps in research

Long-term Outcomes (by the end of the project)

- Standardized methods and protocols to measure and map coastal blue carbon sequestration, storage, and emissions
- Information on the impact of natural disturbances, land use, and land-use change on blue carbon
- Maps of blue carbon habitats completed
- Establishment of strategic partnerships to address key research questions through on-the-ground projects and information sharing
- Joint dataset of information, data and analysis from research sites around North America in conjunction with strategic partners to include in carbon budgets for blue carbon estimates.
- Expanded guidelines, including geographic scope and up-to-date science, for coastal managers about best practices to protect,

manage and restore blue carbon habitats.

Longer-term, environmental outcome (post project)

This project will improve management of coastal and marine systems to protect or restore natural carbon sinks and storage and reduce emissions from disturbed habitats. This will help Canada, Mexico, and the US achieve climate change mitigation objectives (e.g., incorporation of unprotected carbon sequestering habitats in marine protected area network planning). This project will also contribute important information for understanding and quantifying the carbon cycle and provide policy-relevant analyses about possible strategies for mitigating climate change through coastal ecosystem management, including the reduction of emissions from coastal land use change and habitat degradation. The project will enhance the collaboration among scientists involved in land cover mapping using remote sensing, modeling of coastal and marine systems in accordance with IPCC guidelines, and the distribution of relevant results through the existing CEC online platform on climate change. With the collaboration of scientists in three countries, the project will reduce duplication of efforts, harmonize approaches to improve consistency in analyses and reporting, and contribute to the development of analytical tools that can be applied to quantify coastal blue carbon stocks in all three countries.

Tasks necessary to reach the environmental outcome:

1. Develop standardized methods and protocols to measure and map coastal blue carbon values and variability, through a workshop with partners, in order to better estimate carbon sequestration, storage, and emissions from North America's blue carbon habitats.
2. Improve accuracy of geospatial data related to coastal blue carbon habitats (i.e., salt marshes, mangroves and seagrass beds) across the three countries and map them following consistent mapping standards.
3. Establish strategic on-the-ground partnerships to jointly conduct research addressing key gaps and through these partnerships, collect, synthesize and analyze data at selected research sites around North America.

Task 1) Develop standardized methods and protocols to measure coastal blue carbon values and variability, through a workshop with partners, in order to better estimate carbon sequestration, storage, and emissions from North America's blue carbon habitats and to identify the pressing threats to these habitats

Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
1.1. Workshop with experts to develop standardized methods and protocols to measure coastal blue carbon sequestration, storage, and emissions values, including a	<ul style="list-style-type: none"> Results from workshop with experts to establish methods and protocols to measure blue carbon, including the development and dissemination of a set of standardized mapping 	Provides best practices for blue carbon measurements, including the most important factors affecting sequestration, storage, and emissions rates and significant threats to blue carbon habitats	Year 1: 1 workshop including development of mapping protocol	Year 1: \$80,000 Year 2: \$0

standardized mapping methodology to derive improved aerial coverage of blue carbon coastal habitats (salt marshes, seagrass beds and mangroves)	<p>methods to map blue carbon habitats at the appropriate spatial scale</p> <ul style="list-style-type: none"> • Development, dissemination and use of a set of standardized methods and protocols to measure blue carbon • Identification of existing and planned research projects (see Task 3) 	Provides methods to identify priority blue carbon areas for protection, restoration and sound management in order to maximize carbon sequestration and storage.		
1.2. Workshop with the forest carbon, blue carbon and land cover mapping expert communities to identify models, tools and information to inform blue carbon science	<ul style="list-style-type: none"> • Results from a workshop with a wider group of experts on the potential for models and information already being used to model forest carbon and land cover change to inform the blue carbon science • Work plan for interactions and cooperation 	<p>Provides key information to the blue carbon community on:</p> <ol style="list-style-type: none"> a) The effects of dissolved carbon that flows from the terrestrial ecosystem on blue carbon systems b) Data on mangroves, shorelines, estuaries, and near-shore systems that play important roles in the dynamics of blue carbon systems. These data support mapping and assessment of the areas, and system characteristics and changes. c) Information on natural disturbances, land use, and land-use change in watersheds that are feeding into aquatic systems to provide first order estimates of associated input of 	Year 2: 1 workshop	Year 1: \$0 Year 2: \$30,000

1.3. Workshop with the forest carbon, blue carbon and land cover mapping expert communities to identify models, tools and information to inform blue carbon science	<ul style="list-style-type: none"> Results from a workshop with a wider group of experts on the potential for models and information already being used to model forest carbon and land cover change to inform the blue carbon science Work plan for interactions and cooperation 	<p>Provides key information to the blue carbon community on:</p> <p>a) The effects of dissolved carbon that flows from the terrestrial ecosystem on blue carbon systems</p> <p>b) Data on mangroves, shorelines, estuaries, and near-shore systems that play important roles in the dynamics of blue carbon systems. These data support mapping and assessment of the areas, and system characteristics and changes.</p> <p>c) Information on natural disturbances, land use, and land-use change in watersheds that are feeding into aquatic systems to provide first order estimates of associated input of dissolved organic carbon and pollutants including nitrogen and phosphorus.</p>	Year 2: 1 workshop	Year 1: \$0 Year 2: \$30,000
Task 2) Improve accuracy of geospatial data related to coastal blue carbon habitats (i.e., salt marshes, mangroves and seagrass beds) across the three countries and map them following consistent mapping standards				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
2.1 Compile existing maps, create new maps and identify data and methodological gaps in	<ul style="list-style-type: none"> Maps and data on the location and characteristics of blue carbon habitats 	Provides data and maps to identify blue carbon priority areas for protection, restoration and sound	Year 1: Compilation and creation of maps	Year 1: \$35,000 Year 2: \$20,000

the location of blue carbon coastal habitats and associated ecological and environmental characteristics in conjunction with the North American Land Cover Monitoring System and the <i>North American Environmental Atlas</i> at the appropriate spatial scale and using agreed upon North American standards (Task 1.1)		management in order to maximize carbon sequestration and storage and minimize risks	Year 2: Creation of maps	
2.2 Map a limited number of land use changes and other threats to blue carbon habitats in order to identify areas most at risk of further loss, which might warrant priority action for conservation efforts	<ul style="list-style-type: none"> Maps and data on threats to blue carbon habitats 	Provides data for the identification of priority conservation areas and risk assessments	Year 2: Map changes and threats to blue carbon	Year 1: \$0 Year 2: \$30,000
Task 3) Establish strategic on-the-ground partnerships to jointly conduct research addressing key gaps and through these partnerships, collect, synthesize and analyze data at selected research sites around North America				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
3.1 Synthesize blue carbon research to foster scientific collaboration in this fast-evolving field and identify research gaps and priorities for future research, including social science	<ul style="list-style-type: none"> Synthesis of blue carbon research by ecosystem type Database of blue carbon projects and principal investigators Recommendations for future blue carbon research, 	Provides a foundation for collaboration and targeting future research among diverse partners in this rapidly evolving field; will summarize the state of the current blue carbon science research efforts in North America	Year 1: Complete synthesis of existing and planned blue carbon research. Year 2:	Year 1: \$35,000 Year 2: \$10,000

	including needed social and natural science and impacts of climate change on these habitats		Complete recommendations for future research and implications for management of these systems	
3.2 Establish strategic on-the-ground partnerships to jointly conduct research addressing key gaps and through these partnerships, collect, synthesize and analyze data at selected research sites around North America	<ul style="list-style-type: none"> Data collected in research sites around North America Joint dataset on blue carbon habitats, including maps, carbon accounts and sequestration and emissions potential 	Answers key research questions identified by the North American blue carbon community to improve estimates of carbon storage, sequestration and flux/emissions, including impacts of natural and human-caused disturbances		Year 1: \$50,000 Year 2: \$140,000
3.3 Recommendations for policy and management opportunities related to blue carbon habitat protection and restoration	<ul style="list-style-type: none"> Guidance document for policy and management opportunities related to high priority regions for blue carbon protection Ensure consultation with key partners to ensure that the results from this project will have value and be applied to improve management of blue carbon habitats 	<p>Provides practical guidance to coastal policy-makers and managers about ways to protect or enhance carbon sequestration through management and restoration of blue carbon habitats</p> <p>Provides information for the online informational platform on climate change for analyses</p>		Year 1: \$0 Year 2: \$20,000

Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

- **How does the project contribute to achieving Council's strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?**

This project is part of the Climate Change–Air Quality group of projects that supports work on measuring emissions and quantifying carbon sinks, mapping ecosystem carbon and developing approaches to mitigate black carbon. Parts of these cross-disciplinary projects integrate forest and coastal/marine carbon cycle research to obtain an improved understanding of the current and future role of these ecosystem-based systems in North America's carbon cycle. The results of the research will inform improved management of these systems to protect and manage sinks and reduce sources to achieve climate change mitigation objectives. As blue carbon habitats also have a wide range of other ecosystem benefits, including fish and wildlife habitat, protection from flood, storm-caused tidal surges and water quality improvement, the project also addresses the Healthy Communities and Ecosystems priority in particular, the Increased Resilience of Shared Ecosystems at Risk strategic objective.

Globally, terrestrial and marine ecosystems over the past two decades have annually removed from the atmosphere over 50% of the carbon emissions from human sources, such as those from the burning of fossil fuels and emissions from deforestation. Throughout North America, forests and coastal/marine ecosystems play an important role in national greenhouse gas budgets, with large regional differences in the distribution of sources and sinks. Understanding the current and projected future role of these systems in North America, including the impacts of management and climate change, is required to inform sustainable management of carbon sinks in forests and coastal/marine ecosystems.

- **Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)**

This project will provide important information at the North American scale to help understand and quantify the carbon cycle and provide policy-relevant analyses about possible strategies for mitigating climate change through coastal/marine ecosystem management, including the protection of coastal habitats as carbon sinks and the reduction of emissions from coastal degradation. The project will enhance the collaboration among North American scientists, coastal managers, and policy-makers involved in modeling terrestrial and aquatic systems in accordance with IPCC guidelines, coordinate land cover mapping using satellites, and distribute the relevant results through an online platform on climate change and other mechanisms.

- **What are the specific, clear and tangible results that will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.**

The project will produce the following outputs: a set of standardized methods and protocols for blue carbon measurements and mapping; a set of standardized methods to map blue carbon habitats; maps and data on the location and characteristics of blue carbon habitats in North America; a synthesis of the state of current science research efforts associated with blue carbon in North America; a dataset describing carbon sequestration and storage in select study sites in North America; and recommendations for policy related to the management of high priority blue carbon regions. Progress will be measured through: 1) in the short term, the creation of a new experts group linking blue carbon,

and land cover experts, the development of a cooperative work plan for this group, and a workshop being held with partners to develop the planned outputs; 2) in the medium term, the development of standardized methodologies and protocols, and original North American geo-referenced datasets; 3) in the long term, the dissemination of the standardized methodologies and original geo-referenced data to the blue carbon and related experts community. Ultimately, the project will demonstrate success through the uptake of the improved knowledge base and original tools by the blue carbon community and related experts to inform blue carbon science and blue carbon habitat management, in the context of climate change mitigation and adaptation.

- **Explain why the CEC is the most effective vehicle for the Parties to undertake the project, considering:**
 - **The value-added of doing it under the CEC cooperative program**
 - **Any other public, private or social organizations that work on such activities**
 - **Opportunities to cooperate and/or leverage resources with such organizations**
 - **Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC's involvement? Where applicable, describe how the work will continue after CEC involvement ends.**
 - **Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication**

This project builds on and complements previous and ongoing CEC work to address some of the key science needs for blue carbon, and applying this scientific understanding to improve management of these critical habitats for carbon sequestration. In addition, having a common online mapping platform to integrate terrestrial and coastal carbon information for North America will be an important tool for researchers.

Because research on blue carbon is a fairly new topic, relatively little is known about the sequestration, storage, and emissions potential in North American coastal ecosystems. Through the collaboration of scientists in three countries, the project will be the first effort to collaborate on this topic at the continental scale. A preliminary scoping study carried out under the CEC's 2011–2012 Ecosystem Carbon Sources and Storage: Information to Quantify and Manage for Greenhouse Gas Emissions Reductions project identified the need for harmonized data and maps, a community of continental experts and more research into how to quantify blue carbon. The project will reduce duplication of efforts, harmonize approaches to improve consistency in analyses and reporting, leverage previous work on forest carbon and land use change, and collaborate in the development and application of analytical tools and models that can be applied in all three countries. The CEC has been supporting several similar initiatives including the North American Carbon modeling group and the North American Land Cover Monitoring System. A workshop that brings together the mapping, forest modeling and blue carbon expert communities will help develop a work plan for interactions and cooperation and transfer of best practices. The 2011–2012 Engaging Communities to Conserve Marine Biodiversity through the North American Marine Protected Area Network project produced a *Guide for Planners and Managers to Design Resilient Marine Protected Area Networks in a Changing Climate* and *Scientific Guidelines for Designing Resilient Marine Protected Area Networks in a Changing Climate*. Both of these documents provide some guidance on blue carbon science and management within marine protected areas. The documents serve as a good foundation for expanding the scope to other geographical regions and the most cutting-edge science.

Work produced by this project will provide the North American blue carbon community enough information and data to identify research opportunities and partnerships to advance the estimations of blue carbon contributions in North America. It is hoped that the project will lay the foundation for further cooperative work outside the CEC.

- **The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project**
- **The beneficiaries of capacity building activities that the project may include**
- **The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome**

Through this project, the CEC will build on previous work on forest carbon and land cover mapping to leverage these investments to benefit the nascent blue carbon science and management efforts in North America. In addition to this work, the CEC has identified blue carbon as a key element in designing climate-resilient marine protected area networks, and funded a Blue Carbon Scoping Study in 2012 to provide an overview of the status of blue carbon mapping in North America.

The project will also work closely with ongoing blue carbon work by North American and international organizations and NGOs to avoid duplication of effort and evaluate and adapt emerging research and tools for their applicability in the North American context. By working with these partners, this project will ensure that the results of this work will have value for policy-makers and managers of blue carbon habitats. These initiatives and organizations include:

- The US Interagency Blue Carbon work group, made up of federal agencies interested in national and international blue carbon efforts. This group has been meeting for two years, primarily as a mechanism for information sharing as well as for developing collaborations between agencies. Agencies regularly attending these meetings include EPA, USGS, USFWS, State Department, USAID, and NOAA.
- Fisheries and Oceans Canada (DFO), which in 2011 created a competitive funding envelope to develop a more comprehensive science-based understanding of the impacts of climate change. This fund is intended to further develop the science and technology knowledge base in three designated priority areas: Canada's North, Marine and Freshwater Infrastructure, and Marine and Freshwater Ecosystem Impacts. Through the project proposal process, the CEC Marine Conservation Workgroup has reached out to blue carbon experts in the three countries and has received strong support for this proposal. The CEC intends to build this collaborative process with the federal agencies, NGOs, international organizations and others to implement the project.
- Parks Canada is working with Simon Fraser University to determine real fluxes in carbon and carbon storage in lakes in several western Canadian national parks.
- Mexico's National Commission for Protected Areas (Conanp), in coordination with the National Forest Commission (Conafor), the Mexican Fund for Nature Conservation (FMCN), the Investigation and Advanced Studies Center in Merida (Cinvestav-Mérida), the US Forest Service (USFS) and the US Agency for International Development (USAID), has undertaken a project that will allow the assessment of mangrove in relation to climate change mitigation. The project is intended to develop the methodology to determine the occurrence and density of carbon in mangrove of Mexican Protected Areas, to provide a baseline of the mangrove condition, to elaborate a set of recommendations for the conservation, restoration and assisted mitigation of local mangrove populations, and to have a validated protocol for sampling, classification and localization of mangrove populations and the estimation of carbon according

to the mangrove type. This project was piloted in the Sian Ka'an Biosphere Reserve in 2011, was replicated in La Encrucijada Biosphere Reserve in 2012, and will be conducted in Marismas Nacionales Nayarit Biosphere Reserve in 2013. The results of Sian Ka'an show that the carbon stocks depend on the height of mangroves and that phosphorous levels in the soil limits carbon sequestration. The coastal wetlands of Sian Ka'an, covering around 172,176 ha, may store up to 58.0 million metric tons of carbon.

- The United States Forest Service (USFS) and Mexico (Conafor, Conabio and Conanp) efforts to map, monitor, and estimate carbon stocks and model carbon dynamics in mangrove forests. These institutions are considering establishing permanent carbon monitoring sites in Protected Areas in Mexico. The high resolution global mangrove forest spatial dataset developed by Chandra Giri from the United States Geological Survey (USGS) and others could be used as the model for future mapping efforts involving salt marshes and seagrasses.
- Restore America's Estuaries (RAE), a North American non-profit whose mission is to preserve the nation's network of estuaries by protecting and restoring the lands and waters essential to the richness and diversity of coastal life. They are focused on restoring coastal and estuarine habitats as a key strategy in adapting to climate change, as well as mitigating its impacts. RAE is leading an initiative to bring tidal wetlands restoration, protection, creation and avoided loss into the carbon markets. They have an ongoing study in the Pacific Northwest investigating the potential of carbon markets to support watershed restoration and a proposal submitted for a project in the Gulf of Mexico.
- Conservation International (CI) is an international non-profit organization that works to ensure a healthy and productive planet, through science, policy and field work. CI has a number of ongoing blue carbon efforts, including the international Blue Carbon Science Work Group, which meets about twice a year and is in the process of developing a manual of blue carbon methodologies internationally and a data archive for global blue carbon data.

Project 2: North American Black Carbon Emissions Estimation Guidelines		Operating Year(s): 2013–2014
Planned Budget for two years: \$310,000 Year 1: \$185,000 Year 2: \$125,000		
Strategic Priority/Objective: Climate Change/Low-Carbon Economy		
Project Summary <p>The project consists of a trilaterally coordinated identification/development of methodologies to improve the accuracy of black carbon and co-pollutant emissions estimates, with the goal of providing reliable inventories for establishing baselines and determining reduction priorities by source category or location. Once consensus on estimation methodologies is reached, the project calls for completion of a guidance document on estimating black carbon from certain sources. Incorporating the completed methodological and inventory data into the North American Online, Interactive Informational Platform on Climate Change (being developed through a separate CEC project) will assist in meaningful data exchange and cross-border emissions reductions planning.</p>		
Short-term Outcomes (at halfway point) <ul style="list-style-type: none"> Partnership with the European Monitoring and Evaluation Programme of the Convention on Long-range Transboundary Air Pollution (LRTAP/EMEP), the Climate and Clean Air Coalition (CCAC) and other relevant entities. Identification of key research needed to improve North American black carbon emissions estimates. Trinational consensus on best available approaches and assumptions for estimating black carbon and its co-pollutants from all source categories. 		
Long-term Outcomes (by the end of the project) <ul style="list-style-type: none"> Completed guidance document for estimation of emissions from key sources. Improved North American emissions inventories for black carbon and co-pollutants, which can be used to establish baselines and determine reduction priorities by source category or location. Guidance incorporated into the North American Online, Interactive Informational Platform on Climate Change. 		
Longer-term, environmental outcome (post project) <ul style="list-style-type: none"> Comparability among North American black carbon and co-pollutant inventories. Identification of best available approaches for controlling emissions of black carbon and associated co-pollutants. Ongoing, meaningful data exchange and cross-border emissions reductions planning, through availability in a transparent Online Platform. A robust set of comparable emissions estimation methodologies for black carbon and co-pollutants could also be adopted by countries beyond North America. 		

Tasks necessary to reach the environmental outcome:

- Assess work to date and planned work related to methodologies/guidelines with which to estimate black carbon and co-pollutants emissions.
- Coordinate with the LRTAP/ EMEP, CCAC, and other relevant entities identified by the assessment, and build on black carbon and co-pollutant emissions estimation efforts to date to develop an accepted common set of methodologies for use by the three countries.
- Develop estimations guidelines for North America, to be made available through the North American Online, Interactive Informational Platform on Climate Change.

Task 1) Assess work to date and planned work related to methodologies/guidelines for estimating black carbon emissions

Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
1.1 Conduct an exhaustive review, within North America and globally, of black carbon emissions methodologies being used, current efforts in developing methodologies, and black carbon inventories that have been completed. Include other particulate matter (PM) components, and related co-pollutants for key source categories and potential mitigation options.	Report compiling methodologies.	Knowing methodologies currently being used or in development will provide a basis for developing an acceptable estimation methodology.	July 1, 2013– September 30, 2013	Year 1: \$50,000 Year 2: \$0
1.2 Compare and analyze methodologies to determine their robustness, viability and commonalities, to identify a solid foundation	The second portion of the report, with analyses of methodologies.	A solid understanding will further inform development.	October 1, 2013– November 30, 2013	Year 1: \$20,000 Year 2: \$0

from which to build methodologies/ guidelines.				
1.3 Provide options and recommendations for a path forward.	Third portion of report providing a set of options and recommendations.	Recommendations set the stage for actual development.	November 30, 2013–January 15, 2014	Year 1: \$15,000 Year 2: \$0
Task 2) Coordinating with the LRTAP/ EMEP, CCAC, and other relevant entities identified by the assessment, build on black carbon emissions estimation efforts to-date to develop an accepted common set of methodologies for use by the three countries (to also include other particulate matter (PM) components and related co-pollutants for key source categories, and potential mitigation options)				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
2.1 Convene black carbon estimation experts representing LRTAP/ EMEP, CCAC, and others, as relevant, to share options and recommendations of the Task 1 assessment, and to strive for agreement on a strategy for developing a robust black carbon and co-pollutant estimation methodology that can be used by the three countries. Follow-up in Year 2 regarding methodology development.	Presuming agreement by these entities, a common strategy for developing the estimation methodology, which could be used to update the methodological information, as well as the emissions estimates for the United States, Mexico and Canada.	A strategy agreed upon by the major global organizations invested in a common black carbon and co-pollutant estimation methodology sets the stage for developing a truly robust product that will have widespread support.	2–3 sessions between February 1, 2014 and October 31, 2014	Year 1: \$60,000 Year 2: \$30,000

2.2 Based on assessment in Task 1 and coordination with the above entities, develop methodologies for more accurately estimating emissions of black carbon and co-pollutants	Common definitions of black and brown carbon components of PM that are relevant for both chemical and radiative properties. Common North American methodology for conducting reliable inventories, with which to establish baselines and determine reduction priorities by source category or location.	This subtask is the crux of the project, in that it develops the common methodology for estimating black carbon and co-pollutant emissions, which can be used by each of the three countries to estimate their emissions and develop robust black carbon and co-pollutant inventories.	February 1, 2014–January 31, 2015	Year 1: \$40,000 Year 2: \$45,000
Task 3) Develop estimations guidelines for North America, which address methodological challenges				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
3.1 Once consensus on estimation methodologies is reached, complete a guidance document on estimating black carbon and co-pollutants from certain sources.	A document on how to use the robust methodology for estimating emissions.	Assists in development of best practices for measuring and estimating emissions for specific source categories (e.g., on and off-road transport) and improving National GHG emissions inventory reports; illustrates clean energy and mitigation strategies; and further informs work in achieving co-benefits.	February 1, 2015–April 30, 2015	Year 1: \$0 Year 2: \$35,000

3.2 Incorporate the completed methodological and inventory data into the Online Platform, and disseminate guidance document through collaborators and other groups.	Widespread availability of the resulting data via the Online Platform and additional dissemination of the guidance document.	Will assist in meaningful data exchange and cross-border black carbon and co-pollutant emissions reductions planning.	May 1, 2015– June 30, 2015	Year 1: \$0 Year 2: \$15,000
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Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

- **How does the project contribute to achieving Council’s strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?**

This project contributes to the Council’s strategic objective of addressing climate change and advancing a low-carbon economy in North America by providing a technical foundation for further control of black carbon emissions, a powerful short-lived climate pollutant. This project also builds upon the CEC’s experience in developing emissions inventories and emissions inventory capacity, which has been a focus of CEC work since 2001.

- **Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)**

The project’s objectives are focused on developing common methodologies for use in North America. However, this project is taking place in a global context. All three parties are engaged in global efforts to decrease black carbon emissions. Therefore this project must take into account developments and implications of the work outside of North America. The results of the project, an international agreement on methodologies for estimating black carbon emissions, may be seen as a contribution from North America to the broader global efforts, such as the Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants, of which all three Parties are members.

- **What are the specific, clear and tangible results that will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.**

The primary output of this project is a set of guidelines for estimating black carbon (and associated pollutants) emissions that is accepted and applied by the three Parties. Success of the project will be measured on the basis of the application of the methods by the three countries and the provision of comparable inventories (which will be presented in the Online Information Platform). Adoption of the methods by other countries or by subnational governments will be an additional metric for the success of the project.

- **Explain why the CEC is the most effective vehicle for the Parties to undertake the project, considering:**
 - **The value-added of doing it under the CEC cooperative program**
 - **Any other public, private or social organizations that work on such activities**
 - **Opportunities to cooperate and/or leverage resources with such organizations**

There are several international efforts to address the issue of black carbon emissions but none of them are ideally suited to address the methodological and definitional issues regarding black carbon. All three CEC Parties are members of the Climate and Clean Air Coalition, but this initiative is focused more on mitigation demonstration efforts, rather than science and technical work. The United States and Canada are part of the LRTAP Convention, which is attempting to develop guidelines for black carbon emissions estimation, but Mexico is not part of this process. The CEC has a history of working on emissions inventory development and is an effective convener of stakeholders across North America. The CEC can also convene experts from around the world to provide technical advice to the three Parties, leveraging the efforts in other cooperative forums. Therefore, the CEC is an effective venue for addressing this issue, and by doing so, North America can make a contribution to the broader global efforts on black carbon.

- **Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC's involvement? Where applicable, describe how the work will continue after CEC involvement ends.**

This project does include a clear timeline for the development of the emissions guidelines. At the conclusion of the project, the implementation of the guidelines will be the responsibility of the Parties. However, the CEC will continue to make the guidelines available to the Parties and the public.

- **Where applicable, identify with reasonable specificity:**
 - **Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication**

This project builds upon a long history of CEC investment in improving the comparability of emissions inventories in North America dating back to Council Resolution 01-05 (2001). It directly builds upon efforts under the previous operational plan to assess the comparability of GHG and black carbon emissions inventories and to design an Online Information Platform.

- **The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project**

The primary target audience for the guideline is emissions inventory developers and policy analysts working at the national and subnational scale in North America. Based on the comparability study performed last year, we believe that the audience will be interested and able to use the information provided.

- **The beneficiaries of capacity building activities that the project may include**

The main beneficiaries of the project in terms of capacity building will be national and subnational experts who have been working on developing black carbon emissions inventories.

- **The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome**

Once we make the guidelines available to emissions and policy experts at the national and subnational level, it will also be available to a wide range of other audiences, including community groups, academia, industry, and advocacy groups. Eventually, we expect that these groups will be significant consumers of the guidelines.

Project 3: Integrated Modeling and Assessment of North American Forest Carbon Dynamics and Climate Change Mitigation Options		Operating Year(s): 2013–2014
Planned Budget for two years: \$410,000 Year 1: \$210,000 Year 2: \$200,000		
Strategic Priority/Objective: Climate Change–Low-Carbon Economy / Healthy Communities and Ecosystems		
<p>Project Summary</p> <p>This project contributes to the development of science-based decision support models, data and tools that can quantify the impacts of alternative forest and land management options on the carbon balance of North American forests, and support policy and management decisions regarding climate change mitigation. It is part of the Climate Change–Air Quality group of projects that supports work on measuring emissions and quantifying carbon sinks, mapping ecosystem carbon and developing approaches to mitigate black carbon. Parts of these cross-disciplinary projects integrate forest and coastal/marine carbon cycle research to obtain an improved understanding of the current and future role of these ecosystem-based systems in North America’s carbon cycle.</p> <p>Forests are important contributors to the global carbon cycle with large differences in their functions as net sources or sinks of greenhouse gasses at regional and national scales and over time, following different land use, management and disturbance impacts. Understanding the responsible drivers and the distribution of greenhouse gas sources and sinks across diverse geographical regions and over time, as well as considering different landowner objectives, is required to sustainably manage forests to make a larger contribution to climate change mitigation targets. For example, degradation and conversion of forests to other land uses is the largest contributor to net carbon sources from forests in Mexico; natural disturbances cause large sources in some regions of the US and Canada; and actively growing young forests contribute carbon sinks in all of North America. The extent and type of change can be quantified by examining land cover together with additional information about causes of change. These “activity data” are important inputs for carbon models and help decision-makers understand the role of different natural disturbances (e.g., fire, hurricanes, insects) and human activities (land-use change, forest management) on carbon budgets.</p> <p>The CEC supported the 2011–2012 project: <i>Ecosystem Carbon Sources and Storage: Information to Quantify and Manage for Greenhouse Gas Emissions Reductions</i> that focused on improving Mexico's ability to monitor and report on ecosystem carbon and worked in conjunction with several other large initiatives in Mexico to improve ecosystem carbon accounting and understand the role of different natural disturbances and human activities in carbon modeling. The three countries worked together to identify the potential role of models and their contribution to a monitoring, reporting and verification (MRV) system in Mexico, using methods that would be harmonized with those used in Canada and the United States, and take advantage of developed methodology. This project builds on the outcomes of the 2011–2012 work and expands the analysis to address forest sector mitigation options to meet national objectives of greenhouse gas emission reductions for selected landscapes in Mexico, the US and Canada. It will continue to support the generation of North American land cover data and maps by the North American Land Change Monitoring System group (NALCMS) at a spatial resolution of 250 m and the evaluation of land cover information at higher spatial resolution (30 m), which will help address information gaps in areas with high spatial variability and small-scale but frequent disturbances, which is important input for carbon models. It will also generate spatially</p>		

detailed (30 m) land cover information for test sites to populate carbon models locally over specific ecosystems. Lastly, it will examine the results of using different accounting approaches for estimating the effects of mitigation options and consider how data and tools developed for carbon assessment might be used in the context of all ecosystem services.

The forest sector is expected to play an important role in domestic greenhouse gas mitigation portfolios. This project contributes towards the generation of key input data and the harmonization of approaches and tools required for the assessment and reporting of greenhouse gas emissions in the North American forest sector. This project will also help identify the most effective approaches in each country to reduce forest loss and degradation, and improve sustainable management for maintaining or increasing carbon stocks. The methods used by the project will include assessments of carbon stock changes and the associated emissions and removals in both absolute terms and relative to a baseline (net-net accounting). All mitigation and REDD+ scenario options will be evaluated relative to a baseline. How the baseline will be determined, i.e., “business-as-usual,” historic average rates of deforestation, or other methods is subject to ongoing research and will require consideration of national circumstances. Expected products of this project are maps, data and computer models that will lead to improved understanding of the role of land cover, land-cover change, and forestry in the carbon cycle across North America and the opportunities for improving land management. This understanding forms the basis for the desired outcome of improved design and assessment of climate change mitigation portfolios in the forest and land-cover change sector in North America.

Short-term Outcomes (at halfway point)

- Developed and tested designs for databases of activity data and associated forest carbon stock changes.
- Developed and tested carbon budget models to improve analyses of forest sector GHG balance.
- Yearly land cover and land cover change maps (2005–2011) at 250 m to improve tracking of natural and human disturbance.

Long-term Outcomes (by the end of the project)

- Application of carbon budget models for the analysis and projection of future GHG balance and climate change mitigation options in the forest sector in specific regions of high interest in North America.
- Spatial information about the impact of natural disturbances, land cover, and land-cover change on forest carbon in specific regions of high interest in North America to provide decision-makers and land managers with some of the data needed to make policy and management decisions.
- An evaluation of approaches for a North American methodology for standardized land cover mapping at 30 m resolution on a continental scale.
- A process for standardizing land cover maps at 30 m resolution for specific sites of high interest, to effectively target mitigation projects.

Longer-term, environmental outcome (post project)

- Analyses of the rates of deforestation and forest degradation in North America and associated emissions will improve the understanding of the impact of natural and human disturbances and quantification of mitigation options on national carbon budgets.
- A monitoring, reporting and verification (MRV) system capable of assessing the magnitude of reductions in CO₂ emissions from forests, and increases in the removal of CO₂ from the atmosphere relative to the projected baseline.
- Improved management of forests leading to sustainable provision of services beyond climate mitigation, such as timber production, water supply, and biodiversity.

Tasks necessary to reach the environmental outcome:

1. Develop and apply tools for carbon budget analysis and decision support for mitigation analyses
2. Develop input data for carbon budget analyses of North America
3. Develop and apply multi-resolution land cover monitoring for describing “activity data” across the North American continent

Task 1) Develop and apply tools for carbon budget analysis and decision support for mitigation analyses

Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
1.1 Develop and test empirical models (e.g., CBM-CFS3) for data analysis, decision support and application in regional landscapes at 30 m resolution.	<ul style="list-style-type: none"> Analysis of regional-scale carbon budgets for several pilot study areas over recent years and projections into the near future using empirical data (forest inventories, growth and yield, and activity data generated in Task 1). 	These tools are the basis for the analysis of forest sector mitigation options that will be conducted in Task 1.3. They have to be developed and tested in different regions and ecosystem types.	Yr 1: Mexico Yr 2: Canada and the US	Year 1: \$50,000 Year 2: \$35,000
1.2 Develop and test process models (e.g., DNDC) for data analysis, decision support and application in regional landscapes, including managed forests and industrial wood plantations.	<ul style="list-style-type: none"> Analysis of regional-scale carbon budgets over recent years and projections into the near future using process models and activity data generated in Task 1. 	These tools are the basis for the analysis of forest sector mitigation options that will be conducted in Task 1.3. They have to be developed and tested in different regions and ecosystem types.	Yr 1: Mexico Yr 2: Canada and the US	Year 1: \$50,000 Year 2: \$35,000

1.3 Analysis of forest sector mitigation options in one or two selected landscapes of high interest, e.g., early action areas for REDD+ in Mexico, or Mountain Pine Beetle infested areas in the US and Canada, including the fate of carbon in harvested wood products.	<ul style="list-style-type: none"> The ultimate objective of this project is the analysis of forest-sector related mitigation options aimed at meeting national objectives of greenhouse gas emission reductions. All tasks are aimed at generating the input data and tools required to conduct the analyses of forest ecosystem and harvested wood product carbon stock changes and emissions that are the outcome of this project. 	Model-based analyses of mitigation options in the forest sector (i.e., forest ecosystems and harvested wood products) will identify the options available and the resulting contributions to reducing greenhouse gas emissions. Scenario options will be defined in collaboration with national agencies, and applied in regions of high policy relevance. Results will be generated as figures, maps and tables and summarized in a project report.	Yr 1: planning and development of data and models Yr 2: conduct analyses and work with stakeholders	Year 1: \$30,000 Year 2: \$50,000
Task 2) Develop input data for carbon budget analyses of North America				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
2.1 Workshop and analysis of suitability of alternative data sources and methods for combining data sources for activity and ecosystem data as input to carbon models.	<ul style="list-style-type: none"> Methods to combine data from multiple sources into databases on the extent and type of disturbances and other activities and associated data on changes in ecosystem carbon pools and carbon in harvested wood. 	This component will provide a working example of how data from multiple sources can be combined to develop spatially referenced and/or spatially-explicit activity data.	Yr 1: Development of methods and regional prototype Yr 2: Workshop on extension and application to additional regions	Year 1: \$30,000 Year 2: \$30,000

Task 3) Develop and apply multi-resolution land cover monitoring for describing “activity data” across the North American continent				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
3.1 Workshops to continue the generation of 250 m land cover products for North America, exploration of potential for continental 30 m land cover mapping and generation of 30 m site-specific land cover and land cover change products.	<ul style="list-style-type: none"> Completion of annual land cover time series 2005 to 2011 Assessment of potential for spatially detailed (30 m) and new land cover product 	Key information for climate change community and carbon modelers at 250 m resolution. 30 m land cover products will overcome limitations in spatial resolution for describing activity data. Activity data are input to carbon models for up to 3 test sites.	Yr 1: Face-to-face workshop and development of baseline land cover map for test sites Yr 2: Face-to-face workshop, change detection and activity data for test sites	Year 1: \$50,000 Year 2: \$50,000

Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

- **How does the project contribute to achieving Council’s strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?**

This project is part of the Climate Change–Air Quality group of projects that supports work on measuring emissions and quantifying carbon sinks, mapping ecosystem carbon and developing approaches to mitigate black carbon. Parts of these cross-disciplinary projects integrate forest and coastal/marine carbon cycle research to obtain an improved understanding of the current and future role of these terrestrial and aquatic systems in North America’s carbon cycle. The results of the research will inform improved management of these systems by the public and private sectors including forest industry, to increase sinks and reduce sources to achieve climate change mitigation objectives. The project addresses the CEC’s Climate Change–Low-carbon Economy priority and the Engagement of Experts and Strengthened Information Sharing in Climate Change and Low-Carbon Economy strategic objective. To a lesser extent, it also addresses the Healthy Communities and Ecosystems priority.

The project will help build capacity among the three countries for information sharing and data analyses of climate change mitigation options in the forest and land-use change sector. Specifically, the project focuses on:

- Generation of key input data and the harmonization of approaches and tools required for the assessment and reporting of greenhouse gas emissions and removals in the North American forest sector
 - Collaboration with national experts and networks
 - Improved data, information and tools for monitoring and reporting on GHG emission reductions
 - Integration of data into monitoring and reporting schemes
 - Consistent datasets on forest carbon, land cover, and land cover change
 - Examples of reporting greenhouse gas emissions and reductions using different accounting approaches: “net-net” and “gross-net”.
 - Decision support tools with which to assess the climate change mitigation potential in the forest sector through reductions of emissions from deforestation and degradation and the sustainable management of forests.
 - Strengthened information sharing to improve efforts to address climate change and the transition to a low-carbon economy
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- **Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)**

Understanding the responsible drivers and the distribution of sources and sinks across diverse geographical regions and over time, as well as considering different landowner objectives, is required to sustainably manage forests to make a larger contribution to climate change mitigation targets. This understanding forms the basis for the desired outcome of improved design and assessment of climate change mitigation portfolios in the forest and land-cover change sector in North America.

The Parties recognize that the trilateral engagement of experts working on developing consistent data and information-sharing on forest carbon can bring added value as most of North America's ecoregions span across national boundaries and would benefit from consistent carbon reporting for respective efforts to address climate change and affect the transition to a low-carbon economy. The project will supply data, information and tools that can be used to monitor and report on the development and implementation of appropriate initiatives to reduce GHG emissions from land use and forest management. The project will also facilitate a broad and readily accessible mechanism for the sharing and dissemination of information among North American experts with a focus on scientific and technological best practices.

- **What are the specific, clear and tangible results that will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.**

This project will generate improved understanding of the role of the North American Forest Sector in climate change mitigation, the possible pathways to reducing emissions and increasing carbon sinks and the magnitude and timing of these mitigation benefits. These results will be summarized in reports, including peer-reviewed publications, maps, presentations and documentation of the tools with which these analyses were conducted. The project will also develop improved estimates of greenhouse gas emissions for selected regions of high interest (thus

contribute to reporting obligations and the reduction of uncertainties of reported values), and estimates of carbon stocks in forests and to the extent practicable, harvested wood products. To enable these outcomes, intermediate products will be generated such as improved activity data (derived from time-series of land cover and land cover change products), data processing and modeling tools, and databases that contain the relevant information that is used as input to these analyses. Many of these intermediate products, such as land-cover information and the compilation of annual activity data (e.g., rates of disturbances and land-use change) will also be valuable to other user communities.

- **Explain why the CEC is the most effective vehicle for the Parties to undertake the project, considering:**
 - **The value-added of doing it under the CEC cooperative program**
 - **Any other public, private or social organizations that work on such activities**
 - **Opportunities to cooperate and/or leverage resources with such organizations**

The CEC is the ideal body to facilitate cooperation among governmental institutions for projects with a scope on the North American continent. The CEC has been supporting the North American Carbon Modeling Group since 2011 and the North American Land Change Monitoring System since 2007. The latter group being a leader in assisting with the establishment of continental land cover and land-cover change data at the appropriate scale (250 m) to support North American ecosystem carbon quantification and monitoring. Due to the trinational nature of the work, the project is well positioned to support the collaboration of the Parties' experts in exchanging knowledge on best practices for modeling and assessing North American forest carbon dynamics and climate change mitigation options

Other organization working on similar activities include:

- The North American Forestry Commission, Atmospheric Change and Forest Inventory Working Groups
- The North American Carbon Program (CarboNA), a trilateral research consortium coordinated by representatives of the 3 countries including participants in this project
- USAID/Mexico bilateral program on "Sustainable Landscapes" which is focused on several closely related tasks, including improving availability of field data, improving data management, disturbance mapping, and modeling of ecosystem response to disturbances and management
- Canada/Mexico bilateral collaboration which is focused on developing national- and regional-scale modeling approaches to support needs for MRV
- Mexico/Norway initiative, which is focused on developing the national MRV system for Mexico.

Opportunities to cooperate and/or leverage resources with such organizations include:

- The established collaboration among the various programs operating in the three countries and the sponsoring institutions, particularly the three forest services (CFS, USFS, Conafor) and three geographical institutions (NR-Can, USGS, INEGI), among others. This collaboration is highly effective at coordinating efforts, avoiding duplication of effort, and taking advantage of the synergistic opportunities.
- Some specific tasks of this proposal that benefit greatly from leveraging the resources of other programs include developing composite data about activities; mapping of stand age and disturbances; developing and testing empirical and process models; analyzing mitigation options; and generating land-cover products. Because of the reduced budget, the CEC project members will aggressively seek to leverage resources in order to achieve the desired outcomes.

- **Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC's involvement? Where applicable, describe how the work will continue after CEC involvement ends.**

The tasks in this project will put in place strong continental networks and will provide data, maps and information for an online sharing platform on climate change. By project end, these activities should be integrated into the regular work programs of the trilateral land cover and carbon monitoring programs already well-established at USGS, USFS, Natural Resources Canada, Conafor, Conabio, and INEGI. Outputs will allow carbon accounting initiatives in North America to be monitored. In addition, the project will support the scientific collaboration of experts from each country in producing and sharing this information. The CEC funding will put in place a strong collaborative framework that will continue after the CEC involvement through the bi- and trilateral work of the forestry services and the North American Land Change Monitoring System.

The project proposes a clear and well-coordinated timeline: in year 1 the focus of the activities is on model development, testing and the acquisition of relevant input data both at the continental and regional scales (e.g., activity and land cover information). In year 2 the focus is on ongoing data processing and the application of the models and decision support tools to quantify the climate change mitigation potential of the North American forest and land-use change sector. The project will put into place improved monitoring capacity, and decision support tools with the required documentation to ensure that experts in all three countries will be able to continue the use of these tools for reporting and analyses after completion of the CEC-funded phase of the project.

- **Where applicable, identify with reasonable specificity:**
 - **Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication**
 - **The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project**
 - **The beneficiaries of capacity building activities that the project may include**
 - **The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome**

This project builds on the 2011-2012 *Ecosystem Carbon Sources and Storage: Information to Quantify and Manage for Greenhouse Gas Emissions Reductions* project, which has supported several of expert groups (North American Carbon Modeling group, North American Land Change Monitoring group and the North American Atlas Coordination group). The products from this project are seen as building blocks for the anticipated deliverables from this project.

As part of the Climate Change – Air Quality group of projects, the project will work closely with the North America's Blue Carbon: Assessing the role of coastal habitats in the continent's carbon budget project, the black carbon project and would ensure that results and data were available on the North American Online, Interactive Informational Platform on Climate Change. Joint workshops with experts working on blue carbon will strengthen information and data sharing and lessons learned. Maps will also be hosted on the *North American Environmental Atlas*, maintained by the CEC. Other stakeholders and beneficiaries will include specifically: the private sector, including nonindustrial and industrial land owners, communities and *ejidos*, Canadian Forest Service NR-Can, US Forest Service, Conafor, Inegi, Conabio, CCRS NR-

Can, USGS - Core Science Systems, USGS - Climate and Land Use Change, North American Land Change Monitoring System Group, North American Carbon Storage Atlas Group, North American Forest Commission, Global Earth Observation System of Systems (GEOSS), and Global Observation of Forest and Land Cover Dynamics (GOFC-GOLD).

Project 4: Improving Conditions for Green Building Construction in North America		Operating Year(s): 2013–2014
Planned Budget for two years: \$310,000 Year 1: C\$220,000 Year 2: C\$90,000		
Strategic Priority/Objective: Greening the Economy in North America / Improved Private Sector Environmental Performance in North America		
Project Summary This project aims to increase the environmental and economic performance of the built environment in North America by focusing on green workforce training and resource use efficiency, and building capacity for benchmarking in Mexico (EnergySTAR). Building on the project “Improving Green Building Construction in North American” (OP 2011–2012), workshops and recommendations on improvements to professional green workforce and improved best practices in energy efficiency will be carried out. The Environmental Protection Agency (EPA) and Natural Resources Canada will provide training and support to <i>Instituto Nacional de Ecología y Cambio Climatico</i> (INECC) and <i>Comisión Nacional para el Uso Eficiente de la Energía</i> (Conuee) to facilitate the adoption of the EnergySTAR portfolio manager tools and methodology in Mexico. This project will also explore opportunities to increase the accessibility of green buildings to isolated communities throughout North American to improve health and resource management.		
Short-term Outcomes (at halfway point) <ul style="list-style-type: none">• Recommendations to implement workforce training and energy efficiency needs throughout North America.• Harmonized benchmarking efforts focused on the introduction of EnergySTAR methodology to assess and improve energy performance for commercial buildings in Mexico.• Identified trends, market drivers and benefits, and types of products and services contributing to growth in North America.		
Long-term Outcomes (by the end of the project) <ul style="list-style-type: none">• Work plan between INECC and EPA/NRCAN to facilitate the adoption of the EnergySTAR portfolio manager tools and methodology in Mexico.• Country-level executive summary reports that assess the activities, trends and preferences among construction professionals influencing the green building market.• Needs and options to improve access of green building to isolated communities across North America.		
Longer-term, environmental outcome (post project) <ul style="list-style-type: none">• Improved training of the North American green building workforce and best practices in energy efficiency.• Adoption of the EnergySTAR program in Mexico.• Improved environmental performance of the built environment in North America.		

Tasks necessary to reach the environmental outcome:

- 1) Improved training and capacity in green building construction, commissioning and operation
- 2) Review of non-residential green building market trends
- 3) Improve green building access to isolated communities

Task 1) Improved training and capacity in green building construction

Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
1.1 Conduct workshops on two focus areas: 1) workforce and professional training and education, and 2) strategies, innovative technologies, and best practices and approaches focused on energy efficiency in water usage, and heating and cooling in North America.	<p>Outcomes of the workshops will include:</p> <p><i>Workforce and professional training:</i></p> <ol style="list-style-type: none"> 1) Discussions on how to implement recommendations from the report “Workforce Training and Education: Opportunities for Enhancing the Capabilities of the North American Building Sector to Create High-Performance Buildings and Communities” (OP 2011–2012) regarding North American training needs, 2) Outreach material (e.g., videos, curriculums, and documentation), and 3) Discussions on creating a network of green workforce and professionals. <p><i>Energy efficiency:</i></p> <ol style="list-style-type: none"> 1) Take lessons learned from water and heating, ventilation, and air conditioning (HVAC) and consider how best practices might 	This task will build upon the work carried out in OP 2011–2012 regarding improvements to professional green workforce training, and best practices in energy efficiency. These trainings will support the improvement of environmental performance of the built environment in North America.	Fall 2013	Year 1: C\$70,000

	be applied to other elements of the built environment that could yield energy efficiency gains, and 2) discussions on how to more effectively promote energy efficiency in North America.			
1.2 Conduct workshops and technical meetings focused on the introduction of EnergySTAR methodology in Mexico.	<p>Build capacity for Mexico to harmonize benchmarking efforts focused on the introduction of EnergySTAR methodology in order to assess energy performance for commercial buildings.</p> <p>Establish work plan between INECC and EPA/NRCAN to facilitate the adoption of the EnergySTAR portfolio manager tools and methodology in Mexico.</p> <p>Meetings will be held between the National commission of efficient use of energy (Conuee) and the National Institute of Ecology and Climate Change (INECC), with counterparts in the Environmental Protection Agency (EPA) and Natural Resource Canada.</p>	This task will build upon the work carried out in OP 2011–2012 regarding capacity development in Mexico to adopt EnergySTAR by supporting efforts to improve energy efficiency in buildings in Mexico.	Winter 2014	Year 1: C\$20,000
1.3 Meeting of key stakeholders and officials to discuss the implementation of financing solutions in green building.	A review and discussion of the models and recommendations from the 2013 CEC report on financing green building construction in North America.	This task will build upon the work carried out in OP 2011–2012 regarding improvements to financing options in green building construction.	Winter 2014	Year 1: C\$20,000

Task 2) Review of non-residential green building market trends				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
2.1 Reporting on the trends, market drivers and benefits, and types of products and services contributing to growth in North America.	Create country level executive summary reports that assess the activities, trends and preferences among construction professionals influencing the green building market, including owners/facility managers, architects and contractors in each country. Address shifts from new construction to retrofitting in the global economic downturn.	Recommendations on ways to facilitate green building can lead to greater use of green building practices and materials in the North American market, contributing to energy and other resource savings.	Fall 2013 – Fall 2014	Year 1: C\$60,000 Year 2: C\$60,000
2.2 Dissemination of results to concerned stakeholders.	Presentation of results and discussion to concerned stakeholder groups in each country.		Spring 2015	Year 2: C\$30,000
Task 3) Improve green building access to isolated communities				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
3.1 Identify stakeholders and hold a meeting to 1) discuss the role of green building systems in improving health and environmental conditions in isolated communities, 2) identify needs and factors limiting the implementation of green building developments in isolated communities, and 3) identify	Identification of needs, limiting factors, and options (green systems and cooperation) to improve access of green building to isolated communities across North America.	Encouraging green building in isolated communities will simultaneously increase their access to services, increase resource use efficiency, improve waste management, and create a healthy environment, while decreasing the overall environmental footprint associated with new construction.	Winter 2014	Year 1: C\$50,000

options to overcome the barriers identified.				
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Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

- **How does the project contribute to achieving Council's strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?**

Increasing green building construction in North America will contribute to decreasing greenhouse gas (GHG) emissions, reducing resource use and waste, and will promote public-private strategies for improving green innovations and construction across the building sector. The trilateral project supports the CEC's objective to improving private sector environmental performance in North America through gaining enhanced understanding of current green building market trends, increasing the adoption of best practices in benchmarking and construction. The collaborative nature of this project is expected to enhance green building partnerships between the member countries and to improve the effectiveness of private sector activities to further the environmental goals.

- **Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)**

Yes. The project's objective is to identify opportunities and determine the best way to drive changes needed to support the construction of green buildings and the use of green building materials across North America. To do so, opportunities, gaps, and areas for capacity building and knowledge sharing will be identified and built upon to facilitate to adoption of best practices.

- **What are the specific, clear and tangible results that will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.**

Yes, the project description identified clear outputs. Performance measures may include:

- Number of workshops and participants involved.
- Number of green technologies identified and promoted.
- Quantitative indicators for GHG emissions, water use, energy use, and waste production.

- Number of workforce members trained and/or informed.
- Number of North American companies to whom the resulting information is disseminated.

- **Explain why the CEC is the most effective vehicle for the Parties to undertake the project, considering:**

The CEC is an excellent vehicle to serve stakeholders within a North American context, working together to help stakeholders seize green building opportunities in North America. There are several organizations promoting the use of sustainable building materials and green construction. Most are national or local in scope. This project affords an opportunity to build bridges across the North American marketplace. Representatives of these organizations, as well as other experts in this sector have been, or will be engaged in the project's activities. Moreover, the Task Force will be participating at a number of events related to green building construction in North American in order to build support amongst private and public sector stakeholders.

- **Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC's involvement? Where applicable, describe how the work will continue after CEC involvement ends.**

Opportunities for improvements identified by workshops and other activities, and the network of stakeholders created during the project will be carried over by private and public organizations.

- **Where applicable, identify with reasonable specificity:**
 - **Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication**

This project will build upon previous work of the CEC (i.e., Green Building in North America: Opportunities and Challenges; 2008) but will now look at achievements and capacity from a quantitative perspective. There are also important linkages with other past and present CEC projects.

- **The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project**

The target audience in all three countries includes companies offering both products and services in the Green Building sector, multiple federal, provincial, state and municipal government agencies, and the Green Building Councils.

- **The beneficiaries of capacity building activities that the project may include**

The various beneficiaries of the project's capacity building activities will include NGOs, green professionals and workforce, and various levels of governments and the private sector.

- **The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome**

The project stakeholders include building product manufacturers, architects, engineers, facilities/building managers, developers, green business owners, technology developers and providers (including universities and R&D companies), energy sector, and environmental non-governmental organizations.

Project 5: North American Online, Interactive Informational Platform on Climate Change		Operating Year(s): 2013–2014
Planned Budget for two years: \$210,000 Year 1: \$100,000 Year 2: \$110,000		
Strategic Priority/Objective: Climate Change—Low Carbon Economy		
Project Summary <p>The project builds on the first two phases of the North American Online, Interactive Informational Platform on Climate Change project, begun under the 2011–2013 Operational Plan. By the end of 2013, we expect to have completed the development of the Platform's database and Web services structure, and to have populated the database with national greenhouse gas (GHG), black carbon (BC) and related pollutant emissions estimates of the three countries. The phases proposed here consist of further developing the emissions database and extending the Platform to include information from other climate change-related projects under the CEC. The emissions database tasks will include populating the emissions database with available data at the Subnational level (including from states, provinces, and municipalities); populating the database with detailed information on methodologies used to achieve source-category estimates; improving cross-expert communication, via enhanced social media tools, on emissions estimation and the analysis of emission mitigation options; working with emissions data providers, establish web service access to original emissions databases and incorporate methodological information in their electronically-available emissions data sets; and promoting the emissions data web services and their use in other applications. This work will be coordinated with the project "North American Black Carbon Emissions Estimation Guidelines." The Platform relates to other CEC projects in that it will incorporate information from the work on forest carbon, blue carbon and green building construction.</p>		
Short-term Outcomes (at halfway point) <p>By the middle of 2014, we propose to have:</p> <ul style="list-style-type: none"> • Begun incorporation of some subnational data into the emissions database. • Implemented a Knowledge-Management System Framework that can be used to facilitate information exchange between emissions and green-building experts. • Identified next steps to link information from the emissions database to information from the CEC's forest carbon and blue carbon work, and North American Environmental Atlas. 		
Long-term Outcomes (by the end of the project) <p>By the middle of 2015, users should be able to:</p> <ul style="list-style-type: none"> • Explore available GHG, black carbon, or criteria air pollutant emission inventories from the most recent national and state/provincial inventories. • Conduct side-by-side comparisons of national, sectoral, geographic, or pollutant data in pie or bar graphs. 		

- Access historical emission trends plot graphs.
- Access and compare information about the emissions estimation methodologies used to produce the estimates.
- Communicate with other experts about the emissions estimation methodologies, data, analyses and availability of mitigation options.
- Access information and communicate with other experts who have participated in the CEC's green building construction work.

The Parties will have identified a path forward to link geospatial information related to climate-relevant emissions, carbon sinks, and the North American Environmental Atlas.

Longer-term, environmental outcome (post-project):

Through the interaction of experts using the platform and the improved access to emissions information and other climate relevant information, the platform will lead to individual country mitigation policies and consequent reduction in GHGs and BC, along with coordination among the three countries, by way of the following:

- Improved communication among experts across the three countries and across geographic scales (i.e., national, state/provincial, municipal, company).
- Improved capacity and methods for developing emissions estimates and evaluating mitigation options.
- Improved emissions estimates and mitigation analyses.

Tasks necessary to reach the environmental outcome:

The proposed work is divided into three tasks focused on the emissions database, building on the design developed under the previous operational plan; a knowledge management system to facilitate expert to expert communication, building on information from other climate-related CEC projects; and the management of climate-relevant geospatial information.

Task 1) Complete development of a trinational database of climate-relevant emissions information and then expand the database to incorporate subnational data, improve available estimation methodology information, and implement web service connections to data originators.

Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
1.1 Complete the second phase of Platform development, begun under the previous operational	A trinational database of GHG, BC, and related CAC emissions estimates (along with information about the	Providing such emissions information will help inform emissions mitigation	July 2013–Dec 2013	Year 1: \$65,000 Year 2: \$0

plan, including finalizing the database and web services structure; implementing a simple analytics framework; developing import, query, visualization, and export tools; populating the database with the most recent GHG, BC, and CAC national inventories; and developing end-user documentation.	estimation methodologies), accessible through a web-based user interface or unattended web services	policies		
1.2 Continue to populate the emissions database with information developed on the subnational scale, including available data from states, provinces, and municipalities. To the extent possible, incorporate detailed information about the estimation methodologies, factors, and assumptions used in producing emissions estimates at the source category level	Subnational GHG, BC and other climate relevant emissions information available through the Platform for analysis and download; thoroughly documented emission estimates (enabling analysts to determine how much of the differences in the estimates may be due to methodological differences and providing emissions inventory developers with a resource for estimation methods)	Additional subnational data and improved methodological information will lead to improved emissions estimates, leading to improved policy decisions.	Jan 2014–June 2015	Year 1: \$10,000 Year 2: \$30,000
1.3 Work with emissions data providers at the national and subnational scale to establish web service access or other direct connections to the original emissions databases and to incorporate appropriate methodological information in their electronically-available emissions data sets.	At least some of the data available through the Platform will be provided through direct access to the data originators. Thus, as data are updated by the data originators, the data available through the Platform will be updated.	Improved access to the original data will help ensure that the CEC platform is providing the latest, most up-to-date information, leading to improved policy decisions.	Jan 2014–June 2015	Year 1: \$10,000 Year 2: \$45,000

Task 2) Develop a Knowledge Management System (KMS—consistent with Section 4.3 of the Online Informational Platform on Climate Change Needs Assessment and Platform Design report from August 2012) to facilitate expert-to-expert communication. Incorporate content into the KMS based on information from two concurrent CEC projects: a) North American Black Carbon Emissions Estimation Guidelines and b) Improving Conditions for Green Building Construction in North America				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
2.1 Implement a Knowledge Management System (KMS, such as Mind Touch) as part of the Platform, working with the CEC Secretariat.	A publicly accessible, web based knowledge management system that can be used to serve as a clearinghouse for information from climate relevant CEC projects and to facilitate continued communication between North American experts around specific climate-related topics.	Providing access to the latest information on best practices and facilitating expert to expert communication will improve the information basis for policy decisions, leading to better decisions.	July 2013–June 2014	Year 1:\$15,000 Year 2: \$0
2.2 Incorporate content into the KMS, based on the project “North American Black Carbon Emissions Estimation Guidelines.”	Guidelines, presentations, lists of experts, and other relevant material developed in the BC Guidelines project will be available through the KMS.	Participants in the BC Guidelines project will be able to communicate with one another as the issue continues to evolve. Improved access to information and expert to expert communication will improve decision making.	July 2014–June 2015	Year 1: \$0 Year 2: \$15,000
2.3 Incorporate content into the KMS based on the project “Improving Conditions for Green Building Construction in North America”	Guidelines, presentations, lists of experts, and other relevant material developed in the green building project will be available through the KMS.	Participants in the Green Buildings project will be able to communicate with one another as the issue continues to evolve. Improved access to information and expert	July 2014–June 2015	Year 1: \$0 Year 2: \$15,000

		to expert communication will improve decision making.		
Task 3) Assessment of opportunities to link other CEC projects to the Platform, with a particular focus on geospatial information.				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
3.1 Assessment of opportunities to link geospatial information from the emissions database, other climate-related CEC projects (including the Forest Carbon and Blue Carbon projects), and the North American Atlas	A list of projects recommended for incorporating geospatial information into the platform or other CEC web application.	The development of geospatial analysis capabilities will help North American experts integrate information from multiple areas of work, creating a fuller understanding of the climate change issue and options for mitigation.	July 2014–June 2015	Year 1: \$0 Year 2: \$5,000

Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

- **How does the project contribute to achieving Council's strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?**

This project contributes to the Council's strategic objective of addressing climate change and advancing a low-carbon economy in North America, and builds upon the CEC's experience in providing trinational databases and facilitating trinational exchange between experts.

The platform will enable the exchange of information about climate change and climate change mitigation by harnessing cutting-edge information technology and social media tools. The platform is intended to provide information and tools to inform decision-making; facilitate

communication between experts; enhance comparability of national and Subnational data and analyses; providing standardized analytical tools; and facilitate training and capacity building.

- **Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)**

The proposed objectives are focused on providing information relevant to climate change and climate change mitigation in North America. Some of the products of the work will provide models that other regions of the world may adopt, but the content of the products will be limited to North America.

- **What are the specific, clear and tangible results that will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.**

Specific outputs associated with each subtask have been described above. Most of these outputs are specific sets of information that will be made available via the platform. The success of the project will be measured in terms of:

- Delivery of the required outputs
 - Conformity of the required outputs to available international information formatting standards
 - Use of the platform by experts, as tracked by web analytics software
- **Explain why the CEC is the most effective vehicle for the Parties to undertake the project, considering:**
 - **The value-added of doing it under the CEC cooperative program**
 - **Any other public, private or social organizations that work on such activities**
 - **Opportunities to cooperate and/or leverage resources with such organizations**

Although there are many sources of climate change-related information on the World Wide Web, the CEC platform is a unique resource for information developed through CEC projects and provides an opportunity for climate-change relevant information developed in other contexts to be presented in a North American context. The information that will be provided through the platform, related to emissions, emissions estimation methodology, green building practices, and carbon sources and sinks will be valuable for public, private, and social organizations working on the issue of climate change mitigation. As was done in the first phases of development under the 2011–2013 workplan, the work must proceed incrementally with considerable consultation with the Parties and with other relevant organizations so that the work may be coordinated with and leverage the investments in related work by other organizations.

- **Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC's involvement? Where applicable, describe how the work will continue after CEC involvement ends.**

This project does include clear timelines for the development of specific aspects of the platform. However, the overall platform is intended to form a lasting infrastructure for dissemination of climate-relevant information and facilitation of expert-to-expert communication. It is anticipated that the CEC will continue to invest in the maintenance of the platform and contribute to the development of the platform through incorporating relevant information from other projects.

- **Where applicable, identify with reasonable specificity:**
 - **Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication**

This project builds upon a long history of CEC investment in improving the comparability of emissions inventories in North America dating back to Council Resolution 01-05 (2001). It directly builds upon efforts under the previous operational plan to assess the comparability of GHG and BC emissions inventories and to design an online information platform. It leverages a number of concurrent CEC projects, including work on BC emissions inventory methods, forest carbon and blue carbon quantification, and green building practices, and provides an integrating element to all of the CEC work on climate change / low-carbon economy.

- **The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project**

The primary target audience for the platform is emissions inventory developers and policy analysts working at the national and subnational scales in North America. Based on the scoping study performed last year, we believe that the audience will be interested and able to use the information provided.

- **The beneficiaries of capacity building activities that the project may include**

Although there is not a direct capacity building element of the effort, the provision of detailed information and facilitation of expert-to-expert communication will aid capacity building efforts, particularly at the subnational level.

- **The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome**

Once the CEC makes information available to emissions and policy experts at the national and subnational levels, it will also be available to a wide range of other audiences, including community groups, academia, industry, and advocacy groups. Eventually, we expect that these

groups will be significant consumers of the data that are provided. We will track their use of the data and be able to solicit their input on further modifications and additions to the platform.

Project 6: Improving Indoor Air Quality to Reduce Exposure to Airborne Contaminants in Alaska Native Population and Other Indigenous Communities in North America		Operating Year(s): 2013–2014
Planned Budget for two years: \$250,000 Year 1: \$150,000 Year 2: \$100,000		
Strategic Priority/Objective: Healthy Communities and Ecosystems		
<p>Project Summary: Improved indoor air quality: a pilot project to reduce the need for respiratory medical care in severely impacted children in Alaska Native populations and in other indigenous communities in North America. The project addresses acute and chronic respiratory conditions through interventions that reduce exposure to airborne contaminants in homes.</p> <p><i>Rationale:</i> Studies show that a combination of substandard housing, overcrowding, poor indoor air quality, lack of indoor plumbing, and other environmental factors contribute to poor health outcomes in indigenous populations. Climate change is expected to exacerbate extreme weather events, flooding, forest fires and the presence of and sensitivity to allergens that may contribute to negative health outcomes. Alaska Natives experience a high burden of acute and chronic respiratory disease. One in four infants from one region of Alaska is hospitalized annually with acute respiratory infections, and hospitalization rates of respiratory syncytial virus (RSV) in infants are among the highest ever documented. Bronchiectasis, a chronic lung sequela resulting from severe pneumonias that has nearly disappeared from the developed world, is still common among Alaskan Natives of this region. Similar environmental conditions and health effects are found in indigenous communities elsewhere in North America. Climate change will increase susceptibility to respiratory disease in these communities.</p> <p>The Alaska Native Tribal Health Consortium's (ANTHC) Division of Environmental Health Support provides comprehensive healthcare and public health services for over 220 Alaska Native Tribes and is the largest Tribally-managed health organization in the US. With CEC funding, under the activities of the 2011–012 Operational Plan, the ANTHC conducted Phase 1 of a four-year indoor air quality study to address the need for respiratory medical care among a very high-risk group of Alaska Native children. At the end of this phase, ANTHC had created a successful model and methods for improving air quality in homes of high-risk children in indigenous communities. ANTHC worked in 30 homes and has reduced fine particulates by 21 percent, carbon dioxide by 26 percent, and BTEX (benzene, toluene, ethyl benzene, and <i>o</i>-, <i>m</i>-, <i>p</i>-xylene) volatile organic compounds by 68 percent. Respiratory events, clinic visits and hospitalizations have seen dramatic declines. Phase 2, under the 2013–2014 Operational Plan, is an expansion of the study in order to generate a robust dataset that can be used to make recommendations in future healthy homes projects in North America. Phase 2 will include four homes in a selected community. Additional homes will be added upon the ANTHC's reception of additional grant funding to expand this work.</p>		
<p>Short-term Outcomes (at halfway point) Conduct basic assessments, remediation and resident education in four homes to reduce fine particulates, carbon dioxide, and BTEX (benzene, toluene, ethyl benzene, and <i>o</i>-, <i>m</i>-, <i>p</i>-xylene) volatile organic compounds.</p> <p>Long-term Outcomes (by the end of the project) By 2015, reduce by 30 percent the indoor airborne contaminants in four homes, including fine particulates and chemicals of wood smoke combustion that affect the health of the high risk group of affected children in indigenous communities in specific regions of Alaska. It is</p>		

expected that by 2015 the project will provide information that will allow replicating the project in appropriate communities in Canada and Mexico.

Longer-term, environmental outcome (post project)

Following the completion of the project, ANTHC will have data demonstrating the impact of home interventions and resident education on air quality and human health. Those data will be utilized to make policy recommendations and help guide decisions in future healthy homes projects in North America. For example, lessons learned from this study about the effects of improved ventilation and efficient heating devices on the indoor air quality will be shared. Indigenous communities facing cumulative impacts of climate change will benefit from the results of this project by knowing how to reduce and prevent harmful indoor air pollutant exposures.

Tasks necessary to reach the environmental outcome:

- 1) Establish and maintain partnerships through outreach to stakeholders; identify appropriate individuals and communities.
- 2) Plan, design, and conduct intervention.
- 3) Conduct evaluation, provide data analysis for report, and share information with subsequent cohorts, and stakeholders in Canada, Mexico and the United States.

Task 1) Establish and maintain partnerships through outreach to stakeholders; identify appropriate individuals and communities

Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
1.1 – Pre-Intervention Establish and maintain partnerships with pulmonologists at the Alaska Native Medical Center and regional Tribal health corporations to identify individuals suffering from the most severe respiratory health issues. Continue partnerships with regional housing authorities to modify homes.	An understanding of communities where children are most severely impacted by respiratory health disease from indoor exposures Home modification expertise with existing local housing staff	Allows for focusing resources on creating healthy environments for the most at-risk individuals	September 2013–January 2014 July–October 2014	Year 1: \$20,500 (salary and fringe) Year 2: \$20,500 (salary and fringe)

1.2 Contact communities to identify those who are both interested in the program and would likely benefit from the intervention. This may include communities with a high number of individuals living in homes with leaky woodstoves, poor or no ventilation, etc.	A list of communities in Alaska with a high potential to benefit from the intervention	Improves ability to create effective interventions to mitigate harmful environmental exposures	September–December 2013 August–December 2014	Year 1: \$10,000 (salary and fringe) Year 2: \$10,000 (salary and fringe)
1.3 Contact parents of children with documented respiratory illness to participate in the intervention	A list of children with a high potential to benefit from the intervention	Improves ability to minimize future medical care for children with documented respiratory illness	September–December 2013 August–December 2014	Year 1: \$10,000 (salary and fringe) Year 2: \$10,000 (salary and fringe)
Task 2) Plan, design, and conduct intervention				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
2.1 Intervention Collect and analyze baseline data and use this to design the appropriate intervention strategy for each home. Ship materials and supplies to worksite. Homes will be assessed to identify likely sources of exposure. Air quality data will be collected on the following parameters:	An assessment tool for identifying potential environmental exposures within the home that can be shared with other environmental health practitioners Baseline data analysis (internal report)	Identifying key sources of exposure is essential for addressing these risk factors. This tool can also be disseminated for use in other communities. Baseline data will be used to design the intervention strategies	October 2013–March 2014 (pre-modification monitoring)	Year 1: \$2,000 (air sampling) \$8,000 (travel)

- <i>PM_{2.5}</i> - <i>Volatile Organic Compounds</i> - <i>Carbon Monoxide</i> - <i>Temperature, Relative Humidity, Carbon Dioxide</i>		and be compares to post-intervention data to measure the impact of the intervention		
2.2 Implement the interventions. A combination of education, no-cost low cost and light home modifications will be used, with an emphasis on woodstove replacement and installation of ventilation systems in homes with little or no ventilation.	Implementation of interventions (e.g., woodstove change-outs, installation of ventilation systems, etc.)	Intervention will improve the environmental conditions in identified homes	October 2013– March 2014	Year 1: \$24,500 (home remediation)
2.3 Collect intervention air quality and health data. Data will be collected on the same parameters as in the baseline phase for pre-post analysis.	Post-intervention data analysis (internal report)	Post-intervention data will be analyzed alongside baseline data to determine environmental and health impacts	October 2013– April 2014 October 2013– April 2015	Year 1: \$2,000 (air sampling) \$8,000 (travel) Year 2: \$2,000 (air sampling) \$8,000 (travel)
Task 3) Conduct evaluation, provide data analysis for report, and share information with subsequent cohorts, and stakeholders				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
3.1 – Evaluation & Information Sharing Enter data; refine materials	Post-intervention data analysis (internal report)	Results will be used to improve ongoing	April-May 2014	Year 1: \$10,000 (salary and fringe)

and approach as needed; begin composing report to share with partners		activities and leverage new/existing resources	April-May 2015	Year 2: \$10,000 (salary and fringe)
3.2 Information about the project and its impact will be made available to environmental health practitioners, policymakers, and relevant stakeholders in Canada, Mexico, and the US. A demonstrated reduction in indoor air pollution and reduced need for respiratory care over the long term among this very high-risk group may facilitate broader interventions in North America.	A summary report describing the methodology and impact at the end of each year Materials and resources made available through distribution Meeting to share project results to partners from Mexico and Canada at the end of each year. A list of communities in Canada, Mexico and the United States with a high potential to benefit from the intervention (provided by partner countries)	Disseminating initial outcomes, lessons, and tools from this project may benefit other communities facing similar environmental health challenges and facilitate dialogue and collaboration	May-June 2014 May-June 2015	Year 1: \$25,000 (travel, meetings, publications) Year 2: \$25,000 (travel, meetings, publications)
3.3 CEC Secretariat project management, support, outreach, and stakeholder involvement	Coordination and communications with ANTHC, Parties and other stakeholders, as appropriate (meetings, project communications and outreach, etc.) Cross-program coordination with CEC project Improving Conditions for Green Building Construction in	Sharing of project results to support the implementation of similar projects across North America. Identify barriers to green building development in isolated communities.		Year 1: \$30,000 (Travel, meetings) Year 2: \$14,500 (Travel, meetings)

	North America.			
	Stakeholder participation in discussing the role of green building systems in improving health and environmental conditions in isolated communities.			

Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

- **How does the project contribute to achieving Council's strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?**

In tackling climate change, it is important that we do not abandon the progress made in addressing air quality. By continuing to establish rational comparability in the ways that we collect, analyze, report and disseminate data, we build the foundation for development of complementary climate change programs in North America. This project will work well in coordination with project 4, Improving Conditions for Green Building Construction in North America.

This project contributes to Council's achieving strategic objective by working directly with targeted Tribal and Native communities with demonstrated respiratory health needs that are directly related to environmental hazards through the use of a woodstove as a primary heating source in the households resulting in improved indoor air quality. The project addresses acute and chronic respiratory conditions through interventions to reduce exposure to airborne contaminants in homes.

- **Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)**

By identifying specific Tribal and First Nations and indigenous communities in each of the three countries in North America, we are seeking to address environmental health issues that may be different in each instance, but are often the result of similar circumstances related to poverty, substandard housing, unsafe indoor air, insufficient sanitation infrastructure or other environmentally related issues. All of these communities, no matter where they are located, can be greatly helped by interventions in their environmental conditions, elimination or reduction in harmful environmental exposures, and subsequent improved health outcomes. Lessons learned through this

project will be shared and the model developed through our pilot project in Alaska will serve as a guide for subsequent projects in Canada, Mexico, and other parts of the United States.

Furthermore, the Environmental Health Research Division of the First Nations and Inuit Health Branch, Health Canada is interested in the outcomes of this project as it is focused on the engagement of First Nations and Inuit stakeholders in the project. The project is focused on an issue of much relevance to northern communities in Canada. The approach proposed by the project will be informative in helping us to better scope out the future modalities of our work in undertaking indoor air quality research and/or intervention studies in collaboration with key indigenous stakeholders.

Finally, US federally-acknowledged Indian Tribes, including those proposed for this project, engage directly with the US government through a government to government relationship. As such, the results of this project will be brought forward trilaterally by the US at a meeting of appropriate national-level officials from the three countries, to ensure relevance in North America.

- **What are the specific, clear and tangible results that will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.**

The project will include three evaluation methods: process evaluation, environmental impact evaluation, and human health and behavior change evaluation. Pre- and post-intervention air quality and health data will be collected and analyzed to determine the intervention effectiveness with each cohort. Baseline airborne contaminant data will be collected for PM_{2.5}, volatile organic compounds, carbon monoxide, temperature, relative humidity, and carbon dioxide. A visual assessment of the home environment will be conducted to identify likely sources of exposure, and a respiratory health questionnaire will be administered for all occupants less than 13 years old. The sampling strategy and 30 percent reduction target were informed by a similar project carried out on the Nez Perce Reservation in Idaho.

- **Explain why the CEC is the most effective vehicle for the Parties to undertake the project, considering:**

- **The value-added of doing it under the CEC cooperative program**

ANTHC has a history of collaboration with counterpart agencies, but has not had the resources and capacity to use these important relationships to its full potential. A CEC cooperative learning program would encourage international collaboration and support resource-sharing and cooperative learning.

- **Any other public, private or social organizations that work on such activities**

Partners may include the Alaska Office of Housing and Urban Development, the Bureau of Indian Affairs, the Northwest Pediatric Environmental Health Unit, the Canada Pediatric Environmental Health Specialty Unit at Misericordia Community Hospital in Edmonton, Alberta, Canada, the US Environmental Protection Agency (Region 10), Alaska Housing Finance Corporation, the USDA, the Denali

Commission, multiple Health Homes workgroups, and others. The actual organizations in Canada and Mexico will be identified in the future.

- **Opportunities to cooperate and/or leverage resources with such organizations**

Residents of local communities in indigenous populations in all three countries can benefit from this project. Indoor air quality and respiratory health are concerns across North America with their indigenous populations, and much can be learned sharing methods of air monitoring and methods of implementing home-based intervention programs. Resources can be leveraged as all three countries communicate on how to create similar projects and the results of such interventions.

- **Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC's involvement? Where applicable, describe how the work will continue after CEC involvement ends.**

The project was estimated to take place over four years, beginning back in 2011. See table above for when specific activities fall into this time frame; most activities will take place in an ongoing manner over the four years, as we continue to conduct the project interventions with four cohorts over the period to continually address acute and chronic respiratory conditions. ANTHC's existing and continued environmental and public health work in Alaska will help to sustain this project past CEC's involvement, which is expected to end in 2015. Cohorts in Canada and Mexico will be identified in subsequent years through the involvement of the appropriate Tribal, First Nations, state, provincial, and local government and stakeholders.

- **Where applicable, identify with reasonable specificity:**
 - **Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication**

This project could link with the North American Pediatric Environmental Health Specialty Unit Network. Recently, the council created a unit in Guadalajara, Mexico, a resource of environmental health professionals with pediatric and occupational expertise designed and equipped to provide information to communities and health care professionals on the prevention diagnosis, management, and treatment of illness in children related to environmental exposures and conditions. The Network has units in Canada, Mexico, and the United States (as well as in other countries).

This project will also link to the activities of the CEC's Improving Conditions for Green Building Construction in North America project under the 2013–2014 Operational Plan. We will seek the involvement of our housing authorities' partners in this project in a workshop to discuss: 1) the role of green building systems in improving health and environmental conditions in isolated communities, 2) identify needs and limiting factors in the implementation of green building developments in isolated communities, and 3) identify options to overcome the barriers identified.

- **The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project**

The target audience for this proposal includes indigenous populations and Native Villages and public health, environmental health, and housing workers in rural Mexico, Alaska and Canada, which are to be identified in subsequent years through the participation of the appropriate Tribal, First Nations, state, provincial and local governments and stakeholders.

The work will begin by addressing dire environmental health challenges in Alaska Native Villages. ANTHC has a longstanding presence in Alaska Native Village, thus has developed trust with community members, which ensures likelihood of receptivity and success of the proposed activities. Many villages have already been organized and working to the address environmental health issues in their communities, thus will be positioned well to receive and use the resources available through this project. The existing capacity and expertise among ANTHC's community health aides will also support the roll-out of this work.

- **The beneficiaries of capacity building activities that the project may include**

The beneficiaries would include residents of local communities the housing workforce, school staff, regional health corporations, and other environmental and human health staff who seek to address health issues in indigenous populations in the three countries.

- **The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome**

Relevant stakeholders and partners in this project include Alaska's 220+ Native Villages and their Tribal Councils and regional health corporations, Alaska Offices of Housing and Urban Development (HUD), the US Department of Agriculture (USDA), and the US Environmental Protection Agency (EPA), the Denali Commission, the Alaska Energy Authority, the North American Network of Pediatric Environmental Health Specialty Units, and the Alaska Housing Finance Corporation. Additional key stakeholders and potential partners in all three countries will be identified as appropriate. For Canada, key stakeholders include Canadian Territorial Governments and Inuit Tapiriit Kanatami (ITK).

Project 7: North American AirNow-International Project		Operating Year(s): 2013–2014
Planned Budget for two years: \$250,000 Year 1: \$125,000 Year 2: \$125,000		
Strategic Priority/Objective: Healthy Communities and Ecosystems		
Project Summary The ultimate goal of the project is to improve public health across North America by providing a consistent set of tools to process, share, and publicly disseminate information on air quality within and among the three countries. While the United States and Canada have systems in place, Mexico is now working to unify and connect diverse air pollution monitoring systems around the country by 2015. Building on the successful implementation of AirNow-International (AirNow-I) in the first pilot city (Monterrey, Nuevo León), the connection of these diverse monitoring systems will be made possible through a common information and data management platform. Standardizing air quality information and linking ambient air monitoring systems will open up vast opportunities to observe, analyze, and share data within each country and among the three countries, as well as facilitate and improve air quality management and emission reductions efforts.		
Short-term Outcomes (at halfway point) <ul style="list-style-type: none">Local capacity (e.g., Monterrey) to assist in building capacity in other regions of the country, since the first system will have been successfully operational and sustainable for a year.Monterrey begins to share data with AirNow and to use AirNow-Tech for additional tools and analysis, and assistance with public reporting.<i>Sistema Nacional de Información de la Calidad del Aire</i> (Sinaica) implementation: AirNow-I is established and extensive training on the system happens in 2013. Sinaica begins to establish reliable data feeds from monitoring network and establishes operational capacity.Shared data among countries: Monterrey establishes a data feed to AirNow (which would allow all parties to see and utilize the data in AirNow-Tech and/or AirNow Gateway). Once Sinaica has established an operational system, it (Sinaica) would establish a similar data feed to AirNow.		
Long-term Outcomes (by the end of the project) <ul style="list-style-type: none">Reliable and consistent data feeds have been established among all three countries.An Air Quality Indicator (AQI) is in place for Mexico, parallel to those used in the United States (Air Quality Index) and Canada (Air Quality Health Index).An outreach campaign will have successfully educated the Mexican public on the AQI and its ability to impact public health.Improved data quality of ambient air monitoring information for public dissemination and use in air quality management planning.Improved information for use in developing air quality indices and forecasts throughout North America.		

- Two additional large monitoring networks will begin to use the AirNow-I system as the main data exchange mechanism with Sinaica, and the AirNow system community.
- An educational outreach campaign on the public use of the AQI, and TV and newspaper weather reports that include the AQI daily. The States have received information and outreach materials from Sinaica, from which they will reach out to localities.
- Increase in the percentage of valid data received from air quality monitoring networks.

Longer-term, environmental outcome (post project)

- Government decision-makers will be able to utilize validated ambient air monitoring data in setting air quality management policies.
- The public will have air quality products and information available and accessible to see where specific emissions are above thresholds and via an Air Quality Index, to make informed decisions regarding their outdoor activities.
- The United States, Mexico and Canada will be able to share ambient air monitoring data, which can be used for each country's modeling of local, regional and national emissions, which, in turn, will inform air quality management decisions aimed at protecting public health.

Tasks necessary to reach the environmental outcome:

- Installation of full production version of AirNow-I system, subject to Mexico's procurement of Microsoft SQL, which will pave the way for the implementation phase of AirNow-I with Mexico's Sinaica.
- Review and exchange information on the existing approaches used by the United States, Canada, and Mexico in the development and use of Air Quality Indices to inform the public about air quality conditions and possible health impacts; and providing robust public outreach on the availability of the AQI, what it means, how citizens can access the information, and what they can do—both to protect themselves from poor air quality and to take individual actions that can contribute to emissions reductions.
- Institute additional pilot cities/states needing capacity building for the implementation of the AirNow-I system, dependent upon commitment and resources to sustain the system.
- Exchange information on existing approaches to air quality forecasting.

Task 1) Installation of full production version of AirNow-I system, subject to Mexico's procurement of required software (i.e., Microsoft SQL), which will pave the way for the implementation phase of AirNow-I with Mexico's Sinaica

Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
1.1 Install and test final production version of AirNow-I software at Sinaica; provide training for	Improved air monitoring data and information management system that provides efficient data	As the central repository, Sinaica will receive consistent data from monitoring networks and	2013	Year 1: \$20,000

data processing and product generation.	exchanges between monitoring networks, enhanced data quality, and reduced data processing times.	feed data into AirNow.		
1.2 Provide training and technical assistance on the use of advanced air quality tools within AirNow-Tech, and share ambient air monitoring information in a standardized manner with public officials domestically and in the United States and Canada, for use in modeling and other analyses and air quality management decision-making, as well as with the public.	Data are shared among the three countries for analytical and decision-making uses. An online system for public access to the monitoring information is available.	Sinaica will have implemented AirNow-I Program, wherein they upload incoming information from monitoring networks throughout the country, and feed it to the AirNow system, and are able to share the data across North America.	2014/2015	Year 1: \$20,000 Year 2: \$10,000
Task 2) Review and exchange information on the existing approaches used by the United States, Canada, and Mexico in the development, use, and dissemination of air quality indicators (e.g., Air Quality Index, Air Quality Health Index), and air quality forecasts				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
2.1 Build capacity by sharing approaches used in the United States and Canada for air quality forecasting.	Implementation of air quality forecasting tools	Ability to produce reliable forecasts of air pollution episodes for public dissemination and implementation of air management strategies	2014/2015	Year 1: \$5,000 Year 2: \$5,000

2.2 Collaboratively review and information on the existing approaches used by the United States, Canada, and Mexico in the development and use of air quality indices to inform increased comparability and potential future improvements for more robust air monitoring programs.	Greater comparability and robustness as countries continue to learn from one another.	Robust, comparable programs will allow for and enhance ability to access and analyze ambient air information among the three countries.	2014/2015	Year 2: \$15,000
2.3 Inform and educate the public about respective air quality indicators, accessibility, possible health impacts, avoiding exposure and contributing to cleaner air.	Accessible ambient air information to the public through robust air quality indicator programs.	Widespread public availability to ambient air information in the three countries, thus allowing individual decisions on avoiding exposure to poor air quality.	2014/2015	Year 2: \$15,000
Task 3) Institute additional pilot cities/states for the implementation of the AirNow-I system				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
3.1 Evaluate software and hardware infrastructure and network configurations to ensure that all specifications are met for running AirNow-I implementation.	Pilot cities/states that are selected and trained on the use of AirNow-I.	Ensure reliable infrastructure for project implementation.	2014/2015	Year 1: \$25,000 Year 2: \$25,000
3.2 Conduct AirNow-I's production system	Implementation of AirNow-I system and data sharing	Mexico will now have extensive information	2014/2015	Year 1: \$35,000 Year 2: \$35,000

installation, testing, operations, and training.	amongst domestic areas within Mexico and the three countries for analytical and decision-making uses.	from its monitoring networks flowing into the AirNow system, and is able to share the data across North America.		
3.3 Customize the AirNow-I system for local needs	Make modifications to the AirNow-I system based on Mexico's air quality management and reporting requirements	Use tools within AirNow-Tech and share ambient air monitoring information in a standardized manner with public officials domestically and in the United States and Canada, for use in modeling and other analyses and air quality management decision-making, as well as with the public.	2014/2015	Year 1: \$20,000 Year 2: \$20,000

Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

- **How does the project contribute to achieving Council's strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?**

This project will pave the way for all three North American countries to feed information from their ambient air monitoring networks to the AirNow system, providing the opportunity to access output by and of any of the three. Officials will have access to the same data/information, enabling them to make informed air quality management decisions, as well as collaborate on cross-border air quality efforts. Furthermore, the project contributes to improving human health through public knowledge of current air quality, their impact and ways to avoid exposure.

- **Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)**

The objective of the project is to make ambient air monitoring network data/information available and accessible across North America, enabling decision-makers to work with current input and the public to know the air quality where they live, work or visit.

- **What are the specific, clear and tangible results that will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.**
 - Mexico repository for ambient air monitoring data/information

Performance Measures:

Short-Term:

- Monterrey, Nuevo León, establishes data exchange feed with Sinaica through the AirNow-I system.
- Monterrey staff is established as a resource for other Networks interested in the implementation of AirNow-I.
- Monterrey reporting data publicly using AirNow-I's information management system
- Monterrey shares data with AirNow community
- Monterrey uses AirNow-Tech for additional tools and analysis.
- AirNow-I is established in Sinaica and extensive training on the system begins in 2014.
- In 2014, Sinaica begins to establish data feeds from monitoring network and establishes operational capacity.

Long-Term:

- Two additional large monitoring networks will begin to use the AirNow-I system
 - Feeds to Sinaica, which will then feed to AirNow system.
 - Increase in the percentage of valid data received from air quality monitoring networks.
- Mexican AQI:
 - Standardized country wide AQI for use in reporting of air quality information.
 - TV and newspaper weather reports include the AQI daily.
 - Mexican States have received information and outreach materials from Sinaica, from which they will reach out to localities.
- Data are shared among the three countries for analytical and decision-making uses and online tools available to the public.
 - Increased requests on air quality information from environmental agencies' websites (hits on site)

- **Explain why the CEC is the most effective vehicle for the Parties to undertake the project, considering:**
 - **The value-added of doing it under the CEC cooperative program:**
 - **Any other public, private or social organizations that work on such activities**
 - **Opportunities to cooperate and/or leverage resources with such organizations**

The CEC is best positioned to assist in integrating North American data and information into a single, accessible system, given the familiarity with each of the three countries, country and topical experts, and past projects that may have required similar integration.

- **Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC's involvement? Where applicable, describe how the work will continue after CEC involvement ends.**

This project does include clear timelines for the implementation of project tasks. By the end of the project, AirNow-I will be the main platform for exchanging air quality monitoring information between Sinaica and major monitoring networks. Both Siniaca, as well as other states would have established strong links to the AirNow community in North America, and will be in a position to expand the program to other networks.

- **Where applicable, identify with reasonable specificity:**
 - **Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication**

The scoping and training activities on this project started in December 2009, under the CEC's Enhancing North American Air Quality Management project. It is now moving into the final implementation, with Monterrey as the first Mexican state to fully implement the AirNow-I system in 2012.

- **The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project**

Receptivity of the target audiences and capacity to use the information in the United States and Canada have been excellent. The AQI in the United States has become mainstream and expected by readers and watchers of weather media. The capacity to use the information in Mexico should be similar once the system is in place. We expect receptivity to be high.

- **The beneficiaries of capacity building activities that the project may include:**
 - Federal, state and local government decision-makers throughout North America
 - Sources, learning how their emissions may be affecting surrounding areas or those further afield.
 - General public, with accessibility to close to real-time information and individual decision tools
 - Academic institutions, with research tools
 - Industry and NGOs, in using the information to make certain cases and to inform constituencies
 - Media, by having AQI available for public to access
- **The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome**
 - All of the above, as outlined above

Project 8: Greening Transportation at North American Land Ports of Entry		Operating Year(s): 2013–2014
Planned Budget for two years: C\$390,000 Year 1: C\$145,000 Year 2: C\$245,000		
Strategic Priority/Objective: Low-Carbon Economy / Climate Change and Air Quality; Greening the Economy in North America / Improved Private Sector Environmental Performance in North America		
Project Summary <p>The project will: 1) enhance coordination between, and strive to obtain commitments from, customs, transportation, commerce, foreign affairs and other relevant government officials, as well as stakeholders, on both sides of the borders to actively participate in the project; 2) conduct analyses of vehicle emissions associated with waiting times at selected land Ports of Entry (POEs) on each side of the border (heading both ways across the border): two between the US and Canada and two between the US and Mexico; and 3) research and develop viable, integrated options for adopting and implementing vehicle emissions reduction mechanisms at the selected POEs, and to incorporate the most effective mechanisms into POE and vehicle operations, as feasible.</p> <p>The project will be informed by a number of cross-border study and planning initiatives, such as the 21st Century Border, Beyond the Border, Good Neighbor Environment Board, US/Mexico Joint Working Committee on Transportation Planning (JWC), US-Canada Transportation Border Working Group, US-Canada Air Quality Agreement, Border 2020, the CEC sustainable freight report, and other relevant work/initiatives. This coordination, as well as the commitment of relevant stakeholders on both sides of the respective borders, will be key to successfully incorporating the most effective emissions reduction mechanisms, once identified, into operations at these POEs.</p>		
Short-term Outcomes (at halfway point) <ul style="list-style-type: none"> Establishment of a CEC Steering Committee-designated Trilateral Consultative Group (TCG), made up of: governmental officials, border community representatives, NGOs, academia, trade associations and related industry, to lend expertise and provide recommendations for reducing transportation emissions at North American land POEs. Summary of past and current POE-air emissions work. Recommendations for and selection of two demonstration POEs on each border that are the most appropriate (feasible in variety of ways) and have the greatest likelihood of vehicle emissions reductions and positive health impacts. 		
Long-term Outcomes (by the end of the project) <ul style="list-style-type: none"> Data and knowledge of wait times and emissions correlation at selected POEs. Identification of most effective and viable emissions reductions solutions for each selected POE, and ongoing support of stakeholders. Emissions reductions mechanisms in place at selected POEs, as feasible, with trained personnel to implement them. 		
Longer-term, environmental outcome (post-project) <ul style="list-style-type: none"> Consideration of environmental risks and remedies at land POEs, and inclusion of environmental agencies in the design phase of new or modified POEs. Improved bilateral coordination on POE operations/activities, as practicable. 		

- Vehicle emissions reductions at land POEs, with associated health benefits for border officials, drivers and passengers and the surrounding border communities.

Tasks necessary to reach the environmental outcome:

- Establish a Trilateral Advisory Group and conduct a review of transportation flows, wait times, associated emissions, and operations at POEs.
- Identify mechanisms for emissions reduction at POEs.
- Implement mechanisms, as feasible, and train POE officials on mechanisms and technologies to reduce emissions at POEs.

Task 1) Establish a Trilateral advisory group and conduct a review of transportation flows, emissions and operations at POEs

Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
1.1 Steering Committee to develop a detailed work plan and to designate a Trilateral Consultative Group (TCG) of government officials and stakeholders, including border communities, and relevant industry, associations, NGOs, and academia.	A detailed work plan to include the subtasks in this description. Review, input and adoption of the work plan by the Trilateral Consultative Group (TCG).	This subtask lays the foundation for carrying out the work in subsequent subtasks.	Fall 2013	Year 1: C\$15,000
1.2 Conduct review of and summarize POE emissions-related work to-date on both borders. Using summary and the expertise of TCG members, select the most appropriate demonstration POEs – 2 on each border.	Summary of past and current POE emissions reduction work. Recommendations and selection of two demonstration POEs on each border that are the most appropriate (feasible in variety of ways) and have the greatest	This subtask will provide the background for improving air quality and associated operations, and set the stage for on-the-ground work to begin at selected POEs.	Late fall 2013 to early winter 2014	Year 1: C\$40,000

	likelihood of vehicle emissions reductions and positive health impacts.			
1.3 Using an agreed upon template (e.g., template developed in the US Federal Highway Administration study on border wait times and air emissions), measure and monitor wait times and associated vehicle emissions, and other important variables at each of the selected POEs; as well as identify common metrics.	Assessment that describes wait-time and emissions correlation, to provide baseline emissions/ambient air quality and inform development of options for reducing emissions at the POEs.	This work will provide information necessary to identify the most viable mechanisms for emissions reductions at POEs.	Spring 2014 to fall 2014	Year 1: C\$90,000 Year 2: C\$70,000
Task 2) Identify mechanisms for emissions reductions at POEs				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
2.1 Building on assessment in Subtask 1.2, develop an in-depth analysis of a) emissions reduction mechanisms/technologies/operations at POEs that have been successful or show promise, b) viability of options for selected POEs, and c) recommendations on which option(s) may be best suited to each of the selected POEs.	Recommended emissions reduction measures for each of the four demonstration POEs.	The implementation of the chosen measures and improved operational practices will decrease emissions at POEs.	Fall 2014	Year 2: C\$60,000
2.2 Collaboratively, the Steering Committee, respective TCG members on each border and other cross-border stakeholders determine the most potentially effective and viable mechanisms for each of the POEs.	Selection of viable, effective mechanism(s) to reduce emissions at each POE, as feasible.	Concurrence by TCG members on demonstration of emissions reductions mechanism(s) for each of the selected POEs will improve air quality at the respective POE.	Fall 2014	Year 2: C\$15,000

Task 3) Implement mechanisms and technologies to reduce emissions at POEs				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
3.1 Training of personnel at POEs in implementing most effective and viable mechanisms/technologies/operations, as needed.	Trained personnel, enabling greater effectiveness of emissions reduction mechanism(s).	Trained personnel on both sides of the borders will ensure full benefit of mechanisms and operations put in place at the selected POEs.	Winter 2014–spring 2015	Year 2: C\$45,000
3.2 Work bilaterally (to extent possible) to institute the most effective viable, and efficient emissions reduction mechanism(s) at each selected POEs, leveraging funds from various sources where feasible and appropriate.	Mechanisms in place and operational.	Implementation of mechanisms and improved practices will reduce emissions at POEs and improve health in border communities and of those working at the POEs.	Spring 2015	Year 2: C\$55,000

Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

- **How does the project contribute to achieving Council's strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?**

The project contribute to achieving strategic objective 3: Greening the Economy in North America/ Improved private sector environmental performance in North America and strategic objective 2: Climate Change–Low-Carbon Economy/Improved comparability of emissions data, methodologies and inventories among the three North American partners. The project will facilitate the identification of emissions reduction mechanisms/technologies/operations at POEs and provide training to implement them at selected POEs. Measurements and monitoring of wait times and associated vehicle emissions, and other important variables at each of the selected POEs will be incorporated into an agreed-upon template.

- **Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)**

Yes, traffic associated with the transportation of goods in North America is increasing. Ports of Entry have important impacts on border communities and air quality, which need to be addressed at a continental level. The project will also contribute to efforts in establishing a foundation for consistent emissions data collection (from surface transportation sources), towards implementation of a recommendation from the CEC report (March 2011), “Sustainability: Reducing GHG emissions from Freight Transportation in North America,” that calls for developing a comprehensive North American freight data collection and dissemination plan that ensures comparability, interoperability, and consistency in providing a common platform and methodology for collecting transport-related information.

- **What are the specific, clear and tangible results that will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.**

Outputs are described in each subtask. Performance metrics may include:

- Measured reductions from GHG and carbon emissions, related to vehicle movements at the borders
- Number of new, more efficient tracking and processing technologies introduced at the borders
- Harmonization of data collection methods and of metrics used to assess and quantify vehicle movements at the borders

- **Explain why the CEC is the most effective vehicle for the Parties to undertake the project, considering:**

The CEC has the ability to bring together private and public stakeholders from the three countries to develop recommendations that address regional and large-scale issues, especially on borders. Stakeholders will have the opportunity to share experiences and enhance cooperation in data sharing, and best practices.

- **Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC’s involvement? Where applicable, describe how the work will continue after CEC involvement ends.**

The review and summary of POE emissions-related work to-date on both borders will inform POEs managers and officials on opportunities for improvement. The group of stakeholders that will be brought together by this project will be able to continue collaborating on data sharing and the implementation of best practices.

- **Where applicable, identify with reasonable specificity:**
 - **Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication**
 - **The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project**

Officials and stakeholders at POEs, and border communities where POEs are situated.

- **The beneficiaries of capacity building activities that the project may include**

Officials and stakeholders at POEs, and border communities where POEs are situated.

- **The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome**

US/Mexico Joint Working Committee on Transportation Planning (JWC), US/Canada Transportation Working Group (TBWG), Border 2020, port authorities, city and municipal governments, environmental NGOs, and industry (maritime shipping companies, fuel industry, technology providers).

Project 9: Reducing Emissions from Goods Movement via Maritime Transportation in North America		Operating Year(s): 2013–2014
Planned Budget for two years: C\$250,000 Year 1: C\$150,000 Year 2: C\$100,000		
Strategic Priority/Objective: Climate Change–Low-Carbon Economy / Improved Comparability of Emissions Data, Methodologies and Inventories among the Three North American Partners		
Project Summary <p>This project will highlight technical approaches to limiting emissions from ships, with a focus on air pollution reduction technologies for nitrogen oxides (NOx), sulfur oxides (SOx), and particulate matter (PM).</p> <p>CEC partners will share information on technical analyses to assess impacts and benefits of controlling ship emissions of conventional pollutants (PM, SOx, NOx) needed by Mexico to establish an Emission Control Area (ECA) under the International Maritime Organization (IMO) International Convention for the Prevention of Pollution from Ships - Annex VI, or MARPOL Annex VI, such as information on air quality modeling and human health benefits analyses. CEC partners will also work collaboratively to identify North American trends in development and adoption of ship emission control technologies and best practices that reduce criteria air pollutants such as SOx, NOx and PMs.</p>		
Short-term Outcomes (at halfway point) <ul style="list-style-type: none">• Air quality modeling and computing tool to provide data under baseline and ECA scenarios.• Training for further development and updating the existing Mexican ship emission inventory.		
Long-term Outcomes (by the end of the project) <ul style="list-style-type: none">• Environmental and socio-economic assessment for establishing an ECA in Mexico, and recommendations for implementation of MARPOL Annex VI in Mexico.• Framework for the ratification and implementation of MARPOL Annex VI and establishment of an ECA in Mexico.		
Longer-term, environmental outcome (post project) <ul style="list-style-type: none">• Reduced criteria air contaminants emissions such as SOx, NOx and PMs from ships in North America through the adoption of best practices, technologies and policies.		
Tasks necessary to reach the environmental outcome: 1) Air quality modeling and emission inventory support 2) Framework for the ratification and implementation of MARPOL Annex VI in Mexico		

Task 1) Air quality modeling and emission inventory support				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
1.1 In preparation for air quality modeling, add port equipment emissions to Mexican national emission inventory and collect existing port emissions data from the US and Canada.	Report on emissions from port equipment.	This subtask will provide key input to the national emission inventory.	Fall 2013	Year 1: C\$13,000
1.2 Update the existing Mexican national ship emission inventory and collect existing ships emissions data from the US and Canada.	Training to support the further development and updating of the existing Mexican national ship emission inventory.	This task will support ship emission reporting in Mexico and the identification of indicators] for air quality modeling.	Fall 2013	Year 1: C\$36,000
1.3 Conduct air quality modeling of ambient PM, NOx and ozone and deposition of PM and SOx for Mexico and surrounding areas under: 1) baseline scenario 2) ECA scenario	Report and maps on air quality and deposition modeling for both scenarios.	This subtask will provide key input to the environmental and socio-economic assessment (task 2.1).	Fall 2013	Year 1: C\$49,000 Year 2: C\$41,000

Task 2) Develop a framework for the ratification and implementation of MARPOL Annex VI in Mexico				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
2.1 Conduct an environmental and socio-economic assessment for establishing an ECA in Mexico and recommendations for implementation of MARPOL Annex VI in Mexico.	<p>The assessment will describe and compare costs and benefits in the economic, social and environmental aspects.</p> <p>Report of cost-benefit assessment, including costs of fuel refining capacity, fuel import and export, maritime infrastructure, and technology adoption, emission controls, health benefits and costs, etc.</p>	This assessment will provide the information needed to consider ratification of MARPOL Annex VI and the establishment of an ECA.	Spring and Fall 2014	<p>Year 1: C\$52,000</p> <p>Year 2: C\$34,000</p>
2.2 Develop a framework for the ratification and implementation of MARPOL Annex VI and establishment of an ECA in Mexico.	Identify information, procedures and policies required to implement MARPOL Annex VI and establish an ECA.	The framework will equip Mexico with the steps needed for the ratification of MARPOL Annex VI and establishment of an ECA.	Winter 2014–2015	Year 2: C\$25,000

Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

- **How does the project contribute to achieving Council's strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?**

This work addresses several of the objectives in the 2010–2015 Strategic Plan, as follows:

4.1 Health Communities and Ecosystems, 1. Improved environmental health of vulnerable communities in North America: This project will further reduce the risks to vulnerable populations in North America by leading to measures to reduce conventional pollutant emissions.

4.2 Climate Change – Low-Carbon Economy, 1. Improved comparability of emissions data, methodologies and inventories among the three North American partners and 2. Strengthened engagement of experts and information-sharing: This work will enhance the information on the potential reduction of climate-forcing pollutant emissions from ships, on pollutant inventories, and it will strengthen information sharing among experts.

- **Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)**

Undertaking such initiatives could lead to strategic results for the Parties, including:

- A common approach to reducing maritime shipping emissions in North America;
- Better public health and environmental protection from conventional and climate-forcing pollutants in North America.
- **What are the specific, clear and tangible results that will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.**

The results of task 1 include technical reports on air quality modeling, cost-benefits, and health-benefit assessment results, and a report outlining an implementation and ratification approach for Mexico for MARPOL Annex VI and establishment of an ECA. Performance measures to be used include quality assurance and control practices association with modeling and assessments, a timeline for output completion, documentation of data collection efforts and regular reporting on expenditures and progress.

- **Explain why the CEC is the most effective vehicle for the Parties to undertake the project, considering:**
 - **The value-added of doing it under the CEC cooperative program**

This project builds on the work underway to implement the North American ECA for US and Canada, which will serve as a driver for promoting clean fuels and technologies in the maritime transport sector along the entire length of the North American East and West Coasts.

- **Any other public, private or social organizations that work on such activities**
- **Opportunities to cooperate and/or leverage resources with such organizations**

- **Does the project propose a clear timeline for implementation of the activities, including a target end-date for CEC's involvement? Where applicable, describe how the work will continue after CEC involvement ends.**

As this is new work under the CEC, the only envisioned target end-date for CEC involvement is at the end of the current two-year project funding cycle in 2015. Should the work successfully support Mexico's decision to ratify MARPOL Annex VI and establish an ECA, this portion of the work would continue within Mexico. The current US-Canada ECA will also continue beyond 2015.

- **Where applicable, identify with reasonable specificity:**
 - **Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication**

As this is new work under the CEC, there is no duplication. Synergies with other transportation efforts will be maximized as the projects are implemented. For example, several stakeholder groups from other CEC transportation efforts may be involved.

- **The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project**

There is a keen interest from the three Parties as well as from various stakeholders to undertake this work. The main beneficiaries of this project are policy makers in Party countries seeking information about opportunities to reduce criteria air pollutants such as SO_x, NO_x and PMs emissions from ships. Stakeholders benefitting from the project may also include private and public sector entities engaged in maritime shipping and technologies and community and environmental health protection. The share of the public that is impacted by shipping emissions is another target audience.

- **The beneficiaries of capacity building activities that the project may include**

This work will provide an opportunity for capacity building in Mexico to enable generation of the technical information and implementation approaches needed for MARPOL Annex VI and an ECA.

- **The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome**

At this early stage of the work, the main stakeholders are the governments. Over the longer-term, communities, NGOs, and industry will be involved.

Project 10: Improving the Economic and Environmental Performance of the North American Truck and Bus Manufacturing Supply Chain		Operating Year(s): 2013–2014
Planned Budget for two years: \$250,000 Year 1: C\$130,000 Year 2: C\$120,000		
Strategic Priority: Greening the Economy in North America / Improved Private Sector Environmental Performance in North America		
Project Summary This project will establish a public-private sustainability partnership among the bus and heavy-duty truck manufacturing sectors modeled on the one established by the United States, Mexico and Canada for the North American auto manufacturers. This partnership will accelerate the adoption of innovative technologies and best practices in the industry to reduce environmental impacts by agreeing on realistic targets and commitments. Models of best practices associated with each focus area will be show cased and discussed during workshops to identify opportunities and obstacles for implementation across North America. A trilateral forum will be held to identify barriers and opportunities for improving efforts to greening the North American bus and heavy-duty truck supply chain.		
Short-term Outcomes (at halfway point) <ul style="list-style-type: none">Established North American bus and heavy-duty truck manufacturing sectors partnership(s)Focus areas and models identified for increased environmental and economic performance		
Long-term Outcomes (by the end of the project) <ul style="list-style-type: none">Toolkit of best practices for each focus areaOutreach materialTrinational forum with relevant agency representatives and stakeholders		
Longer-term, environmental outcome (post project) <ul style="list-style-type: none">Improve the overall environmental performance throughout the North American heavy-duty truck and bus manufacturing supply chain in areas such as greenhouse gas and black carbon emission, energy and water efficiency, and waste managementIncreased information sharing, best practices, and integration of innovative technologies		
Tasks necessary to reach the environmental outcome: <ol style="list-style-type: none">Build a suppliers' partnership(s) and a framework for the bus and heavy-duty truck original equipment manufacturers (OEMs) and suppliers in the three countries.Create working groups with partnership members to create training programs focused on improving the environmental performance of the bus and heavy-duty truck sector.Trinational forum.		

Task 1) Build a suppliers partnership(s) and a framework for the bus and truck manufacturing OEMs and suppliers in the three countries				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
1.1 Work with the bus and heavy-duty truck sectors to identify champions with strong commitment to establish and foster a self-sustaining greening the supply chain effort in this sector.	Establish a manufacturers and suppliers partnership network in each country and work plans for each network.	These networks will facilitate the sharing of best practices regarding innovative technologies and best practices throughout the North American truck and heavy-duty bus manufacturing supply chain.	Fall 2013	Year 1: C\$10,000
1.2 Establish a sector profile of the bus and heavy-duty truck manufacturing OEMs.	Develop a baseline report to describe the sector profile and assess existing benchmarks (e.g., ISO14001), including a gap analysis and identification of other opportunities.	This task will inform the development of benchmarks in each focus area (task 2.3).	Fall 2013	Year 1: C\$20,000
1.3 Meetings to define sustainability challenges and opportunities, establish specific goals and objectives, set measurable targets, and obtain commitments.	Trilateral meetings with supply chain stakeholders, objectives, targets and commitments, create subgroups for each focus area identified.	These meetings will facilitate the implementation of the work plans developed in 1.1.	Fall and Winter 2013-2014	Year 1: C\$60,000
Task 2) Create working groups with partnership members to create training programs focused on improving the environmental performance of the bus and truck sector				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
2.1 Identification and assessment of potential models in each focus area.	Model of best practices in each focus area identified.	Manufacturers and suppliers are already implementing successful practices that	Spring 2014	Year 1: C\$40,000

		improve environmental performance in areas such as energy and water efficiency, and waste and chemicals management. These practices can be grouped into models in specific focus areas.		
<p>2.2 Meetings with each subgroup to find solutions and benchmarking goals in each focus area, and showcasing model(s) of on-the-ground implementation.</p> <p>Focus areas may include: carbon footprint, efficiency, integration of innovation and best practices into the supply chain, and decrease “black carbon” emissions associated with the bus and trucking products.</p>	Workshops to discuss the implementation opportunities and challenges of each model.	These workshops will facilitate the implementation and adaptation of selected models to specific manufacturing and suppliers contexts.	Summer and Fall 2014	Year 2: C\$60,000
2.3 Development of a benchmark in each focus area.	<p>Toolkit of best practices to facilitate the implementation and achievement of benchmarks.</p> <p>Outreach material (e.g., video of models)</p>	Benchmarks will be determined from the best practices across the industry, and will improve environmental performance in areas such as energy and water efficiency, and waste and chemicals management throughout the supply chain.	Late Fall 2014	Year 2: C\$30,000

Task 3) Trinational forum				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
3.1 Hold a forum with relevant government agency representatives of each country to present the results and obstacles identified in each focus area of the bus and heavy-duty truck manufacturing supply chain.	Identification of barriers and opportunities for improving efforts to green the North American bus and heavy-duty truck supply chain.	Inform the governments on ways to enhance national and trilateral opportunities to support greening supply chain in the heavy-duty truck and bus sector.	Winter 2015	Year 2: C\$30,000

Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

- **How does the project contribute to achieving Council's strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?**

In the Strategic Plan, Strategic Objective # 1 under the third Council priority ("Greening the Economy of North America") is "Improved private sector environmental performance in North America." This project aims to improve private sector environmental performance by forging partnerships between manufacturers and suppliers in the bus and heavy-duty truck industry across North America to 'green the bus and truck supply chain.' The competitive advantage of the approach is that it aims to simultaneously reduce costs/increase profits while saving the environment, offering a sustainable business model that will reap long-term benefits. In addition, it will provide a self-sustaining forum for continued improvement, innovation and success, and will draw on lessons-learned from the work carried out by the Auto Suppliers Partnership for the Environment.

In the "Greening the Economy in North America" priority, there is also emphasis on "Engaging experts and strengthening information and data sharing to assess and promote private sector environmental performance in North America as a tool to support the Strategic Objective." A Green Supply Chain or Supplier Partnership program initiative creates an environment to carry this out through engaging private sector experts with support of a facilitator to organize, develop and implement green supply chain programs with manufacturers and key suppliers.

Bus and truck manufacturers and their suppliers across North America will be able to share information and practices that will improve the environmental and economic performance capacity of small and medium-size enterprises within this sectoral supply chain.

- **Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)**

This project will establish a North American private and government partnership to identify a strategic approach to greening the supply chain of the bus and heavy-duty truck sector. This initiative will improve North America's environmental performance in a growing and evolving manufacturing sector.

- **What are the specific, clear and tangible results that will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.**

Decreased environmental impact related to manufacturing processes, including air emissions, waste, and energy use.

Possible performance measures include:

- Energy metrics: energy conserved, energy intensity per unit of production, carbon reductions
- Economic metrics: number of manufacturers, small businesses, and other stakeholders engaged, jobs created, individual trained.
- Environmental metrics: air emissions reduced, solid- and hazardous waste reduced, water pollution reduced, water used/conserved, water intensity per unit of production, and expediency and accuracy of information sharing on chemicals in products used in the supply chain.
- Number of new, more efficient technologies, practices and services used by the in the supply chain.

- **Explain why the CEC is the most effective vehicle for the Parties to undertake the project, considering:**

The CEC has existing experience established through the Suppliers Partnership for the Environment in the automobile sector. Also, the CEC has the ability to bring together private and public stakeholders from the three countries into one North American forum. Partnership members (private and public) will have the opportunity to share experiences and enhance cooperation in all areas of the supply chain.

- **Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC's involvement? Where applicable, describe how the work will continue after CEC involvement ends.**

Yes, the CEC will facilitate trilateral partnership between manufacturers and suppliers, as well as opportunities to align and improve best practices at the North American scale.

- **Where applicable, identify with reasonable specificity:**
 - **Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication**

This project builds on the 2011–2012 Greening Auto Supply Manufacturing in North America project. The environmental outcomes are complementary to the project on air quality and chemicals.

- **The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project**

Truck and bus manufacturers and suppliers, and relevant government agencies.

- **The beneficiaries of capacity building activities that the project may include**

All three countries, and possibly countries outside of North America that produce truck and bus components.

- **The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome**

Representatives from public and private organizations and trade associations established within the three countries whose primary focus is on sustainability within this sector, and major North American bus and truck manufacturers and their parts/components suppliers.

Project 11: Enhancing Environmental Law Enforcement in North America		Operating Year(s): 2013–2014
Planned Budget for two years: C\$460,000 Year 1: C\$210,000 Year 2: C\$250,000		
Strategic Priority/Objective: Healthy Communities and Ecosystems / Greening the Economy in North America		
Project Summary This project will allow the Parties to improve their understanding of the illegal trade in targeted, environmentally-regulated materials such as e-waste, hazardous waste, notably, spent lead acid batteries, and other wastes in trade; ozone-layer depleting substances, and non-compliant motorcycles, and on specific wildlife species. Building upon the work initiated under the previous Operational Plan, this project will contribute to the implementation of intelligence-led enforcement in the region, increased identification of non-compliant shipments and targets, and coordination among relevant agencies in sharing information and expertise in regulatory and enforcement landscapes. Training, information and expertise sharing in areas of common interest can include dissemination of information regarding environmental litigation, forensic expert deposition, evidence gathering, and analysis of high profile cases across North America.		
Short-term Outcomes (at halfway point) Implement processes to facilitate trilateral information and intelligence sharing to support identification of targets for enforcement actions leading to potential investigations <ul style="list-style-type: none">○ Information and intelligence products to be shared have been identified, a format developed, and exchange mechanisms agreed upon○ Consolidation of high performing team relationships, allowing effective responses to current and future enforcement challenges○ Revision of recommended practices for secure internet research and covert computers use for enforcement and compliance monitoring officers○ Agencies development of protocols for handling sensitive enforcement data and developing a listing of officers/special agents in each country for specific topics○ Increased awareness on issues posing challenges for transboundary enforcement in common areas of interest○ Enhanced understanding of transboundary enforcement challenges and best practices shared in common areas of interest○ Analysis of high profile enforcement cases and issues affecting compliance in transboundary shipments in common areas of interest○ Dissemination of information, online training updates, and dissemination of best practices related to environmental compliance and environmentally sound management in common areas of interest○ Agencies development procedures to facilitate the tasking and coordination of intelligence units, and procedures to action intelligence referrals		
Long-term Outcomes (by the end of the project) Flow of intelligence for specific sectors becomes an integral part of domestic operations between the three countries		

- Information and intelligence product exchange to develop effective working relationships with other law enforcement organizations, such as Interpol's Environmental Crime Group, and other international or regional organizations
- Enforcement partners call out to EWG membership issues on environmental and wildlife enforcement in transboundary shipments in common areas of interest
- A document including recommended practices for secure Internet research, use of covert computers, and safe online practices for officers is available trilaterally to environmental and wildlife officers
- Agencies implement protocols to share appropriate information
- Coordination among agencies' intelligence units' and operations units
- Enhancement of operational activities based on EWG agency-to-agency collaboration
- Common understanding of issues and solutions to enhance enforcement of environmental and wildlife laws in the region

Longer-term, environmental outcome (post project)

- Regular trilateral sharing of identified targets and issues
- North America is better protected from non-compliant imports
- Robust coordination for information sharing

Tasks necessary to reach the environmental outcome:

- 1) Implement the intelligence-led project, including planning, coordination, execution, monitoring and controlling the project and its components;
- 2) Address challenges and opportunities of the regulatory and enforcement documents delivered by the EWG; and
- 3) Support collective efforts to enhance environmental and wildlife enforcement in North America.

Task 1) Implementation of the intelligence-led project, including planning, coordination, execution, and monitoring and controlling of the project and its components

Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
1.1 Implementation of intelligence-led enforcement leading to an increased number of non-compliant targets, building on the work initiated under the previous Operational Plan	<p>1.1.1 Implementation of trilateral protocols and procedures for information sharing among environmental officials.</p> <p>1.1.2. A document including recommended practices for the use of covert computers and online research and safe</p>	Implementation of these tasks will support identification, coordination and appropriate action on non-compliant or illegal targets.	<p>Activities budgeted as year 1 are due by June 14.</p> <p>Year 2 covers up until June 2015.</p>	<p>Budget per task 1.1:</p> <p>Year 1: C\$100,000</p> <p>Year 2: C\$135,000</p> <p>1.1.1. Year 1: C\$20,000</p> <p>Year 2: C\$20,000</p> <p>1.1.2. Year 1: C\$15,000</p>

	<p>online practices for officers.</p> <p>1.1.3. Bi-monthly intelligence reports and information and expertise sharing activities.</p> <p>1.1.4. Deliver computer forensics training.</p> <p>1.1.5. Deliver a workshop for processing, using and disseminating ecomessages or notices for field officers.</p> <p>1.1.6. A document including recommended practices for coordination of intelligence and operations units and dissemination of that information.</p>			<p>1.1.3. Year 1: C\$10,000 Year 2: C\$10,000</p> <p>1.1.4. Year 1: C\$25,000 Year 2: C\$25,000</p> <p>1.1.5. Year 2: C\$50,000</p> <p>1.1.6. Year 1: C\$30,000 Year 2: C\$30,000</p>
Task 2) Address challenges and opportunities of the regulatory and enforcement documents delivered by the EWG				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
2.1 Address challenges identified in regulatory and enforcement documents	<p>2.1.1 Implement appropriate recommendations stemming out of the reports on e-wastes, ODS, and hazardous wastes, including information and expertise sharing.</p> <p>2.1.2. Develop a landscape document for illegal or non-</p>	The implementation of recommendations will enhance coordination with relevant stakeholders and will leverage to the identification and action on illegal or non-compliant targets.	June 14–15	<p>Year 1: C\$15,000 for both activities.</p> <p>Year 2: C\$15,000 for both activities.</p>

	compliant engines coming into North America. This includes refining intelligence sharing techniques, development of common elements of regulation interpretation, procedures for identification of illegal products and potential illegal manufacturers from foreign countries.			
Task 3) Support collective efforts to enhance environmental and wildlife enforcement in North America				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
3.1 Support efforts to enhance environmental enforcement and compliance assurance in the region	<p>3.1.1 Delivery of annual meetings of the North American Working Group on Environmental Enforcement and Compliance Cooperation.</p> <p>3.1.2. Four face-to-face meetings to review implementation of the project with respect to specified commodities of interest to all three countries. Meetings will provide training, information and expertise sharing as appropriate, and webinars in preparation for targeted meetings, including those of the North American Wildlife Enforcement Group (NAWEG).</p>	These actions will provide a forum for identification of key challenges and opportunities to ensure sound and effective implementation of this project, and appropriate outreach and information dissemination.	June 14–15	<p>Budget per task 3.3: Year 1: C\$95,000 Year 2: C\$100,000</p> <p>3.1.1. Year 1: C\$25,000 Year 2: C\$25,000</p> <p>3.1.2. Year 1: C\$60,000 Year 2: C\$60,000</p>

	3.1.3. Translation and layout of documents for publication.			3.1.3. Year 1: C\$10,000 Year 2: C\$15,000
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Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

- **How does the project contribute to achieving Council's strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?**

This project will support the Parties in their efforts to attain the objectives of the North American Agreement on Environmental Cooperation by strengthening cooperation on, and coordination mechanisms for, the development and improvement of procedures, policies and practices and by enhancing compliance with enforcement of, environmental laws and regulations.

- **Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)**

The project will benefit all three NAAEC Parties by sharing information, expertise and best practices in environmental enforcement and compliance cooperation. The project will support decision-makers to identify and take action against illegal or non-compliant trade in environmentally regulated materials and wildlife, thus protecting our shared environment, and health of communities and workers in our region.

- **What are the specific, clear and tangible results that will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.**

Quantitative results will be measured through the delivery of workshops, and documents foreseen in the project. Qualitative results can be measured utilizing the following:

- Number of non-compliant targets identified resulting from intelligence referrals
 - Number of non-compliant interdictions resulting from intelligence referrals
 - Number of cases where officer-to-officer communications are implemented by information exchange protocols
 - Number of targets identified from internet, social networks and electronic media in general
 - Number of news releases, newsletters both internal and external public releases on CEC website
 - Number of sessions for training and expertise sharing on addressing common areas of interest
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- **Explain why the CEC is the most effective vehicle for the Parties to undertake the project, considering:**

The CEC is an appropriate venue for this project and for the Parties' coordination. The North American Agreement on Environmental Enforcement and Compliance Cooperation includes the following as part of its objectives: f) strengthen cooperation on the development and improvement of environmental laws, regulations, procedures, policies and practices, g) enhance of compliance with, and enforcement of, environmental laws and regulations. Article 5 of NAAEC further outlines government action related to enforcement and compliance.

- **Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC's involvement? Where applicable, describe how the work will continue after CEC involvement ends.**

The project identifies yearly execution of budget per task.

- **Where applicable, identify with reasonable specificity:**
 - **Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication;**
 - **The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project;**
 - **The beneficiaries of capacity building activities that the project may include; and**
 - **The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome.**

The project will contribute to the group of projects dealing with *Wastes in Trade in North America*, regarding information and intelligence sharing on e-wastes and hazardous wastes, notably spent lead-acid batteries. The project will yield products and information useful for environmental enforcement, management/regulatory agencies and will further disseminate the EWG

publication: *Environmental Legislation in North America: Experiences and Best Practices for its Implementation and Adjudication*. Those agencies are the main recipients and beneficiaries of expertise-sharing exercises and will ensure appropriate engagement and participation, contributing to a successful outcome for the project.

Project 12: Environmentally Sound Management of Selected End-of-Life Vehicle Batteries, Including Spent Lead-Acid Batteries (SLABs), in North America		Operating Year(s): 2013–2014
Planned Budget for two years: C\$400,000 Year 1: C\$200,000 Year 2: C\$200,000		
Strategic Priority/Objective: Greening the Economy in North America Cluster: Addressing Waste in Trade in North America		
Project Summary The first task of this project involves the development of technical guidelines on environmentally sound management for secondary lead smelters and other facilities that process SLABs, to enhance their capability to implement environmentally sound management practices, notably in Mexico. This aspect differs from previous CEC work that culminated in a report entitled “Practices and Options for Environmentally Sound Management of Spent Lead-acid Batteries within North America,” which provides high-level guidance and that is not specifically geared towards addressing smelting and other facility operations for SLABs processing. The guidelines to be developed under this project will identify best management practices at the operational level concerning the environmentally sound management of SLABs and the recovery of materials, which will enhance the occupational health and safety conditions of workers in this industry and support the creation of green jobs. The second task will focus on examining potential releases of lead from secondary lead smelters and other facilities that process SLABs, with a focus on Mexico. This information can provide an indication of the scope and magnitude of this issue, and identify opportunities for improvement that both industry and governments can consider in implementing, or requiring corrective measures. Preliminary findings can also be used for the development of technical guidelines and to prioritize issues. The third task focuses on non-lead batteries used in hybrid and electric vehicles. A review of quantities in each country, and current and prospective end-of-life technologies/mechanisms with which to protect human health and the environment, will be possible through the implementation of this project. The fourth task of the project focuses on translating and publishing the CEC report entitled, “Quantitative Characterization of Domestic and Transboundary Flows of Used Electronics,” completed during the Sound Management of Electronic Wastes in North America initiative under the 2011–2012 Operational Plan.		
Short-term Outcomes (at halfway point) <ul style="list-style-type: none">Establish a CEC battery-experts group composed of Party representatives and Secretariat staff to advance work on the activities and tasks identified in this project.		

- By May 2014, a CEC battery-experts group will develop draft ESM technical guidelines for processors of SLABs.
- By December 2013, a number of facilities that process SLABs in Mexico will be selected to participate in a pilot study on releases of lead and other substances of concern.
- By December 2013, complete French and Spanish translation and publication of the report, entitled “Quantitative Characterization of Domestic and Transboundary Flows of Used Electronics,” will be available.
- By June 2014, the CEC battery-experts group will implement a preliminary identification of releases of lead and approaches to quantify releases of lead from secondary lead smelters and other facilities that process SLABs. These results will help to identify measures and practices to improve the environmentally sound management of these recovery and recycling processes. This work will help and inform enhance occupational health and safety decisions, and to prevent releases of these substances to their surrounding environment.
- By August or September of 2014, the CEC battery-experts group will meet and a key group of stakeholders (e.g., industry, NGOs, and academic experts, etc.) will have an opportunity to provide input and advice on the outline of the technical guidelines identified in task 1.1, and on the report identifying potential emissions for content of lead and approaches to quantify releases of lead from secondary lead smelters and other facilities that process SLABs identified in task 2.1.

Long-term Outcomes (by the end of the project)

- By May 2015, the CEC battery-experts group will finalize the technical guidelines on environmentally sound management for secondary lead smelters and other facilities that process SLABs.
- By June 2014, the CEC will complete a preliminary analysis of other types of batteries used in hybrid and electric vehicles. This analysis will help explore how these batteries are managed at their end-of-life cycle. It is expected that the project will help identify current and prospective end-of-life technologies/mechanisms that can better protect human health and the environment, and to identify potential issues that may require attention as part of future CEC work.
- By May 2015, the CEC will complete a report identifying potential emissions of lead and approaches to quantify releases of lead from secondary lead smelters and other facilities that process SLABs, as described in this project.

Longer-term, environmental outcome (post project)

- Information stemming from this project will support decision-makers to consider the implementation of measures to enhance protection of workers and communities from lead emitted during the recycling of SLABs by disseminating environmentally sound management practices.

- It is expected that the project will support the adoption of practices and actions leading to a reduction of lead emissions from secondary lead smelting facilities to air, soil, and will help reduce lead exposure to workers and communities.
- This project will benefit the Parties by providing timely information on potential impacts that may be associated with non-lead batteries from hybrid and electric vehicles when they reach the end of their useful life.

Tasks necessary to reach the environmental outcome:

- 1) Develop technical guidelines on best practices for environmentally sound management for processors of SLABs.
- 2) Examine potential releases and approaches to quantify releases of lead from secondary lead smelters and other facilities that process SLABs, with a focus on Mexico.
- 3) Undertake a preliminary analysis of the uses, end-of-life management and potential risks of the major non-SLAB batteries that are currently in use for hybrid and electric vehicles.
- 4) Translate and publish the study, “Quantitative Characterization of Domestic and Transboundary Flows of Used Electronics,” previously included in the Sound Management of E-waste in North America project, completed under the 2011–2012 CEC Operational Plan.

Task 1) Develop technical guidelines on best practices for environmentally sound management for processors of SLABs

Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing (Target date)	Budget (activities)
1.1 Develop ESM technical guidelines which cover best practices and technologies for sound management of SLABs. <i>Note: A group of CEC Parties’ officials will periodically seek input from an ad hoc set of stakeholders with</i>	1.1.1 Draft ESM technical guidelines for processors of SLABs. 1.1.2 Finalize ESM technical guidelines for processors of SLABs. The guidelines will consider key-stakeholders’ expertise, a review of national and international literature, best practices and technologies for environmentally sound management related to resources recovery and	The ESM technical guidelines on SLABs provides the necessary foundation to significantly reduce SLAB lead exposures where needed and promote environmentally sound recycling practices within secondary lead	May 2014 (Task 1.1.1) May 2015 (Task 1.1.2)	Year 1: C\$80,000 (Task 1.1.1) Year 2: C\$90,000 (Task 1.1.2)

<i>relevant expertise as the technical guidelines are developed.</i>	recycling of SLABs. The final version will include technical guidelines on best practices and technologies for processing SLABs, and recommendations on how to implement these at the operational level.	processing activities.		
1. 2 In-person meeting in Mexico of CEC battery-experts group to garner input and assessment from key stakeholders, public and private on the draft ESM technical guidelines, and preliminary work on the report on releases of lead and on approaches to quantify releases of lead from SLABs recyclers (Task 2.1).	1.2.1. In-person meeting with key stakeholders including translation services, webinar access and logistic support.	This activity will ensure engagement of private and public stakeholders in the process of completing the technical guidelines and the report on emissions of lead and substances of concern.	August–September 2014	Year 2: C\$25,000
Task 2) Examine potential releases and approaches to quantify releases of lead from secondary lead smelters and other facilities that process SLABs, with a focus on Mexico				
2.1 Analysis of potential releases of lead and approaches to quantify releases of lead from SLAB processing facilities.	<p>2.1.1 A report identifying potential emissions of lead and approaches to quantify releases of lead from secondary lead smelters and other facilities that process SLABs (pyro-metallurgical/hydrometallurgical), pretreatment, and collection facilities that process or handle SLABs.</p> <p>This report will include a pilot study of emissions and approaches for estimating emissions in a number of facilities in Mexico (contingent on resources).</p>	Results can be used for site-based risk assessment and risk management efforts.	Preliminary work to be completed in Year 1 and final report to be completed in Year 2.	<p>Year 1: C\$65,000</p> <p>Year 2: C\$85,000</p>

Task 3) Undertake a preliminary analysis of the uses, end-of-life management and potential risks of the major non-SLAB batteries that are currently in use for hybrid and electric vehicles				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
3.1 Conduct a preliminary analysis of the use and end-of-life management of batteries used in hybrid and electric vehicles, including an examination of current and prospective best practices and technologies that support environmentally sound management.	3.1.1 A draft and final report that characterizes the types, content, use, and disposal of batteries used in electric vehicles, including an overview of relevant best practices, technologies and laws.	Parties can use the preliminary analysis to enhance institutional knowledge of the potential issues that may exist regarding the end-of-life management of batteries used in North American hybrid and electric vehicles.	June 2014	Year 1: C\$40,000
Task 4) Translate and publish the study, “Quantitative Characterization of Domestic and Transboundary Flows of Used Electronics,” previously included in the Sound Management of E-waste in North America project, completed under the 2011–2012 CEC Operational Plan				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
4.1. Translate and publish the study, “Quantitative Characterization of Domestic and Transboundary Flows of Used Electronics,”	4.1.1 Spanish/French translation and publication of the final version of the study reviewed and cleared by Party-leads and the Secretariat.	Parties will have an increased knowledge of the flows of used computers and monitors; and the methodology will serve to implement	December 2013	Year 1: C\$15,000

which will be completed under the Sound Management of Electronic Wastes initiative under the 2011–2012 Operational Plan.		future analysis of the flows of e-wastes in North America.		
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Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under Operational Plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

- **How does the project contribute to achieving Council's strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?**

The project is directly responsive to the findings in the CEC Secretariat's report: "Hazardous Trade? An Examination of US-generated Spent Lead-acid Battery Exports and Secondary Lead Recycling in Mexico, the United States and Canada." It is consistent with the ensuing CEC Council's Strategic Objectives 1 - Improved Environmental Health of Vulnerable Communities in North America; and Objective 3 - Enhanced Regional Approach to Sound Management of Substances such as Lead. Preliminary work on batteries currently used in hybrid and electric vehicles will also help to inform governments of any existing and potential current or foreseeable issues that may be associated with these types of batteries when they reach the end of their useful life. This work is primarily linked to the CEC's Greening of the North American Economy priority.

- **Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)**

The objectives are trilateral in scope. A review of environmentally sound management practices in the secondary lead smelting and processing industry will cover and benefit from best practices and expertise from the three North American countries. How SLABs are managed is an important public health, environmental and economic issue. A consensus now exists in the scientific community that there is no "safe" threshold for blood lead levels. Lead can be absorbed into the human body and prove toxic to the nervous system, heart, kidneys, bones and reproductive organs. Lead can affect the health of workers and people in the surrounding communities, particularly with respect to fetal and childhood development. This project will provide operational guidance for environmentally sound management which the Parties and their industries can support and, by increasing the environmentally sound management of SLABs, enhance existing and ongoing measures to

protect workers and communities from the lead emitted during the recycling of spent lead-acid batteries. Additionally, this work could support efforts to enhance regulations in Mexico applicable to SLABs recycling.

- **What are the specific, clear and tangible results that will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.**

This project will provide a comprehensive and robust technical guidance document on environmentally sound management practices. It will also expand opportunities for the CEC Parties to liaise with the North American secondary lead smelting sector. The project will also serve to gather valuable information on current technology, sound management practices and will inform decision-makers on key issues regarding site-based risk assessment and management of lead. The project will allow for translation and publication of the CEC report entitled “Quantitative Characterization of Domestic and Transboundary Flows of Used Electronics,” completed under the project Sound Management of Electronics for 2011–2012.

Performance measures include among others:

- Completed ESM technical guidelines on SLABs;
 - Opportunities for public/private collaborative partnerships in this initiative;
 - A report identifying potential release scenarios and approaches to quantify releases of lead from smelters (pyrometallurgical/hydrometallurgical), pretreatment, and facilities that process or handle SLABs, accompanied by site-specific sampling of one or two selected facilities in Mexico (budget permitting);
 - A report characterizing end-of-life management of batteries used in North American hybrid and electric vehicles;
 - The study “Quantitative Characterization of Domestic and Transboundary Flows of Used Electronics,” translated and published in its final version;
 - Level of stakeholder interest in implementing CEC ESM technical guidelines; and
 - Delivery of the workshop to gather input on guidelines and on the report for potential releases.
- **Explain why the CEC is the most effective vehicle for the Parties to undertake the project, considering:**
 - **The value-added of doing it under the CEC cooperative program**
 - **Any other public, private or social organizations that work on such activities**
 - **Opportunities to cooperate and/or leverage resources with such organizations**

The project is directly responsive to the findings in the CEC Secretariat’s report: “Hazardous Trade? An Examination of US-generated Spent Lead-acid Battery Exports and Secondary Lead Recycling in Mexico, the United States and Canada.” No other public, private or social organization is implementing a similar scope of activities as those included in this project. Notwithstanding, the project will bring valuable

opportunities to the CEC Parties to liaise with the private sector, and with environmental nongovernmental organizations to address issues around unsound management of SLABs, and to enhance protection of workers and communities neighboring SLABs recycling facilities.

- **Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC's involvement? Where applicable, describe how the work will continue after CEC involvement ends.**

Yes. The project is expected to last for two years and proposes a clear timeline for implementation of its tasks.

- **Where applicable, identify with reasonable specificity:**
 - **Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication**

The project will build on the general ESM document on SLABs developed by the CEC Hazardous Waste Task Force several years ago. Based on this initial high-level endeavor, the project will benefit the Parties, the North American secondary lead smelting industry and key stakeholders to better protect health and environment of workers, and neighboring communities.

- **The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project**

It is anticipated that several government agencies in the three countries, the secondary lead smelting industry, and nongovernmental organizations will follow closely the implementation of this project. The target audience will participate actively in the development of the technical guidelines and in the report to identify releases of lead and other substances of concern liberated in the recycling process.

- **The beneficiaries of capacity building activities that the project may include**

Secondary lead smelting companies, government policy and decision-makers will greatly benefit from information stemming from the implementation of this project.

- **The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome**

Key stakeholders include:

- Three North American federal governments, environmental agencies, trade agencies, environmental compliance monitoring agencies,

- The secondary lead smelting industry,
- The battery manufacturing industry,
- Universities and research centers (in Mexico: *Instituto Politécnico Nacional, Universidad Nacional Autónoma de México*),
- Nongovernmental organizations, and
- Technical experts on the environmentally sound management of SLABs.

Note: *In an effort to enhance lean operations of the CEC Secretariat, documents and reports intended for publication will be available primarily online. Printed copies will be provided only upon request.*

Project 13: Catalyzing North American Grasslands Conservation and Sustainable Use Through Partnerships		Operating Year(s): 2013–2014
Planned Budget for two years: \$400,000 Year 1: \$200,000 Year 2: \$200,000		
Strategic Priority/Objective: Healthy Communities and Ecosystems / Increased Resilience of Shared Ecosystems at Risk, with cross-cutting elements in support of the priority area Greening the Economy in North America		
<p>Project Summary</p> <p>Diverse pressures on North America’s central grasslands are impacting livestock production and rural communities, and have cascading effects on a number of critical issues such as water, food security, the provision of ecosystem services, and the loss of grassland biodiversity. The livelihoods of many ranchers and, by extension, the sustainability of native grasslands, face a broad range of challenges, from agricultural conversion, the continued decline of grassland-dependent species, oil and gas development, and uncertain economic returns. These challenges are threatening grassland ecosystems and the economies they support. The threats to human livelihoods and environmental integrity are considerable, and the adoption of sustainable management approaches is essential to protect these resources for current and future generations.</p> <p>To sustain the ranching industry and maintain healthy grasslands, this project will implement and promote economic and conservation solutions that address the root causes of grasslands loss. The transfer and uptake of place-based beneficial practices, ranging from grazing, water and fire management to community outreach and partnerships, will support local communities and economies on grasslands of key biodiversity importance in North America. An expanded continental partnership will strengthen collaboration through shared experiences and resources. And the economic, social and ecological values of North America’s grasslands will be communicated to a broad range of audiences.</p> <p>The project will benefit the North American environment through:</p> <ul style="list-style-type: none">• An inclusive and effective alliance for collaboration on trinational grassland conservation, bridging gaps between stakeholders through improved communication and understanding, to foster grasslands that are more resilient to threats.• A network of sites that demonstrate harmonized economic and environmental sustainability, and the contribution of ranchers to biodiversity conservation through improved knowledge of, and support for, activities that derive compatible economic and conservation benefits.• Improved understanding, appreciation and engagement for grasslands conservation in the three countries through a coordinated outreach campaign. <p>This project follows from a 2011–2012 CEC project entitled: <i>North American Grasslands: Management Initiatives and Partnerships to Enhance Ecosystem and Community Resilience</i>. The goal of that project was to provide a body of information for livestock producers and their communities, and form lasting partnerships for continual development and adoption of sustainable grassland management practices</p>		

through the establishment of the North American Grasslands Alliance. The Alliance developed a multi-faceted collective approach to support North American grasslands that sustains working landscapes, conserves biodiversity, and promotes vibrant rural communities. In addition, the project supported: 1) a web-based tool to host and disseminate almost 100 beneficial management practices (BMPs) from ranchers, conservation organizations, and government and academic bodies in Canada, the United States and Mexico; 2) several pilot projects with rancher groups, including a beef industry supply chain analysis, a private lands wildlife biologist extension program, and research into market-based incentives for sustainable rangeland management; 3) outreach material including a video to promote BMPs; and 4) comprehensive monitoring data on migratory grassland birds in northern Mexico. This body of successful work represents key building blocks that serve as the foundation for this project.

Short-term Outcomes (at halfway point)

- Meetings with experts, partners and regional alliances are planned or accomplished, with a focus on economic and conservation solutions for sustainable grasslands management.
- Key management actions for ranchers to improve ecological integrity of grasslands are identified, and beneficial management practices (BMPs) for improved biodiversity and economic returns are being piloted in critical grassland areas in each country.
- Grassland values are compiled and a communications strategy is developed.

Long-term Outcomes (by the end of the project)

- A sustainable trinational Alliance supports an expanded framework for integrated economic and conservation solutions for sustainable grassland management.
- A network of demonstration sites with private landowners engaged in economically and environmentally sustainable grassland management is established.
- Grassland values are communicated broadly, leading to a comprehensive and multi-faceted understanding of the irreplaceable role of grasslands for the sustainability of biodiversity and ranchers.
- Ecologically and economically sustainable grassland management pilots are captured as BMPs. The web-based BMP tool is expanded to include these and other BMPs.
- BMPs are made available to ranchers and their partners through broad dissemination via Internet, regional nodes and the North American Grasslands Alliance.

Longer-term, environmental outcome (post project)

- The North American Grasslands Alliance functions independent of CEC funding, cooperatively delivering on strategies to support grassland conservation.
- BMPs are more widely employed by landowners and managers across the continental grassland ecoregion, leading to improved habitat quality and quantity, concurrent with increased economic benefits for ranchers.
- The general public demonstrates broad support for public and private measures in support of grassland conservation.

Tasks necessary to reach the environmental outcome:

- 1) Strengthen the capacity of the North American Grasslands Alliance to work collaboratively on grasslands conservation at the continental scale, resulting in grasslands that are more resilient to threats.
- 2) Implement and promote ranch-level beneficial management practices (BMPs) that improve environmental sustainability of livestock production on ranches and bring concurrent economic and biodiversity benefits.
- 3) Increase society's understanding and appreciation of the values of grasslands using messaging centered on the ecological and economic benefits of maintaining grasslands and costs associated with their loss, and branding of ecologically sustainable ranching as a grassland-friendly land use.

Task 1) Strengthen the capacity of the North American Grasslands Alliance to work collaboratively on grasslands conservation at the continental scale, resulting in grasslands that are more resilient to threats

Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
1.1 Support the North American Grasslands Alliance to deliver effective cooperation in the grasslands through experts and partnership meetings	Strategies for cooperation and long term support related to grassland conservation within and among country members of the trinational Alliance are refined, prioritized and implemented	Concerted trilateral efforts converge on continental-scale issues such as tracking the rate and extent of native grassland loss and developing statistics on the economic and social values of ranching	Year 1–Year 2	Year 1: \$40,000 Year 2: \$30,000
1.2 Build synergies with complementary partners and regional alliances for grassland conservation	Regional partners and initiatives for grassland conservation (including ranchers groups, bird initiatives, multi-disciplinary experts, etc.) contribute to a strong trinational Alliance	Ranching, science and policy communities effect positive change at the regional level, driving broader social, ecological and policy change at the national and trinational levels.	Year 1–Year 2	Year 1: \$30,000 Year 2: \$30,000

Task 2) Implement and promote ranch-level beneficial management practices (BMPs) that improve environmental sustainability of livestock production on ranches and bring concurrent economic and biodiversity benefits				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
2.1 Establish on-the-ground pilots to demonstrate positive linkages between environmental sustainability of livestock production and environmental benefits, including such approaches as fire management and identifying the key ecological parameters affecting ecological sustainability of grasslands	Pilot BMPs (focused on ecological parameters for management, market-based mechanisms and diversification) are developed and delivered in all three countries, in order to provide environmental, wildlife and forage quality improvements at ranches	A portfolio of strategies leads to the adoption of conservation-friendly management practices that support the ranching industry as an economically viable alternative to other land uses	Year 1–Year 2	Year 1: \$100,000 Year 2: \$120,000
Task 3) Increase society's understanding and appreciation of the values of grasslands using messaging centered on the ecological and economic benefits of maintaining grasslands and costs associated with their loss, and branding of ecologically sustainable ranching as a grassland-friendly land use				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
3.1 Develop and disseminate a sustainable grasslands social marketing package by compiling data and developing communications and social marketing tools that support the design of regional social marketing campaigns that	Information and preliminary tools in support of a communication and social marketing campaign are developed, including baseline information on continental grasslands and the livestock industry	Data, information and tools focused on the ecological, social and economic benefits of grasslands, and costs associated with grasslands loss, are compiled and disseminated for	Year 1–Year 2	Year 1: \$30,000 Year 2: \$20,000

will be deployed through NAGA partners and their regional partnerships in the form of “train the trainer” activities (see Task 1)	A sustainable grasslands social marketing package including research findings, materials and messaging for tailoring communications and social marketing campaigns to regional audiences	communications and branding of ranching as a grassland-friendly land-use within the three countries Regional nodes are empowered and supported to design and deliver communications and social marketing campaigns to garner broad public support for natural grasslands as a unique capital asset for society and a foundation of ranching culture		
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Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

- **How does the project contribute to achieving Council’s strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?**

This project addresses the CEC priority area Healthy Communities and Ecosystems—Increased Resilience of Shared Ecosystems at Risk. It focuses on improving ecosystem health and resilience of North American grasslands, the only continentally-shared terrestrial ecosystem, and strengthening institutional and individual capacity for the essential stewardship of these lands. Areas of specific focus for the project are Grassland Priority Conservation Areas in North America identified by the CEC.

The project has cross-cutting elements in support of the priority area Greening the Economy in North America. The project has a strong focus on the key relationship of sustainable and profitable ranching activity to healthy grasslands. The project will explore how grasslands beneficial management practices and diversified ranch income can be successfully integrated into ranching operations in order to improve profitability, provide value-added products for North American consumers, and result in sustainable stewardship of grassland ecosystems.

- **Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)**

The tall- and short-grass central grassland ecoregions of North America are the most threatened terrestrial ecosystems on the continent and are of significant economic, ecological, and cultural importance to Canada, Mexico and the United States. Grassland birds, perhaps one of the best indicators of the rapid loss of grassland ecosystems, have declined more than any other group of North American birds and their survival is dependent on inter-connected habitats in Canada, Mexico, and the United States.

To sustain the ranching industry and maintain healthy grasslands, this project will implement and promote economic and conservation solutions that address the root causes of grasslands loss.

The project will benefit the North American environment through:

1. An inclusive and effective alliance for collaboration on trinational grassland conservation, bridging gaps between stakeholders through improved communication and understanding, to foster grasslands that are more resilient to threats.
 2. A network of sites that demonstrate harmonized economic and environmental sustainability, and the contribution of ranchers to biodiversity conservation through improved knowledge of, and support for, activities that derive compatible economic and conservation benefits.
 3. Improved understanding, appreciation and engagement for grasslands conservation in the three countries through a coordinated outreach campaign.
- **What are the specific, clear and tangible results that will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.**

Progress over time will be measured by the number of meetings, their geographic range (for regional meetings) and the number and diversity of participants; the finalization and implementation of the North American Grasslands Alliance framework; the number of BMPs developed and piloted in the three countries; the number of outreach activities to disseminate BMPs and the increase in BMP uptake by ranchers and their partners in the three countries; the completion of a report on continental grassland baseline information and a sustainable grasslands social marketing package; and the number of social marketing packages disseminated to regional partners.

- **Explain why the CEC is the most effective vehicle for the Parties to undertake the project, considering:**
 - **The value-added of doing it under the CEC cooperative program**

The CEC is uniquely positioned to support the Parties in achieving their goal of maintaining resilient ecosystems across North America. Accelerated conservation actions in grassland regions, as facilitated through this project, is needed to slow the highest rate of natural habitat conversion of any other terrestrial ecological region in North America, help address the current levels of water stress, and allow options for species survival under changing climatic regimes. The CEC has also been a leader in supporting the identification of grassland priority conservation areas, developing a North American protected area database, and continental land cover map; products that support an accurate and comprehensive understanding of land use, carbon storage potential and conservation priorities for the grasslands.

- **Any other public, private or social organizations that work on such activities**

Through the North American Grasslands Alliance, this project will build synergies with existing organizations and individuals that work on elements of grassland conservation at local, regional and continental scales and within public and private sectors. Examples include environmental and agricultural agencies, industry associations, environmental not-for-profit organizations, and private landowners. However, work under this project will not duplicate existing efforts, but will amalgamate existing efforts in order to catalyze grassland conservation at multiple scales in North America.

- **Opportunities to cooperate and/or leverage resources with such organizations**

This project aims to coordinate and enhance work underway by using the cooperative mechanism and common goals of the North American Grasslands Alliance and existing regional alliances to capitalize on the established trust between alliances and their constituencies to achieve greater access and uptake of beneficial management practices. Alliance members each have unique abilities to access funding from a number of sources, and to leverage CEC funding to advance the conservation objectives of this partnership.

- **Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC's involvement? Where applicable, describe how the work will continue after CEC involvement ends.**

The proposed project builds on the CEC-supported grassland project from 2011–2012. This proposed project is scheduled to occur during the CEC Operational Plan 2013–2104. Over the course of the project, a strategy will be developed and implemented by the North American Grasslands Alliance to become a self-sufficient entity that continues to deliver on long-term project goals beyond the life of this project.

- **Where applicable, identify with reasonable specificity:**
 - **Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication**

This project builds on a number of previous CEC projects and thereby provides value-added to work already supported by the CEC. Included are the CEC's 2003 Grasslands Conservation Strategy, the Priority Conservation Areas identified in the grasslands (2005 and updated in 2010), as well as the continentally important projects and monitoring capacity resulting from the CEC-initiated North American Bird Conservation Initiative and North American Conservation Action Plans. It also builds on work done for species of common conservation concern (SCCC) and the CEC Cooperative work program projects for 2009–2010 to support grassland conservation in northern Mexico. Most recently, this project follows and builds upon the currently-supported CEC project *North American Grasslands: Management Initiatives and Partnerships to Enhance Ecosystem and Community Resilience* (2011–2012).

- **The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project**

The project largely targets grassland-focused conservation organizations/institutions as well as practitioners on the landscape with an emphasis on ranchers. These target audiences have been well represented in the preliminary work to establish the North American Grasslands Alliance and are receptive to future engagement in delivering on the Alliance's work.

- **The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome**

Stakeholders involved in this project include government environment and agriculture agencies (e.g., Semarnat, Conabio, US Fish and Wildlife Service, US Agricultural Department, US Forest Service, Bureau of Land Management, Environment Canada, Agriculture Canada); cattlemen's associations; National Audubon Society; Pronatura; Rocky Mountain Bird Observatory; Association of Fish and Wildlife Agencies; universities; bird conservation joint ventures; Landscape Conservation Cooperatives; and regional alliances (e.g., Regional Alliance for Conservation of the Chihuahuan Desert Grasslands, Ranchers Stewardship Alliance). The success of the North American Grasslands Alliance and its vision depends on the commitment of such a diverse group of stakeholders. The project has been structured to ensure that this diversity is captured within the membership and activities of the Alliance, in order to deliver successful outcomes.

Project 14: North American Collaboration for Conservation of Transboundary Protected Areas		Operating Year(s): 2013–2014
Planned Budget for two years: C\$300,000 Year 1: C\$200,000 Year 2: C\$100,000		
Strategic Priority/Objective: Healthy Communities and Ecosystems / Increased Resilience of Shared Ecosystems at Risk		
Project Summary <p>This project aims to increase the health and resiliency of transboundary ecosystems and communities in the Big Bend-Río Bravo (BBRB) region by maintaining or restoring the ecological health, connectivity, and resilience to climate change of shared ecosystems, and the communities and natural resource-based sectors that depend on them for important ecosystem services that may become more scarce as the climate changes. Based on the recommendations made in the BBRB Conservation Assessment, on-the-ground work in conservation and restoration will be carried out, including education and outreach activities with private landowners, park visitors, and the public and other partners in the region. Specifically, the BBRB region will advance regional strategic planning and implementation of conservation actions, initiate climate change adaptive management, and conduct carrying capacity assessment at eco-recreational sites in the Maderas del Carmen protected area.</p>		
Short-term Outcomes (at halfway point) <ul style="list-style-type: none"> • North American network of transboundary conservation partnerships comprised of stakeholders from federal and state land management agencies, NGOs, universities, community organizations, corporate entities, private landowners, and riverside and border communities. • Information sharing on conservation and climate change adaptive management planning. • First phase of climate change adaptive management planning in the BBRB region. 		
Long-term Outcomes (by the end of the project) <ul style="list-style-type: none"> • Increased regional and trilateral capacity and knowledge related to adaptive management and restoration of ecosystems to benefit people and native species in the face of a changing climate and other large scale ecosystem drivers. • Conservation, monitoring and restoration actions in degraded ecosystems, and education and outreach activities with private landowners, park visitors, the public and other partners in the region. 		
Longer-term, environmental outcome (post-project) <ul style="list-style-type: none"> • Increased regional and trilateral capacity to implement binational coordinated adaptive management to improve ecosystem and community health and resiliency given climate change and other drivers of change. • Improved status of conservation targets (species and physical processes) identified in the BBRB Conservation Assessment. • Improved resiliency of ecosystems and communities in the BBRB region, and beyond. • Improved public and visitor understanding of, connection with, and support for protected areas, other ecosystems, and their conservation in the region. • Reduced dependence of local communities on unsustainable economic activities in the BBRB region. 		

Tasks necessary to reach the environmental outcome:

- 1) Prioritize management actions and develop strategies for achieving them
- 2) Implement priority conservation and monitoring activities
- 3) Environmental impact and capacity assessment in Maderas del Carmen

Task 1) Prioritize management actions and develop strategies for achieving them

Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
1.1 Meeting to identify opportunities to collaborate on conservation/restoration of priority ecosystems of common interest and to create a work plan	Meeting with managers, scientists and other stakeholders to share lessons learned on conservation and adaptive management planning, management priorities and near-term actions, data needs, and other gaps. Coordination meeting with the working group to plan and agree on the implementation of each project subtask.	The group will identify successful strategic actions to conserve and restore native species, ecosystem processes, and ecosystem services, and to support local communities.	Fall-Winter 2013–2014	Year 1: C\$33,000
1.2 Climate change adaptive management	Initiate work on climate change adaptive management planning in the BBRB region.	Adaptive management planning will help plan for an uncertain future and identify actions that are most likely to be beneficial.	Winter 2013–2014	Year 1: C\$50,000

Task 2) Implement priority conservation and monitoring activities

Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
2.1 Implement recommended conservation actions and monitoring on both public and private lands to improve landscape and community resilience.	Actions will be determined. Education and outreach activities will be carried out with private landowners, park visitors, and the public and other partners in the region.	Conservation and active ecosystem management practices will help to maintain or restore the ecological health, connectivity, and resilience to climate change (or assist in the adaptation to climate change) of shared ecosystems and the	Fall 2013–Spring 2015	Year 1: C\$80,000 Year 2: C\$100,000

		<p>communities and natural resource-based sectors that depend on them for important ecosystem services that may become more scarce as the climate changes.</p> <p>Engagement of communities, visitors, the public, and other partners and stakeholders will help to build support for protected areas, other conservation initiatives, and good ecosystem management practices, thus increasing the long-term sustainability of project outcomes.</p>		
2.2 Publications from OP 2011–2012	<p>Publication cost and outreach for:</p> <ul style="list-style-type: none"> • A Proposal for Developing Desired Future Conditions for the Big Bend Reach of the Rio Grande/Rio Bravo (OP11-12/ task 2.1) • Conservation Assessment – document and launch (OP11-12/ task 2.2) <p>Communications needs (e.g., website)</p>		Fall 2013	Year 1: C\$12,000
Task 3) Environmental impact and capacity assessment in Maderas del Carmen				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
3.1 Evaluate and manage visitor use and carrying capacity at ecotourism recreational sites in the	Identify potential ecotourism recreational sites and routes and determine their carrying capacity based on the concept of <i>Límites de cambio aceptable</i> . Sustainable	Collaborative efforts between local municipalities and protected areas will help meet the conservation targets of the protected area, and increase	Fall 2013	Year 1: C\$25,000

Mexican protected areas.	landscape and architectural design will be developed to manage visitor use.	sustainable development of local economies through ecotourism.		
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Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

- **How does the project contribute to achieving Council's strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?**

This project falls under strategic objective 2, "Increased resilience of shared ecosystems at risk." The Big Bend-Río Bravo region is recognized for its unique biodiversity and landscape. This project will help maintain or restore the ecological health, connectivity, and resilience to climate change (or assist in the adaptation to climate change) of those shared ecosystems, and the communities and natural resource-based sectors (e.g., agriculture) that depend on them for important ecosystem services that may become more scarce as the climate changes.

- **Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)**

The project focuses on conserving transboundary landscapes that share common ecosystems such as grasslands, forests, and headwaters. The work plan will draw from experiences acquired by managers and scientists to share capacities and best practices in implementing priority conservation actions, and developing climate change adaptive management.

- **What are the specific, clear and tangible results that will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.**

A meeting will bring managers and conservationists from the BBRB region and beyond to share experiences on determining priority actions, steps to adaptive management planning, and community outreach. Possible performance measures will include:

- A broad-scale process and framework for adaptive management that integrates climate change information, addresses uncertainty related to management actions, and can be applied to priority ecosystems.

- Number of restoration activities implemented.
 - Number of acres of ecosystems being restored or where sustainable rangeland management practices or other good ecosystem management practices are being implemented as a result of this project.
 - Number of local people participating in ecosystem management workshops and employment programs related to green jobs and sustainable or low carbon economies.
- **Explain why the CEC is the most effective vehicle for the Parties to undertake the project.**

This project directly responds to the CEC's strategic plan to approach conservation at an ecosystem level and build collaboration among multiple agencies to tackle the transboundary conservation of landscapes. While there is a diverse range of actors in the region, the CEC brings unique, neutral authority to convene multiple decision-makers and stakeholders from across jurisdictional lines and encourage them to embrace the paradigm shift that is needed to integrate conservation planning on a landscape scale. The CEC is also uniquely situated to assist the conservation partners in the Big Bend-Río Bravo region in building a model for transboundary, landscape-scale conservation partnerships and identifying, extracting, and disseminating lessons learned from the region for application in multi-jurisdictional landscapes across the continent. By focusing on transboundary conservation, cooperation, and communication and identifying linkages between communities and science-based resource management organizations, the CEC's support for these efforts will produce and test in diverse settings a model that will demonstrate the feasibility and benefits of landscape-scale conservation cooperation, and inform other transboundary conservation partnerships.

The BBRB region has developed a broad network of stakeholders comprised of federal, state/provincial, local and tribal authorities, NGOs and community organizations that inform and collaborate on the implementation of conservation and management activities. The CEC's contribution will be invaluable in leveraging other potential resources to contribute to this effort. Private foundations, for example, may be interested in following the CEC's lead in investing in positive efforts to promote cooperation and conservation in North America's border regions as a way to promote a positive counterpoint to public concerns about the security risks plaguing our border areas in North America.

- **Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC's involvement? Where applicable, describe how the work will continue after CEC involvement ends.**

The activities and associated timeline are described above. The Big Bend Conservation Collaborative will continue beyond CEC involvement. The group is actively seeking funding from multiple sources to continue conservation activities and planning.

- **Where applicable, identify with reasonable specificity:**
 - **Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication**

This project builds on the work completed in the 2011–2012 *Big Bend-Río Bravo Collaboration for Transboundary Landscape Conservation* project. Recommendations made in 2011–2012 were used to create the work plan for 2013–2014.

- **The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project**

Outreach activities and workshops will take place with private landowners and community members in the border region. Park visitors, the public and other partners in the region will benefit from the environmental outcome of this project.

- **The beneficiaries of capacity building activities that the project may include**

Workshops will be carried out to share best practices in working with border communities, creating ecotourism and green jobs opportunities, and community relationship development in general. Additional activities will develop, and implement strategies and eco-technologies to meet capacity and education needs for assisting border communities in Mexico.

- **The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome**

Numerous provincial, federal and state land management agencies, NGOs, universities, community organizations, corporate entities, private landowners, and riverside and border communities are key stakeholders in the BBRB region. In the Big Bend-Río Bravo region, large corporations, such as Cementos Mexicanos (CEMEX) and Coca Cola are making significant financial contributions to conservation that relate to this project.

Project 15: Enhancing Trilateral Understanding of Chemicals in Products in North America		Operating Year(s): 2013–2014 1 July 2013–30 June 2015
Planned Budget for two years: \$300,000 Year 1: Total project costs: \$150,000 Year 2: Total project costs: \$150,000		
Strategic Priority/Objective: Healthy Communities and Ecosystems / Greening the Economy in North America		
<p>Project Summary</p> <p>Recognition of the significance of products as a potential source of human and environmental exposure to chemical substances of concern is increasing in Canada, the United States and Mexico, as well as at the global level. Regulators worldwide are aware of significant gaps to identify, assess and manage the risks of chemicals in products. These gaps must be addressed if the global community is to achieve the goal agreed upon at the 2002 Johannesburg World Summit on Sustainable Development (WSSD): ‘By the year 2020, chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health’.</p> <p>The three countries have identified a common interest in addressing the risks of chemicals in products from a functional approach using emerging flame retardants in products as the case study.</p> <p>Flame retardants have been detected worldwide in humans, the environment, wildlife, and biota. As we have recognized the risks to human health and the environment of using older, or ‘legacy’ flame retardants in products, manufacturers have switched to or developed new chemicals to fill this gap—the need to protect consumers from fire remains. These new chemicals that are being used as substitutes are referred to as ‘emerging flame retardants.’ They have the potential to be widely dispersed and some may be of concern.</p> <p>At an international level, this project will contribute to the Strategic Approach to International Chemicals Management (SAICM) program of work on chemicals in products. SAICM is an international policy framework that supports the achievement of the WSSD goal for the global sound management of chemicals. For example, SAICM identified the textiles sector as a key sector of interest with respect to chemicals in products.</p> <p>At the regional level, this project will enhance joint country efforts to identify and manage chemicals in products by yielding information required to support the risk assessment and risk management efforts (where warranted) in North American markets. Information will be gathered on products potentially containing emerging flame retardants. These results will contribute towards a longer term environmental outcome to reduce significant adverse impacts of chemicals of common interest; and, to reduce the North American populations’ exposure to certain chemicals of common interest.</p> <p>This project will gather information on these emerging flame retardants that are intentionally added to products because of their function to reduce the products’ flammability. There remains considerable data needs related to the sources of flame retardants, and particularly their presence in products, which creates challenges for their risk assessment and risk management, where required. The proposed project will</p>		

consider trade flows to enhance understanding of where certain chemicals of concern may be released in one jurisdiction by virtue of their presence in imported products manufactured within another jurisdiction. This approach will yield market and exposure information required to identify human health and environmental risks associated with a subset of chemicals in targeted products. Knowledge will be gained on possible approaches for managing the risks associated with these chemicals and products, where warranted.

Governance Structure (proposed)

SMOC Working Group is to convene a single subcommittee of up to a maximum of 15 members who are subject-matter experts in flame retardants, with representation from the three countries (Canada, Mexico, United States); and SMOC staff representative(s) from each country. Each member of the subcommittee is expected to consult appropriately within his/her community of practice. The SMOC Working Group may consult the Trade and Environment Working Group, as appropriate. A contractor will be engaged to undertake the work identified in the outline of tasks below.

Short-term Outcomes (by June 2014)

Task 1 - A list of products containing select emerging flame retardants found in the North American marketplace noting their place of origin.

Task 1 - Summary report of various manufacturer claims on levels of flame retardants left in textiles and upholstered products at the intended end of life for each product.

Task 1 - Scoping document for proposed targeted product sampling to be conducted, based on findings in Year 1

Task 1 - Quality Assurance Project Plan which includes a sampling plan and identifies existing product testing methodologies.

Long-term Outcomes (by June 2015)

Task 1 - Market surveillance of select emerging flame retardants in products will provide further information regarding which chemicals are found in which products and in what quantities.

Longer-term, environmental outcome (post project)

Significant adverse impacts of chemicals of common concern are reduced; and, the North American populations' exposure to certain chemicals of common concern is reduced.

Tasks necessary to reach the environmental outcome:

Gather information on emerging flame retardants of common interest used in products in the North American market to support risk assessment and risk management efforts (where warranted).

Task 1) Gather information on emerging flame retardants of common interest used in products in the North American market to support risk assessment and risk management efforts (where warranted)

Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
<p>1.1 Gathering and exchange of information on emerging flame retardants of common interest (see Annex 1) and their use in products.</p> <ul style="list-style-type: none"> - Gather information, from publicly available sources, on trade flows for each emerging flame retardant of common interest, from both the chemical and products perspective, to identify: <p>1) Where and how the chemical is used both internationally and domestically</p> <p>2) What are the end products, how do these products enter the North American market and in what quantities</p> <ul style="list-style-type: none"> - Gather information, from publicly available sources, on prevailing flame retardancy standards or requirements for different use categories (i.e., electronics, building materials, textiles, furniture, etc.) - Gather information, from publicly 	<p>1.1.1 A list of products containing emerging flame retardants of common interest found in the North American marketplace, noting their place of origin</p> <p>1.1.2 Scoping document for targeted product sampling, including a Quality Assurance Project Plan with existing product testing methodologies</p> <p>1.1.3 Quality Assurance Project Plan</p> <p>1.1.4 Summary document of various manufacturer claims on levels of flame retardants left in textiles and upholstered products at the intended end of life for each product</p> <p>1.1.5 An internal report on outcome of this subtask (no translation/editing costs)</p>	<p>Results can be used for risk assessment and risk management efforts (where warranted)</p> <p>Results can be used in waste management efforts of products at end-of-life</p> <p>Performance Measures:</p> <ul style="list-style-type: none"> - # of products for which reliable data is gathered - An internal report is produced 	<p>Year 1</p>	<p>Year 1: \$132,000 (\$100,000 scoping; \$32,000 preparation for product testing/product testing)</p> <p>Year 2: \$0</p>

<p>available sources, on end-of-life information on textiles and upholstered furniture, focused on products that could be recycled. Determine different technologies used for recycling these products and identify test methodologies used to determine levels of flame retardants left at product end-of-life. Prepare a summary report of claims from various manufactures on levels of flame retardants left in products at the intended end of life for each product.</p> <ul style="list-style-type: none"> - Scoping document for targeted product sampling, including a Quality Assurance Project Plan with existing product testing methodologies - Identify product testing methodologies required to undertake product testing analyses. - Report on outcome of this task. 				
<p>1.2 Targeted product sampling and analysis for selected emerging flame retardants of common interest in products of common interest</p> <ul style="list-style-type: none"> - This subtask will be informed by the outcomes of subtask 1.1 - Consolidate internal report from Subtask 1.1 with the information gathered from this Subtask 1.2 into a public report 	<p>1.2.1 Preliminary market surveillance report, including exposure-related information, of select emerging flame retardants in products.</p> <p>1.2.2 Public report</p>	<p>Results can be used for risk assessment and risk management efforts (where warranted)</p> <ul style="list-style-type: none"> - Identifies which sectors and products are of concern/interest - Exposure profile: which products these chemicals are found in and in what quantities 	Year 2	<p>Year 1: \$0</p> <p>Year 2: \$123,000</p>

		- More extensive, statistically robust product testing may be recommended as subsequent work for future consideration		
1.3 Overhead and Operations - One face-to-face meeting in Montreal in April-May of Year 1 - Teleconferences throughout the project - Document translation as required	N/A	N/A		Year 1: \$18,000 Year 2: \$27,000 (Total: \$45,000)

Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

- ***How does the project contribute to achieving Council's strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?***

This project contributes to the Commission for Environmental Cooperation Strategic Plan (2010–2015) Priority #1, "Healthy Communities and Ecosystems," and Strategic Priority # 3, "Greening the Economy in North America," as it would serve to identify where specific chemicals in products are found to inform risk assessment, risk management, and potential future research activities.

At an international level, this project will also support efforts of the Strategic Approach to International Chemicals Management (SAICM) to address the pressing issue of chemicals in products.

- ***Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)***

Recognition of the significance of products as a potential source of human and environmental exposure to chemical substances of concern is increasing in Canada, the United States and Mexico, as well as at the global level. Regulators worldwide are aware of significant gaps to identify, assess and manage the risks of chemicals in products. These gaps must be addressed if the global community is to achieve the goal agreed at the 2002 Johannesburg World Summit on Sustainable Development (WSSD): 'By the year 2020, chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health'.

At an international level, this project will contribute to the Strategic Approach to International Chemicals Management (SAICM) program of work on chemicals in products. SAICM is an international policy framework that supports the achievement of the WSSD goal for the global sound management of chemicals. As an example, SAICM identified the textiles sector as a key sector of interest with respect to chemicals in products.

At the regional level, this project will enhance joint country efforts to identify and manage chemicals in products by yielding information required to support the risk assessment and risk management efforts (where warranted) in North American markets. These results will contribute towards a longer-term environmental outcome to reduce significant adverse impacts of chemicals of common concern, and to reduce the North American populations' exposure to certain chemicals of common concern.

This consolidated approach may provide leverage on Chemicals in Products issues at the international level.

- ***What are the specific, clear and tangible results that will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.***

The approach will involve a data-gaps identification/information gathering stage, followed by a product sampling and analysis phase. Information will be gathered on products containing emerging flame retardants. The selected product sectors and quantities of products will be dependent on the testing costs and budget available.

Please also refer to the table above for performance measures by Task and Subtask.

- ***Explain why the CEC is the most effective vehicle for the Parties to undertake the project, considering:***
 - ***The value-added of doing it under the CEC cooperative program***
 - ***Any other public, private or social organizations that work on such activities***
 - ***Opportunities to cooperate and/or leverage resources with such organizations***

Considering the extent of market integration under NAFTA and the perspective of North America as a common market for myriad imported consumer goods, collaboration on the identification and management of risks posed by chemicals in products would be of significant mutual benefit. The CEC is the most effective vehicle for the Parties to undertake this work, given the CEC's trilateral organizational structure.

- ***Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC's involvement? Where applicable, describe how the work will continue after CEC involvement ends.***

Yes, there is a clear timeline. The project work by the CEC will be completed within two years. However, the work outside the CEC will continue after CEC involvement ends because the information gathered and generated, as well as the experience gained from this project, will feed into each country's program for assessing and managing chemicals. It will also assist all three countries to manage the risks of chemicals in products and will enhance understanding of each country's approach to addressing the risk of chemicals in products, thereby facilitating joint work, where appropriate.

- ***Where applicable, identify with reasonable specificity:***
 - ***Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication***

The SMOC Working Group could consult the CEC Trade and Environment Working Group, as appropriate, to draw upon its experience on market analysis within the chemicals sector. This project builds on the expertise developed under previous SMOC work in reducing the risks to human health and the environment from legacy flame retardants.

- ***The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project***

Regulators within the risk assessment and risk management communities within the three Parties comprise the probable target audience for this work. The Parties are receptive to and capable of using this information to assist them in addressing the issue of chemicals in products. At the end of year 2, a public document will be prepared to summarize the findings from the project.

- ***The beneficiaries of capacity building activities that the project may include***

- Not applicable

- ***The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome***

The following stakeholders may be engaged, as appropriate, in the implementation of this project and/or in disseminating the project results:

- Industry associations
- Universities and research centers
- Nongovernmental organizations (NGOs)

Annex I – Preliminary List of Emerging Flame Retardants of Interest

No.	CAS NO.	Chemical Name
1	13674-84-5 and 6145-73-9	2-Propanol, 1-chloro-, phosphate (TCPP)
2	13674-87-8	2-Propanol, 1,3-dichloro-, phosphate (3:1) (TDCPP)
3	26040-51-7	1,2-Benzenedicarboxylic acid, 3,4,5,6-tetrabromo-bis(2-ethylhexyl) ester (TBPH)
4	84852-53-9	Benzene, 1,1'-(1,2-ethanediyl)bis[2,3,4,5,6-pentabromo-; Decabromodiphenyl ethane (DBDPE)
5	183658-27-7	2,3,4,5-Tetrabromobenzoic acid 2-ethylhexylester (TBB)
6	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro- (HCCPD)
7	78-40-0	Phosphoric acid, triethyl ester (TEP)
8	78-42-2	Phosphoric acid, tris(2-ethylhexyl) ester (TEHP)
9	78-51-3	Ethanol, 2-butoxy-, phosphate (3:1) (TBEP)
10	108-78-1	1,3,5-Triazine-2,4,6-triamine (Melamine)
11	298-07-7	Phosphoric acid, bis(2-ethylhexyl) ester
12	1330-78-5	Phosphoric acid, tris(methylphenyl) ester (TCP)
13	3278-89-5	2,4,6-Tribromophenyl allyl ether (ATE)
14	13560-89-9	1,4:7,10-Dimethanodibenzo[a,e]cyclooctene, 1,2,3,4,7,8,9,10,13,13,14,14-dodecachloro-1,4,4a,5,6,6a,7,10,10a,11,12,12a-dodecahydro- (DP)
15	25155-23-1	Phenol, dimethyl-1,1',1''-phosphate [Phenol, dimethyl-, phosphate (3:1)]
16	26446-73-1	Phosphoric acid, bis(methylphenyl) phenyl ester
17	29761-21-5	Phosphoric acid, isodecyl diphenyl ester
18	32588-76-4	1,2-Bis(tetrabromophthalimido) ethane, [1H-Isoindole-1,3(2H)-dione, 2,2'-(1,2-ethanediyl)bis[4,5,6,7-tetrabromo] (EBTBP)
19	56803-37-3	Phosphoric acid, (1,1-dimethylethyl)phenyl diphenyl ester
20	68527-01-5	Alkenes, C12-30 α -, bromo chloro
21	68527-02-6	Alkenes, C12-24, chloro
22	68937-41-7	Phenol, isopropylated, phosphate (3:1) (PIP)

No.	CAS NO.	Chemical Name
23	77098-07-8	2-(2-Hydroxyethoxy)ethyl 2-hydroxypropyl 3,4,5,6-tetrabromobenzenedicarboxylate
24	20566-35-2	3,4,5,6-Tetrabromo-1,2-benzenedicarboxylic acid, mixed esters with diethylene glycol and propylene glycol
25	7415-86-3	'1,2- (2,3-dibromopropyl) benzenedicarboxylate
26	115-96-8	Tris(2-chloroethyl) phosphate (TCEP)
27	25637-99-4 and 3194-55-6	Hexabromocyclododecane (HBCD) and related congeners
28	3194-57-8	1,2,5,6-Tetrabromocyclooctane
29	58965-66-5	1,2,4,5-tetrabromo-3,6-bis(pentabromophenoxy)-benzene or Tetradecabromo-1,4-diphenoxybenzene
30	61262-53-1	1,1'-[1,2-Ethanediy]bis(oxy)]bis[2,3,4,5,6-pentabromo-benzene] or 1,2-Bis(2,3,4,5,6-pentabromophenoxy) ethane
31	37853-59-1	1,1'-[1,2-Ethanediy]bis(oxy)]bis[2,4,6-tribromobenzene] or 1,2-bis (2,4,6-Tribromophenoxy) ethane (TBE)
32	25713-60-4	2,4,6-Tris-(2,4,6-tribromophenoxy)-1,3,5-triazine
33	35109-60-5	Benzene, 1,3,5-tribromo-2-(2,3-dibromopropoxy)- (DPTE)

Project 16: Close-out of Past Environmental Monitoring/Assessment, Chemicals Inventory and Mercury Activities in Mexico		Operating Year(s): 2013–2014
Planned Budget for two years: \$110,000 Year 1: \$90,000 Year 2: \$20,000		
Strategic Priority/Objective: Healthy Communities and Ecosystems		
<p>Project Summary</p> <p>The Sound Management of Chemicals Program was established between the Governments of Canada, Mexico and the United States to improve the sound management of chemicals in North America. This initiative gives priority to the management of substances of mutual interest that are persistent, bioaccumulative and toxic, but also allows for cooperation on a broader scale for the sound management of chemicals in the three countries. Part of the work of SMOC has focused on supporting Mexico to create capacity and have a common level of information on specific issues including mercury, inventories of chemicals, and environmental monitoring to be able to implement sound management strategies for chemicals of mutual interest in North America.</p> <p>There are activities under SMOC that have delivered useful results for Mexico through the cooperation of the three countries. However, to fully accomplish the intended goals, certain activities should be undertaken to complement previous work to identify specific policy options for Mexico.</p> <p>Mexico, with CEC support under the Environmental Monitoring and Assessment North American Regional Action Plan (NARAP), has been working to establish an environmental monitoring program, Proname, involving many activities to strengthen Mexico’s capacity and to produce reliable and comparable results consistent with those of the US and Canada. In 2012, a qualitative analysis of the EM&A NARAP was performed. This assessment did not consider a quantitative analysis of the results achieved. Such an analysis will give information to decision makers in Mexico regarding how it is performing in monitoring and how to improve its efforts to reduce risk.</p> <p>Mexico, with CEC support under the Chemicals Inventory Team has developed its first chemicals inventory with information on chemicals imported or produced within the country (5852 chemicals). For these chemicals, chemical identity, toxicological properties and quantity of imports and production were obtained. This inventory does not have single legal authority; however, in 2008, the CEC had financed a study of legal policy options to institutionalize a Mexican chemicals inventory. Semarnat has considered a legal reform to improve the risk management of chemicals and the key activity is to develop a Mexican Chemical Register taking into account the CEC products. A Chemicals Register and other legal reforms in the risk management of chemicals in Mexico will strengthen the chemical risk reduction efforts in North America.</p> <p>Significant CEC support for work in Mexico on various mercury issues has been completed through the Mercury Task Force since 1998. Studies, publications, workshops, staff exchanges and training courses have been developed in areas such as supply and trade reduction, mercury in products and processes, which includes use in Mexican hospitals, mechanisms for tracking imports and exports of mercury for use and disposal, waste management, mercury emissions to air and releases to water and land, environmental monitoring activities and human biomonitoring. In the same way as with other issues, some work is needed to identify policy options for implementation of future mercury-related activities in Mexico.</p> <p>Closing out activities in previous SMOC work is relevant for North America since it will yield products and achievements that can be used</p>		

by the Council for communication to the public as well as for highlighting relevant efforts of the three countries in building capacity and developing tools to manage risks of chemicals of mutual interest.

Governance structure (proposed)

The SMOC Working Group will govern this project in coordination with the other proposed SMOC project, with representation from the three countries (Canada, Mexico, United States). SMOC staff representative(s) from each country will be involved, and experts, as considered appropriate.

Short-term Outcomes (at halfway point)

Task 1 - Close-out report of EM&A NARAP, including a quantitative analysis of monitoring activities in Mexico.

Task 2 – Policy and economic analysis of options for Mexico's legal framework for chemicals management (based on previous CEC task exploring policy options).

Task 3 – Analysis report of previous mercury activities in Mexico.

Long-term Outcomes (by the end of the project)

Task 1 – Final document for decision-makers in Mexico outlining policy options to continue EM&A work at the domestic level. The achievements of the EM&A NARAP are summarized and available to the public to inform on the work conducted by SMOC working group.

Task 2 – Final document for decision-makers in Mexico on policy options for the legal chemicals management framework. The public has been consulted and is aware of the potential changes to Mexico's legislation and its impacts.

Task 3 – Final document for decision-makers in Mexico on possible regulations, policies and/or other activities for mercury management.

Longer-term, environmental outcome (post project)

The project will describe the achievements of past SMOC work (mercury, inventories of chemicals and environmental monitoring) in order to improve communication to the public and highlight relevant efforts of the three countries to support the sound management of chemicals.

It is expected that the project will contribute to building a domestic policy of chemicals and increasing the national capacity in the management of the risks associated with chemicals production, use and commerce. As a consequence, the risk reduction efforts of North America will be strengthened.

Tasks necessary to reach the environmental outcome:

- 1) Communicate the achievements in North America from the work of EM&A NARAP (1999–2012).
- 2) Support additional analysis of and outreach on potential reforms to the legal framework of chemicals in Mexico.
- 3) Develop policy options based on mercury activities carried out in Mexico.

Task 1) Communicate the achievements in North America from the work of EM&A NARAP (1999–2012)				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
1.1 Close out of EM&A NARAP activities. Closure report using documents generated during the previous work of the EM&A NARAP, including a quantitative analysis of the data gathered from 1999-2012. The quantitative analysis must describe the relevant results and information gaps, as well as an assessment of the quality of data based on the use of different methodologies.	1.1.1 Close-out report of EM&A NARAP monitoring activities.	This project will be used to formally bring to closure the activities of EM&A under the NARAP and will include a quantitative analysis of the data generated in Proname as well as missing activities.	Year 1	Year 1: \$25,000
1.2 Communication tools of achievements of EM&A NARAP in Mexico	1.2.1 Translation of closure report of EM&A NARAP in Mexico. 1.2.2 Face to face Meeting	The communication tools can be used to disseminate knowledge within the different stakeholders and the society.	Year 2	Year 2: \$15,000 face-to-face Meeting of the SMOC WG \$5,000 translation

Task 2) Support additional analysis of and outreach on potential reforms to the legal framework of chemicals in Mexico				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
<p>2.1 Analysis of impacts of potential legal reforms to Mexico's chemicals management framework.</p> <p>Analyze policy options and economic impacts of the potential legal reforms to Mexico's chemical management framework (continuing previous CEC work exploring policy options), including a consideration of impacts to manufactures, importers, distributors and final users, as well as to government ministries with jurisdiction over issues related to chemicals risk management.</p>	<p>2.1.1 Analysis of policy and economic impacts of the chemicals legal reform options</p>	<p>The results of this task will contribute to establish a strategy for the control of chemicals risks in Mexico and strengthen chemicals risk reduction efforts in North America.</p>	<p>Year 1</p>	<p>Year 1: \$20,000</p>
<p>2.2 Public consultation and final document on policy options for the legal chemicals management framework reform</p> <p>Conduct public consultation workshops in Mexico with sectors in order to improve</p>	<p>2.2.1 Final document for decision-makers in Mexico on policy options for the legal chemicals management framework reform</p>	<p>The results of this task will contribute to establish a strategy for the control of chemicals risks in Mexico and strengthen chemicals risk reduction efforts in North America.</p>	<p>Year 1</p>	<p>Year 1: \$15,000</p>

and complement the options being considered.				
Develop a final document for decision-makers in Mexico on policy options for the legal chemicals management framework.				
Task 3) Development of regulation and/or policy options for decision-makers in Mexico on mercury management activities				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
3.1 Review existing documents on mercury and identification of regulation and/or policy options for decision-makers in Mexico Review documents of projects, studies, workshops, staff exchange and capacity building reports made in Mexico since 1998 supported by the CEC. Develop options for regulations and/or policies to implement in Mexico as a result of the analysis of previous activities.	3.1.1 Document for decision-makers in Mexico on possible options for regulations and/or policies to implement for mercury-management in México, based on past SMOC and other work.	The development of potential options for regulations or policies will allow for the identification of new and future mercury-related actions in Mexico.	Year 1	Year 1: \$20,000

3.2 Overhead and Operations Translation of the “Document for decision-makers in Mexico on possible options for regulations and/or policies for the management of mercury in Mexico” and final edits. Final edits and translation of mercury waste report from OP 2011–2012	N/A	N/A		Year 1: \$10,000
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Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

- ***How does the project contribute to achieving Council’s strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?***

This project contributes to the Commission for Environmental Cooperation’s Strategic Plan (2010–2015) Priority #1, “Healthy Communities and Ecosystems.” The project addresses one of the three core areas of work under this strategic objective: implementing risk reduction strategies to reduce the exposure of North Americans and their environments to chemicals of mutual interest. The project includes tasks such as developing tools and techniques to aid in risk management, and providing information to inform the development of risk reduction strategies.

- ***Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)***

Closing-out past Environmental Monitoring/Assessment, the Chemicals Inventory, and Mercury activities in Mexico with specific policy options is important to conclude past SMOC work. Regarding the Mexican Chemicals Inventory, the conclusion of this work is the first step to improve the Mexican regulatory framework for managing chemicals in Mexico and reducing the associated risk. In addition, establishing compatible chemical inventories and enhancing transparency of chemical information in all three countries is essential for providing a comprehensive understanding of chemical sources in North America. Compatible inventories will allow for coordinated and effective risk assessment and management of chemicals based on a consistent approach to identifying and tracking chemicals.

The EM&A NARAP close-out report will describe achievements and contain results for use by decision-makers in future monitoring plans and risk reduction activities in communities under study.

Specific policy options and future activities to reduce mercury releases in Mexico will yield further reduction of mercury levels in North America. .

- ***What are the specific, clear and tangible results that will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.***

The tangible results from this project will include the following:

- 1) Final document for decision-makers in Mexico outlining policy options to continue EM&A work at the domestic level.
- 2) Final document for decision-makers in Mexico on policy options for the legal chemicals management framework.
- 3) Final document for decision-makers in Mexico on possible regulations, policies and/or other activities for mercury management.

Performance measures:

- Number of monitoring campaigns assessment / Total of monitoring campaigns in the period 1999–2012.
- A communication report of achievement of EM&A NARAP sufficiently clear to transfer the knowledge to decision makers.
- Percentage of advance in the regulatory framework adjusted to implement a national registry of chemicals.
- Number of potential regulations and/or policies to implement in Mexico.

- ***Explain why the CEC is the most effective vehicle for the Parties to undertake the project, considering:***
 - ***The value-added of doing it under the CEC cooperative program***
 - ***The products will be useful for communication to the public and transparency as well as for finishing relevant efforts of the three countries for capacity building and to reduce risks of chemicals of mutual interest 2***

North American cooperation on the management of chemicals continues to be a key initiative of the Parties. The CEC provides a unique forum for the Parties to identify and work together on mutually beneficial activities related to their role as regulators in reducing the risk posed by chemicals. In addition, work on chemicals through the CEC has been a model of regional cooperation promoted in international *fora*, such as the Strategic Approach to International Chemicals Management (SAICM). It provides a mechanism for disseminating and collecting information of importance to the Parties on domestic and international initiatives related to the management of chemicals, and is a forum for the Parties to undertake initiatives in support of broader international objectives and commitments. For example, the CEC is a venue for North American regional implementation of the Strategic Approach to International Chemicals Management. For the Parties, these roles are unique to the CEC in North America and cannot be provided by any other public, private or social organization.

- ***Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC's involvement? Where applicable, describe how the work will continue after CEC involvement ends.***

The project terms of reference will propose specific dates for the proposed activities with tangible results. The results of this project will support future domestic work by Mexico to enhance the management of chemicals.

- ***Where applicable, identify with reasonable specificity:***
 - ***Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication***

This project supports the following CEC initiatives:

- Enhancing Trilateral Understanding of Chemicals in Products in North America
- Enhancing Environmental Law Enforcement in North America
- Mapping North American Environmental Issues
- Tracking Pollutant Releases and Transfers in North America

The project also supports the general direction the CEC is taking towards ensuring stakeholder engagement in the many facets of its works.

- ***The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project***

The main target audience of the information gathered and generated through this project will be decision-makers and regulators mainly in México.

- ***The beneficiaries of capacity building activities that the project may include***

Not applicable

- ***The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome***

- Federal agencies and their laboratory specialists with responsibility for health, environment, natural resources, agriculture, and customs/exercise.
- Private sector participants including the various chemical manufacturing, processing, transporting and importing associations and member companies.
- Environmental, Health and other nongovernmental organizations interested in chemical safety in the region.
- Academics who conduct environmental and human health monitoring from being able to share information on chemicals monitored in North America.

Potential nongovernment stakeholders:

- Industry associations
- Universities and research centers
- Nongovernmental organisations (NGOs)

***Strategic Plan of the
Commission for Environmental Cooperation
2010-2015***

Our mission

1. To facilitate cooperation and public participation to foster conservation, protection and enhancement of the North American environment for the benefit of present and future generations, in the context of increasing economic, trade and social links among Canada, Mexico and the United States.

10 November 2010

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1. The North American Agreement on Environmental Cooperation

In North America, more than 425 million people share a rich environmental heritage ranging from tropical rain forests to arctic tundra and including deserts and wetlands, oceans and rivers, prairies and mountains. Together, these natural resources form a complex network of ecosystems that support a unique biodiversity as well as sustain our well-being and livelihoods. Although the three countries in North America have had a rich history of bilateral cooperation on the environment, the North American Agreement on Environmental Cooperation (NAAEC) facilitated collaboration at the trilateral level.

The NAAEC came into force at the same time as the North American Free Trade Agreement (NAFTA). Together, the environmental provisions of both agreements mark the determination of our three countries that economic growth and liberalization of trade would not displace ongoing cooperation and continuous improvement in the environmental performance of each country.

More specifically, the NAAEC emphasizes a collaborative approach to environmental protection that integrates ecological, economic and social factors affecting the North American environment, promotes environmental cooperation in the region and supports the effective enforcement of environmental law. The NAAEC recognizes the interrelationship between a sustainable environment and a sustainable economy and fosters both (see Appendix 1 for the NAAEC objectives).

In addition to reinforcing the national obligations of each country to protect its own environment, the Parties established the Commission for Environmental Cooperation (CEC) through the NAAEC to facilitate effective cooperation on the conservation, protection, and enhancement of the North American environment. Through the unique partnership created by the NAAEC, the governments of Canada, Mexico, and the United States and North American civil society work together to pursue what none of the three countries could achieve on its own.

2. Who we are

The CEC is comprised of:

- the *Council*, the governing body of the Commission, is composed of cabinet-level environment officials or their designees. The Council's mandate includes overseeing the implementation of the NAAEC, establishing the CEC's overall direction, approving its budget, reviewing its progress and its projects against their objectives; and overseeing the Secretariat;
- the Secretariat provides administrative, technical and operational support to the Council, its committees and working groups, and other support as the Council may direct. It also has special responsibilities in the Submissions on Enforcement Matters (SEM) Process and the preparation of reports under Article 13; and
- the *Joint Public Advisory Committee* (JPAC), composed of fifteen citizens (five from each country), advises the Council on any matter within the NAAEC's scope and can serve as a source of information for the Secretariat. The JPAC ensures active public participation and transparency in all NAAEC activities.

Committees and working groups established by Council contribute significantly to the cooperative program under the CEC. The Council will continue to receive advice from government officials, any Council-established groups or committees and others to advance the priorities described in this Strategic Plan.

The CEC Council operates on the basis of consensus, with the exception of specific instances where majority votes are called for, such as in connection with citizen submissions or Article 13 reports.

The CEC budget is US\$9 million a year, contributed equally by the three Parties. The Parties make additional contributions to the CEC through an extensive commitment of staff, time and expertise, under the various activities identified in the CEC Operational Plan. The Parties are committed to ensuring that all CEC bodies work on the principles of, transparency and accountability.

3. Fifteen years of cooperation

The CEC celebrated its fifteenth anniversary in 2009. The Parties took note of the progress we have made in the maturity and extent of our environmental cooperation, in promoting sustainable development in the region, in strengthening environmental enforcement, in addressing the linkages between trade and environment, and in promoting public participation in regional environmental matters. We look forward to continued progress in these areas.

At the Council Session in Puebla, Mexico in 2004, the Parties established a path forward through the Puebla Declaration for 2005-2010. In 2009, at the Denver Council Session, the Parties identified a new vision based on the experience gained from the implementation of the Puebla Declaration. Furthermore, the Council recognized that the environmental challenges faced today are different from those in 2004, and committed to renew, revitalize and refocus the CEC to ensure alignment with the environmental priorities of the countries and strengthening the overall governance of the CEC (see Appendix 2 for the Denver Statement).

4. A vision for the future: new priorities for 2010-2015

In looking to increase the effectiveness and relevance of the cooperative program of the organization, the new policy direction set by Council will ensure the CEC is focused on a select few trilateral environmental priorities of North America in 2010-2015, namely:

1. Healthy Communities and Ecosystems;
2. Climate Change – Low-Carbon Economy; and
3. Greening the Economy in North America.

The Council provided direction for more focused and concerted operational plans in order to ensure a more effective use of the resources of the Commission in order to advance the critical matters on which the CEC can make a real difference. Future work programs will limit projects and programs to the three new priorities and will concentrate on those activities that will provide greater environmental results.

Moreover, to improve on the delivery of the new priorities, Council has endorsed a plan to strengthen the governance of the CEC with a view to enhance accountability, improve transparency of the Secretariat's activities, ensure alignment with Council priorities and direction, and set clear performance goals. Some of these changes focus on streamlining the CEC's cooperative work program, modernizing its citizen submission process, reprioritizing and increasing the transparency of its expenditures, and strengthening the supportive functions of the Secretariat.

Identifying the CEC's priorities is only a first step in implementing the full scope of the Council's vision for the CEC over the next five years. The Parties have defined each priority and established strategic objectives for the next five years. These definitions and strategic objectives will guide the development of operational plans that will achieve more clear and tangible results that support the environmental priorities set by Council.

The cooperative projects that constitute the operational plans will support the collective efforts of the Parties to deliver on the Council's environmental priorities. Criteria have been established to guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under biennial operational plans (see Section 6 for more information on the criteria).

The environmental and human health challenges that are the focus of our cooperative work program are both increasingly complex and rapidly evolving. As a result, more attentive and responsive guidance from the Parties, including a long-term, sustained commitment to ensure our joint efforts and resources are being appropriately invested, is required if we are to maximize our results over five years. This also means that the exact nature of the CEC's cooperative work program will evolve and be refined as existing objectives are met and new challenges emerge.

4.1 Healthy Communities and Ecosystems

Canada, Mexico and the U.S. recognize that our wellbeing in North America—both environmental and economic—is grounded in healthy communities and ecosystems.

Therefore, the Parties commit to build on and renew collaborative efforts within the CEC to protect, sustain and restore the health of people, communities and ecosystems using integrated and comprehensive approaches and partnerships.

Four strategic objectives have been identified:

1. improved environmental health of vulnerable communities in North America;
2. increased resilience of shared ecosystems at risk;
3. enhanced regional approach to sound management of chemicals; and
4. strengthening Regional Environmental and Wildlife Law Enforcement.

Strategic Objective #1: Improved environmental health of vulnerable communities in North America

Protecting and improving the environmental health of our citizens, particularly children and those in vulnerable communities, is a priority for all three Parties. To this end, we will identify opportunities to work through the CEC to advance existing commitments to support children's environmental health and to build capacity among our indigenous peoples for the protection of the environment and the health of their communities.

Recognizing that climate change could disproportionately affect some communities, the Parties also intend to strengthen existing initiatives—or create new mechanisms where needed and as appropriate—to enable community-based adaptations that could enhance resilience to impacts from climate change that affect both physical and social environments.

In support of Strategic Objective #1, the Parties could undertake the following trilateral initiatives:

- **build capacity of health professionals to address the inter-relation between health and environment**, particularly for children and other communities at risk. Possible approaches could include leveraging existing North American networks of pediatric environmental health units, supporting training and virtual networks, and evaluating best practices; and
- **build the capacity and support community projects in our indigenous and local communities** to design and implement innovative environmental protection and conservation strategies, particularly regarding natural resources (e.g., forests and wildlife), and potable water.

Strategic Objective #2: Increased resilience of shared ecosystems at risk

The Parties intend to develop trilateral capacity to implement an ecosystem approach to conservation and sustainable use and monitor relevant outcomes in our shared ecosystems. The Parties also agree that attention should be given to both terrestrial and marine ecosystems.

The three Parties recognize their successful work through the CEC in supporting biodiversity conservation and sustainable

More specifically, the Parties could undertake initiatives in the following priority ecosystems:

- Atlantic ocean zone: strengthen **community-based public education** to increase **public awareness of ocean conservation** challenges
- Grasslands: develop a **continental approach** that supports biodiversity and local communities in the grassland region by sharing best management practices to sustain biodiversity and improve economic performance of local communities.

use and could build on previous investments. Therefore, building on national and global activities that are already underway to develop this capacity, the Parties could focus collaborative efforts in the following areas:

- Build collaboration among multiple agencies and partners for improved management of transboundary landscapes, seascapes and watersheds. Efforts would include assessing resources, quantifying impacts, identifying thresholds, and supporting informed decision-making on a range of issues of common concern, such as sustainable management of watersheds to maximize benefits to human communities and wildlife, protecting species of common conservation concern, promote recreation, wildlife habitat, and ecosystem health, and limit the introduction of invasive species.
- Continue to build on the **list of key species and spaces of common conservation concern** and implement **conservation and management initiatives** in our shared ecosystems;
- Increase **community-level awareness, engagement and capacity** in biodiversity conservation and sustainable use, through the establishment of networks with relevant actors from government, the private sector, and civil society.
- Build upon existing **monitoring systems** to assess the results of conservation and protection initiatives in our shared ecosystems.

By engaging communities in this collaborative work, over the next five years, the Parties expect to expand the number of North American communities acting as partners in conservation efforts.

Achieving and maintaining healthy communities and ecosystems requires sustained and coordinated commitment as well as planning and managing programs that will ensure their protection. We will continue strengthening our collaboration on tracking pollutant releases and transfers in North America, including the analysis of data through the CEC's publication *Taking Stock*. We will continue working together to reduce risks of exposure to toxic chemicals to the public and the environment. Similarly, strengthening the development and enforcement of environmental laws and regulations also serves to promote healthy communities and ecosystems. Thus, the strategic objectives identified below related to addressing chemical risks and collaboration on enforcement matters are also considered as supporting the previous strategic objectives.

Strategic Objective #3: Enhanced Regional Approach to Sound Management of Chemicals

Addressing chemicals risk is an important element of healthy communities and ecosystems. Recognizing and building on progress made to date for a North American approach to chemicals management, the Parties could refocus and streamline efforts to deliver stronger North American results in three interrelated core areas of work:

- Establishing **compatible approaches for identifying and tracking chemicals** in commerce in North America, as a priority to establish compatible chemicals inventories in support of more coordinated and effective risk management of substances of mutual concern;

- Implementing **risk reduction strategies** to reduce the exposure of North Americans and their environments to chemicals of mutual concern; and
- Using a **regional monitoring approach** for health and environment to support risk reduction strategies, including identification of priorities, assurance of comparable data and monitoring for results.

Strategic Objective #4: Strengthening Regional Environmental and Wildlife Law Enforcement

Enforcement is another critical component of ensuring healthy communities and ecosystems. Enforcement agencies of the three Parties intend to collaborate in a manner that should result in fewer projects and greater environmental benefits in the areas of targeted vulnerable species, wildlife parts and derivatives, non-compliant motorcycle engine imports, and the import and export of electronic waste, hazardous waste and ozone-depleting substances. These collaborative enforcement efforts could integrate (1) training relevant officials, (2) enhancing processes for information and intelligence sharing, and (3) developing technology to improve our ability to detect, intercept, and deter illegal trade in North America. The projects developed from these collaborative efforts should enhance enforcement across North America while furthering our respective domestic enforcement priorities.

4.2 Climate Change – Low-Carbon Economy

Canada, Mexico and the United States recognize that incremental trilateral collaboration, consistent with our respective circumstances and capacities, brings added value to our respective efforts to address climate change and transition to a low-carbon economy. Therefore, the Parties could undertake a set of key initiatives to work towards aligning our domestic standards, regulations, and policies over the next five years (2010-2015) to support this transition in a way that is consistent with our respective national plans and priorities. Specifically, two strategic objectives have been identified:

1. Improved comparability¹ of emissions data, methodologies and inventories among the three North American partners; and
2. Strengthened engagement of experts and information-sharing.

Strategic Objective #1: Improved comparability of emissions data, methodologies and inventories among the three North American partners

With a view towards providing policy-neutral options for improving comparability on the key foundational elements required to transition towards a low-carbon economy, the Parties agree to initially focus on the following initiatives, bearing in mind individual country priorities and international negotiations:

- Continued cooperation to **improve comparability of GHG emissions data** to enable the Parties to share results and strengthen capacities in the

¹ For purposes of Strategic Outcome #1, the use of the term “comparability” in the North America context refers to data gathering and analysis but not policy decision-making.

- collection and management of data and methodologies for the Parties;
- An **analytical assessment** of data collected across the three parties, using the 2009 CEC *Comprehensive Assessment of North American Air Emissions Inventories and Ambient Air Monitoring Networks* assessment as a basis, and the identification of options for addressing any gaps and inconsistencies; and
- Exploration of potential common methodologies for **gathering and analyzing black carbon data**.

Undertaking such initiatives could lead to strategic results for the Parties, including:

- the key building blocks being in place to allow a more integrated approach for the three countries to address climate change and enable a low-carbon economy, including:
 - sufficient capacity, infrastructure, and systems for supporting methodologies; and
 - improved capacity to make comparisons among the three countries.

Strategic Objective #2: Engagement of experts and strengthened information sharing in climate change and low-carbon economy

The Parties could facilitate engagement of experts and information sharing to address climate change and low-carbon economy issues, taking steps to identify partnerships that could contribute to additional progress. Further, the Parties could coordinate with other experts and leverage other networks outside the government.

To facilitate a broad and readily accessible mechanism for the sharing and dissemination of information among North American experts, the Parties could establish an **on-line** information sharing **platform** focused on science, technologies, policies, and best practices. The system would complement existing North American and international mechanisms for sharing climate change-related information, drawing from those already provided by the three Parties to the UNFCCC, as well as experiences and lessons learned at other levels of government, as well as by academia and civil society.

Initiatives under this strategic objective could lead to strategic results for the Parties, such as:

- Mechanisms to inform decision-

In support of Strategic Objective #2, initiatives to **engage experts** could include:

- Learning from past experiences, specifically:
 - national SO₂ and NO_x cap and trade programs;
 - markets and initiatives of other levels of government; and
 - emissions models.
- Working collaboratively to share information on:
 - climate change policy options and national action plans as well as other levels of government;
 - climate change regulatory developments;
 - inventory and forecast methodologies;
 - energy efficiency programs;
 - renewable energy programs;
 - life cycle analysis methodologies for fuels;
 - project financing options; and
 - benchmarking against related international best practices.

The **on-line information sharing platform** could include specific information on key climate change-related initiatives to support the Parties' efforts to advance comparable approaches in North America. For example:

- National programs to minimize environmental impacts of freight transport (**SmartWay Transport, Fleet Smart Programs, Transporte Limpio**); and
- Climate change mitigation and adaptation **action plans** of national and other levels of government.

making by gaining expert input on climate change and the transition to a low-carbon economy; and

- An improved ability to accelerate the delivery of trilateral projects and to inform decisions on future projects.

Other groups would also benefit from these initiatives. For example, for other levels of government and civil society, these initiatives would enhance the ability of the public to access relevant information and enable citizens, communities and organizations to take their own actions to transition to a low-carbon economy.

In support of both Strategic objectives, the Parties could collectively undertake value-added focused projects that deliver GHG reductions and ancillary benefits to North America, from the hemispheric to the local level. In line with project selection criteria, the projects would be selected so as to complement, and not duplicate other bilateral and trilateral initiatives.

In the **short-term**, for example, these projects could include:

- anti-idling technologies;
- freight transport, including SmartWay, and Fleet Smart and Transporte Limpio programs;
- clean/low emissions vehicles;
- ultra-low sulfur fuels, both diesel and gasoline, allowing clean vehicles to operate without degradation;
- energy efficiency;
- methane capture;
- community-level modeling of low-carbon paths; and assessment of impacts on urban transportation, land use, and other urban-planning elements; and
- initiatives related to black carbon

4.3 Greening the Economy in North America

Canada, Mexico and the United States intend to focus our cooperative work through the CEC on taking positive steps towards building a North American economy that minimizes the potential negative environmental impacts of economic growth, while enhancing the competitiveness of key industrial sectors in North America.

Strategic Objective #1: Improved private sector environmental performance in North America.

The Parties intend to initially focus on improving the environmental performance capacity of small and medium sized enterprises by conducting activities that engage key industrial sectors and/or supply chains in activities that improve their environmental performance. The Parties recognize that successfully achieving this objective requires the active involvement of private industry in promoting the adoption of cleaner production practices and technologies, and therefore could carefully consider how to replicate successful private-sector environmental performance improvement

The Parties could consider improving private sector environmental *performance* through:

- **working with priority sectors for the North American economy** to share best practices and technologies, promote international exchanges among private companies and cleaner production centers, and help strengthen local capacity in these areas; and/or
- to **promote energy, water and materials usage efficiency** among companies that have agreed to take part in voluntary or regional clean production agreements.

initiatives previously conducted in North America and the region.

Cleaner production activities could supplement traditional command-and-control regulation by emphasizing community participation, voluntary partnerships, technological innovation, and market-based approaches, as appropriate. The Parties anticipate simultaneously enhancing industrial competitiveness and decreasing environmental impact by increasing the use of less polluting and more efficient technologies, reducing resource consumption and waste, and preventing the generation of contaminants. The Parties could focus on opportunities that receive high-level, private-sector buy-in, serve as models for other enterprises, mobilize additional resources, and establish long-lasting partnerships between North American organizations to share best practices and enable supply-chain linkages.

Engaging experts and strengthening information and data-sharing to assess and promote private sector environmental performance in North America as a tool to support the Strategic Objective.

The Parties recognize that balanced, policy-neutral information is required for environmental sustainability. The Parties intend to focus efforts on gathering and sharing information on how to develop environmental performance metrics in an effort to better understand our shared North American environment. The Parties could also consider information exchange on expanding the use of market forces as drivers to achieve environmental improvements and promotion of environmental best practices in key industries where environmental performance and North American competitiveness are mutually beneficial. The Parties could also continue to document, analyze, and attempt to understand the environmental effects of trade liberalization in North America.

The Parties could undertake work in the following key sectors:

- **improving environmental performance of buildings in North America**, including through the sharing of best practices on sustainable building design and benchmarking of efficiency standards to align national approaches;
- **strengthening enforcement and addressing gaps in our common knowledge on the movement of used electronics and E-waste**, including the development of comparable data sets to support the mapping of legal and illegal movements of these products; and
- **building on our successes in the automotive manufacturing sector**, through continued efforts to green critical components of supply chains across the continent and support the ongoing recovery of this important sector.

5. The North American Partnership for Environmental Community Action (NAPECA)

In 2009, the Council set forth an ambitious agenda to change the policy direction for the CEC. Council recognized that addressing environmental problems across North America can only be accomplished by partnering and engaging extensively with stakeholders and the public in all three countries and by promoting a sense of shared responsibility and stewardship for the environment. The Parties intend to encourage innovation and flexibility and promote model environmental initiatives that will help build long-term partnerships to improve environmental conditions at the community, indigenous, local and regional levels. With this in mind, Council has directed the CEC to establish a new grant program, the North American Partnership for Environmental Community Action (NAPECA) to build partnerships at the community level which support healthy communities and ecosystems, encourage climate change activities through the transition to a low carbon economy, and advance innovative projects that could assist in the goal of greening the economies of the three Parties. NAPECA grant selection criteria have been established to ensure these projects deliver results (see Appendix 3).

6. Evaluating Progress

Council has committed to renew, revitalize and refocus the CEC to better serve the environment and citizens of our countries. A fundamental part of this commitment is the establishment of clear performance goals to assess progress in the implementation of this Strategic Plan. Performance goals will be based on the strategic objectives adopted in this Plan and on an appropriately related system of measures or indicators to be in place for Operational Plan 2011.

The Parties recognize that indicators serve the purpose of recording and sharing evidence of progress made through the cooperative activities, of the changes or improvements in institutional capacity, and on the success of the environmental protection that result from these activities, under the CEC. Indicators also serve to:

- Monitor and manage program operations, workload and resources;
- Link investment to substantive results and assess program performance; and
- Enhance accountability and report successes.

For the activities related to the priorities described therein a performance measurement framework would be developed that would utilize output and outcome measures. Outputs are activities, products and services produced by the organization or projects. Outcomes are the results of outputs and are generally divided into two categories: intermediate and final outcome. Intermediate outcomes measure progress towards a final outcome. Final outcome measures the final result that the program is designed to achieve.

A framework will be developed into a system that will provide a key management tool for examining and proving the effectiveness of CEC programs. Such a framework would also contribute to strengthening the relevance and transparency of the organization pursuant to the Council's mandate. A framework would also incorporate measurable targets for each of this Plan's strategic objectives. Furthermore, the Parties have developed criteria for the selection of projects (see Appendix 4).

7. Citizen submission process

The NAAEC Articles 14 and 15 provide procedures allowing any person or nongovernmental organization residing or established in North America to make submissions to the CEC Secretariat asserting “that a Party [to the NAAEC] is failing to effectively enforce its environmental law” (the *citizen submission process*). Should a submission meet admissibility criteria the CEC Secretariat then decides whether to request a response to the assertions from the concerned Party. In light of both a submission and Party response, the Secretariat may recommend to Council the preparation of a factual record. Council can instruct the Secretariat to proceed with its preparation by a two-thirds vote.

Through a unique non-adversarial fact finding process, the citizen submission process can contribute in important ways to furthering NAAEC objectives. The process seeks to ensure transparency, promote a better understanding and foster public discourse that contribute to enhancing compliance with and enforcement of environmental laws, regulations and policies.

The CEC will continue to process citizen submissions in an objective, rigorous and transparent manner, with a view to ensuring timeliness and efficiency. Council has directed the CEC Secretariat to work on modernizing the citizen submission process to ensure its continued success.

8. Public participation

Public participation plays a key role in the activities of the CEC and the JPAC bears the responsibility of ensuring the engagement of various and diverse stakeholders in North America and to ensure they have access to factual, unbiased, and meaningful information on environmental issues of concern.

The Joint Public Advisory Committee will continue to lead the work of the CEC in ensuring active public participation, by providing transparent, open, and substantive forums for public dialogue among citizens concerned with trade and environment issues in North America, and in communicating the results of such dialogue and any subsequent JPAC recommendations to the CEC Council.

Appendix 1. NAAEC Objectives

Article 1: Objectives

The objectives of this Agreement are to:

- (a) foster the protection and improvement of the environment in the territories of the Parties for the well-being of present and future generations;
- (b) promote sustainable development based on cooperation and mutually supportive environmental and economic policies;
- (c) increase cooperation between the Parties to better conserve, protect, and enhance the environment, including wild flora and fauna;
- (d) support the environmental goals and objectives of the NAFTA;
- (e) avoid creating trade distortions or new trade barriers;
- (f) strengthen cooperation on the development and improvement of environmental laws, regulations, procedures, policies and practices;
- (g) enhance compliance with, and enforcement of, environmental laws and regulations;
- (h) promote transparency and public participation in the development of environmental laws, regulations and policies;
- (i) promote economically efficient and effective environmental measures; and
- (j) promote pollution prevention policies and practices.

Appendix 2. Denver Statement

Denver, Colorado, 24 June 2009—We, the environment ministers of Canada, Mexico and the United States, as Council of the Commission for Environmental Cooperation (CEC), met for our annual Regular Session and consulted with our Joint Public Advisory Committee (JPAC) and the public on 24 June 2009.

This Council Session marks the 15th anniversary of the North American Agreement on Environmental Cooperation (NAAEC). We have taken note of the progress we have made in the maturity and extent of our environmental cooperation, in promoting sustainable development in the region, in strengthening environmental enforcement, in addressing the linkages between trade and environment, and in promoting public participation in regional environmental matters. We look forward to continued progress in these areas.

We have also recognized that this 15th anniversary comes in the midst of one of the most serious international economic crises we have faced in decades. The environmental challenges today, our understanding of them, and the tools to deal with them, are not the same as they were fifteen, ten or even five years ago.

Canada, Mexico and the United States reaffirm their commitment to tackle environmental problems across North America. This can only be accomplished by partnering and engaging extensively with stakeholders and the public in all three countries and by promoting a sense of shared responsibility and stewardship for the environment in our region.

To this end, we committed today to renew, revitalize and refocus the CEC to better serve the environment and citizens of our countries. More specifically, we have asked our officials to return in mid-July with a proposal to examine the governance of the CEC with a view to enhance accountability, improve transparency of the Secretariat's activities, ensure alignment with Council priorities, and set clear performance goals.

We agreed on a new policy direction for the CEC to ensure it is focused on the key environmental priorities of North America, in the context of free trade and more integrated economies, and is positioned to deliver clear results.

The CEC's next Strategic Plan, for 2010-2015, will focus on a select few environmental trilateral priorities, namely:

- Healthy Communities and Ecosystems
- Climate Change - Low-Carbon Economy
- Greening the Economy in North America

To improve on the delivery of these priorities, we also agreed to several operational changes to the CEC to ensure it serves as a model of transparency and accountability, and remains an effective and relevant organization in accordance with the NAAEC. These changes will focus on streamlining the CEC's multi-million dollar annual cooperative work program, modernizing its citizen submission process, reprioritizing and increasing the transparency of its expenditures, providing clear direction to future executive directors at the start of their term, and strengthening the supportive functions of the Secretariat.

Over the course of the meeting, we also received updates from the executive director of the CEC Secretariat, Mr. Adrián Vázquez, and various working groups on recent successes of the CEC. These included steps taken to improve cooperation on

North American air quality management, significant reductions in risk from mercury, a system to assess ecological conditions of marine protected areas, completion of a seamless North America-wide reporting system on industrial pollutants, more environmentally sound integrated regional supply chains, and a training program for customs and border officials to aid in combating the illegal distribution of hazardous wastes and ozone-depleting substances.

As always, we had the benefit of the considered input of our Joint Public Advisory Committee, which hosted a public workshop on climate policy coherence in North America. In keeping with our commitment to public engagement, we were also pleased to participate in a public meeting and exchange views with numerous citizens from each of our three countries on environmental issues of their choosing. We look forward to the Committee's ongoing engagement as it serves a critical role to ensure active public participation and success in our endeavor to strengthen this important trilateral organization.

In closing, we would like to thank Mr. Vázquez for his heartfelt dedication to the CEC over the past three years. With his three-year term coming to an end this summer, we will soon be launching a process to select the next executive director.

With this new vision for the CEC, we are confident that Canada, Mexico and the United States will be well positioned to tackle our shared environmental challenges of the next decade.

Appendix 3. Project Selection Criteria for Activities to be funded through the North American Partnership for Environmental Community Action (NAPECA)

Project Description Drafting Guidance

Canada, Mexico and the U.S. have each made significant investments to engage their citizens in working towards sustainability by involving them in the protection of our natural resources, in the improvement of human health and the environment and in the conservation of our ecosystems across North America. By establishing the North American Partnership for Environmental Community Action (NAPECA), Council recognizes that ecosystems do not follow political boundaries but rather often cross borders between and among states, provinces and countries. Further, Council recognizes that the individual investments made by each country can achieve greater success if we can develop a shared sense of responsibility and stewardship for the environment across North America. Awards are intended to support a flexible and diverse set of project types, that improve access to resources provided by the Parties through the CEC for smaller more hands-on organizations and that build long-term partnerships to improve environmental conditions at the community, indigenous, local and regional levels. These project types can include, but are not limited to: building capacity, demonstrations, transfer of innovative technologies, outreach, education, sharing of best practices, train environmental leaders, reduce risks, and many other non-regulatory efforts.

- Does the project address one or more of the three priorities identified by Council as described in the current Strategic Plan? How?
- Does the submission describe the environmental significance of the project for the community? The North American region? Internationally?
- Does the submission describe a technically or scientifically sound approach that includes goals and measurable objectives? Are clear and tangible results identified? Does it include how progress is to be measured?
- Are the results proposed relevant to protecting the environment in the community? The North American region?
- Does the project propose a clear timeline for implementation of the activities, including a target end date for NAPECA support?
- Who are the partners or linkages in the community? In the North American region? Internationally? At the state, local or indigenous community level?
- If the project builds capacity, who are the beneficiaries of the capacity building activities?

For the Parties to assess:

- Could the project benefit from collaboration with, or contribute to existing Parties projects through CEC, or to existing domestic policies, increasing the potential of the project to produce benefits for the community?

Appendix 4. Project Selection Criteria for Parties' Cooperative Program

Project Description Drafting Guidance

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program, which are contained in Appendix 3.

- Does the project contribute to achieving Council's strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council? How?
- Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America?
- Does the project identify specific clear and tangible results that will be achieved and how progress toward each result will be measured over time?
- Is the CEC the most effective vehicle for the Parties to undertake the project, considering:
 - The value-added of doing it under the CEC cooperative program
 - Any other public, private or social organizations that work on such activities
 - Opportunities to cooperate and/or leverage resources with such organizations
- Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC's involvement? Where applicable, describe how the work will continue after CEC involvement ends?
- Where applicable, does the project identify with reasonable specificity:
 - Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication?
 - The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project?
 - The beneficiaries of capacity building activities that the project may include?
 - The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome.