Project Summaries

2011–2012

cec.org

Commission for Environmental Cooperation

INTRODUCTION

The Commission for Environmental Cooperation's (CEC) Council—the federal environment ministers from Canada, Mexico and the United States—have set an ambitious agenda for the CEC that is focused on three key environmental priorities:

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

The sixteen projects summarized in this booklet are a reflection of the vision and priorities of the CEC Council and represent a renewed commitment to environmental cooperation among Canada, Mexico and the United States. They were developed by officials and experts from the three countries who are also actively involved in their implementation. The projects were shaped by the advice and input of the North American public through the CEC's Joint Public Advisory Committee.

The projects also reflect the Council's recognition that addressing environmental challenges across North America can only be accomplished by engaging with the public, communities, and interested partners in all three countries, and by promoting shared responsibility and stewardship for the environment in our region.

Detailed project summaries and budgets are available in the CEC's 2011–2012 Operational Plan, approved by the Council in June 2011.

CEC projects are undertaken with the financial support of the Government of Canada through the federal Department of Environment, the Government of the United States of Mexico through the Secretaría de Medio Ambiente y Recursos Naturales, and the Government of the United States of America through the Environmental Protection Agency.

For more information about any of these projects, contact:
Dolores Wesson, CEC Director of Programs, at dwesson@cec.org, **514 350-4320**.
or the project staff listed at the end of each project summary.

For the complete project descriptions, see: **www.cec.org/projects**.

HEALTHY COMMUNITIES AND ECOSYSTEMS

CLIMATE CHANGE – LOW-CARBON ECONOMY

GREENING THE ECONOMY IN NORTH AMERICA

Improving Indoor Air Quality
in Alaskan Native Populations and Other Indigenous Communities in North America

This project aims to...reduce the need for respiratory medical care in Alaskan Native populations by reducing exposure to airborne contaminants in homes.

Substandard housing, overcrowding, poor indoor air quality, lack of indoor plumbing, and other environmental factors contribute to significant health problems in some indigenous communities. In parts of Alaska, one in four Native infants is hospitalized each year with acute respiratory infections and hospitalization rates for acute and chronic respiratory diseases in infants of these communities are among the highest ever documented. Adequate emergency care for these cases is not always available in remote communities, and transport and hospitalization costs can be in excess of US$50,000 per child. Bronchiectasis, a severe type of chronic pneumonia that has nearly disappeared from the developed world, is still common among Alaskan Native infants.

This project aims to demonstrate that education, along with no-cost/low-cost home modifications such as replacing wood-burning stoves and improving home ventilation, can reduce the need for respiratory medical care in Alaskan Native populations by reducing exposure to airborne contaminants in homes.

The fact that similar environmental conditions and health problems are found in indigenous communities elsewhere in North America makes the CEC an ideal party to be involved in such an effort.

Related CEC Initiatives

Improving Indoor Air Quality to Reduce Exposure to Airborne Contaminants, Including Fine Particulates and Chemical Compounds, in Alaskan Native Populations and Other Indigenous Communities in North America will contribute to information and tools to be developed under the **Capacity Building to Improve the Environmental Health of Vulnerable Communities in North America** project.

Partners

This project will be implemented through the **Alaska Native Tribal Health Consortium**. The Consortium provides comprehensive healthcare and public health services for over 220 Alaska Native Tribes and is the largest tribally managed health organization in the United States. Other potential partners include Tribal and First Nations and indigenous peoples and communities in each of the three countries in North America.

For more information about this project, contact:
Orlando Cabrera, Program Manager, at **ocabrera@cec.org, 514 350-4323.**

Capacity Building to Improve the Environmental Health of Vulnerable Communities in North America

Public access to a wide range of information is instrumental to reduce the risk of exposure for individuals and vulnerable communities.

Pollution in the environment can have significant effects on human health. However, some individuals, or even groups of people, are more vulnerable to health risks from exposure to environmental contamination. Many variables directly or indirectly influence these health effects. For example, air pollutants can trigger asthma among the very young and very old, as well as in individuals who have a family history of asthma, or aggravate existing respiratory and cardiac conditions. Many environmental health risks are preventable or can be mitigated. Public access to a wide range of information—such as data on pollutant emissions and ambient air quality conditions—is instrumental to reduce the risk of exposure for individuals and vulnerable communities.

This project has two capacity-building components. One involves the development of a framework document, building on existing risk assessment tools and information, to assist communities in the identification of potential health risks associated with environmental pollution. The purpose of the framework is to put forth the factors that need to be consid-

ered in the characterization of an individual's or community's vulnerability to the health consequences posed by environmental contamination. Once completed, this framework document is intended to be used as the foundation for the development of different types of products that provide individuals throughout North America the capacity to make more informed decisions about how to protect their health from environmental contaminants.

The second capacity building component supports the implementation of AirNow-International in Mexico, with the purpose of providing the capability to inform the public about air quality conditions that can impact human health. The AirNow-International system, already in use in the United States and Canada, is a platform for the management and quality assurance of ambient air monitoring data for the purposes of providing the public and decision makers with easy access to information on local air quality conditions.

The project promotes increased awareness of environmental health risks among all stakeholders, including the most vulnerable communities, in the pursuit of community-based initiatives to reduce risks from and exposure to environmental pollution.

Related CEC Initiatives

This project will share information with the CEC's **Tracking Pollutant Releases and Transfers in North America** project and the **Risk Reduction Strategies to Reduce Exposure to Chemicals of Mutual Concern** project.

Partners

A multi-stakeholder advisory group, including nongovernmental organizations, government, industry, and community organizations will be established to support the development of a framework document. The implementation of **AirNow-International** in Mexico will involve the participation of the **US EPA**, **Environment Canada**, and Mexico's ***Semarnat*** and ***Instituto Nacional de Ecología***.

For more information about this project, contact:
Orlando Cabrera, Program Manager, at **ocabrera@cec.org**, **514 350-4323**.

North American Grasslands: Management Initiatives and Partnerships to Enhance Ecosystem and Community Resilience

PFRA

Less than 20 percent of North America's native grasslands remains intact and less than three percent lies within protected areas.

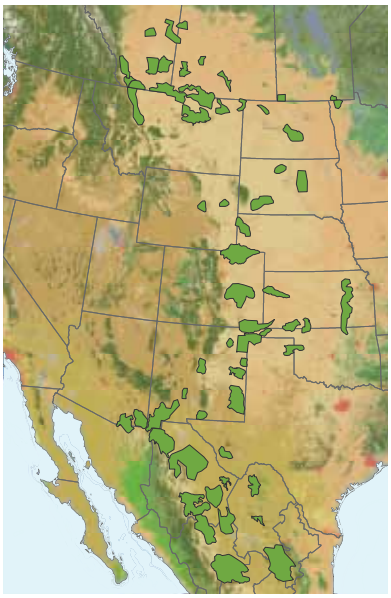
Grasslands are one of the most valuable, yet most threatened ecoregions in North America. Stretching from Saskatchewan to Chihuahua, they are now among the largest farming and ranching areas on earth. Yet less than 20 percent of North America's native grasslands remains intact and less than three percent lies within protected areas.

Tall and short grasses provide important forage for cattle and habitat for native species. They also enhance water conservation and sequester large amounts of carbon when not stressed by fire and drought. As the only shared, contiguous habitat across the continent, they create vital links for North America's migratory and native birds and many other endangered species. Agriculture and ranching have significantly transformed this ecoregion across its entire range so implementing conservation strategies to connect key native habitats now requires trilateral cooperation.

Grasslands ranchers, particularly beef producers, recognize the need to encourage sustainable ranching and agriculture practices—especially those that support biodiversity conservation and wildlife management. One of the challenges is getting continental, regional and local partners in grasslands management to adopt and disseminate these practices. However, there have been few economic incentives to encourage this. It is vital to meet this challenge: grasslands conservation actions will stem the highest rate of natural habitat conversion of any other terrestrial ecoregion in North America, help address water scarcity, and allow options for species adaptation and range shifts under changing climatic regimes.

This project will work closely with ranching associations to compile and distribute practices that promote sustainable ranching, production and biodiversity conservation. It will also support the development of partnerships to help disseminate, support and pilot these practices with land managers. These activities will be complemented by research to monitor the recovery of birds in grasslands and provide scientific information on habitat requirements for migratory and native species.

Accomplishments



Grassland Priority Conservation Areas

The CEC has already completed successful initiatives on grasslands conservation, including a continental Grasslands Conservation Strategy, developed in 2003, and a 2005 initiative to map Grassland Priority Conservation Areas, which was recently updated through the *North American Environmental Atlas*. **www.cec.org/naatlas**

Other CEC work includes developing bird monitoring capacity through the CEC-initiated North American Bird Conservation Initiative (NABCI), identifying and addressing species of common conservation concern through North American Conservation Action Plans (NACAPs) for three grasslands species Burrowing Owl *(Athene cunicularia)*, Black-tailed Prairie Dog *(Cynomys ludovicianus)*, Ferruginous Hawk *(Buteo regalis)*, and supporting grassland conservation in northern Mexico as part of the CEC's cooperative work program for 2008–2010. **www.cec.org/grasslands**

Related CEC Initiatives

Healthy grassland ecosystems are highly effective stores of carbon. This project will contribute to and use land cover data and carbon budget models derived in the carbon sources and storage project (*Carbon Sources and Storage: Information to Quantify and Manage for Greenhouse Gas Emissions Reductions*). It will also inform the Big Bend-Río Bravo project (*Big Bend-Río Bravo Collaboration for Transboundary Landscape Conservation*) on grassland conservation strategies.

Partners

Partners in this project include **Environment Canada**, **US Fish and Wildlife Service**, **US Forest Service**, Mexico's ***Secretaría de Medio Ambiente y Recursos Naturales*** (Semarnat), ***Comisión Nacional Para el Conocimiento y Uso de la Biodiversidad*** (Conabio), and ***Comisión Nacional de Áreas Naturales Protegidas*** (Conanp). In addition, several Joint Ventures and nongovernmental partners will participate.

For more information about this project, contact:
Karen Richardson, Program Manager, at **krichardson@cec.org**, **514 350-4326**.

Big Bend-Río Bravo Collaboration for Transboundary Landscape Conservation

North American Invasive Species Network

Krista Schlyer/enviro-pic.org

North America encompasses vast landscapes including mountains, rivers, grasslands, canyons and deserts. On our borders, where northern and southern ecosystems meet, live an incredible diversity of species, many of which, like fish, birds, bears and desert bighorn sheep, move freely across our boundaries. Transboundary conservation of these landscapes to connect habitat for plants and animals is critical for the development of strategies to protect biodiversity and allow adaptation to climate change.

This year, the Commission for Environmental Cooperation Council, the environmental ministers of Canada, Mexico and the United States, approved this project to join an unprecedented emerging coalition of government, NGOs, and private conservation partners in activities that highlight the importance of regional cooperation and demonstrate our commitment to strengthen transboundary conservation efforts across North America.

Inspired by the US-Mexico Presidential Declaration in May 2010 of a Big Bend-Rio Bravo natural area of binational interest, and building upon the success of conservation efforts in the region, such as the Big Bend Conservation Cooperative, this project will build capacity to strengthen transboundary conservation on a large scale and from a landscape perspective. This binational conservation cooperative includes US state and federal land and natural resource management agencies, Mexico's federal environmental authorities, and the International Boundary and Water Commission, among others.

This conservation cooperative will strengthen and broaden science-based natural resource management practices by coordinating actions to understand and reduce stresses on the area's ecosystem, including climate change. This growing binational partnership will also serve as a model for similar activities in other transboundary areas.

With the assistance of the Commission for Environmental Cooperation, the Parties will foster the growth and development of this transboundary partnership through facilitated and translated meetings, community outreach, and

building capacity and expertise in science-based natural resource management. The partnership will engage in transboundary planning to identify shared resource values and priorities and implement strategies for conservation of ecosystem services, while creating strong linkages to related federal initiatives. This project will also serve as a component of the North American Invasive Species Network, encouraging citizen involvement in binational conservation efforts, including water and environmental education groups.

This project will develop a model for collaboration among decision-makers and partnerships focused on transboundary conservation. One output will be a science-based, binational conservation strategy for the Rio Grande/Río Bravo region. Part of the strategy will describe actions and benefits of invasive species management. Other outputs will include sustainable economic and social tools for integrating local communities into a regional conservation strategy.

Accomplishments

The CEC has previously supported work to define and map terrestrial ecoregions across North America as well as initiatives on several species of common conservation concern, including the development of detailed North American Conservation Action Plans for four terrestrial species.

Related CEC Initiatives

This initiative will work directly with the **North American Invasive Species Network** and will collaborate closely on best grassland management practices developed for the project on North American grasslands (**North American Grasslands: Management Initiatives and Partnerships to Enhance Ecosystem and Community Resilience**).

Partners

The Commission for Environmental Cooperation will join a coalition of conservation partners, including the *Secretaría de Medio Ambiente y Recursos Naturales*, the *Comisión Nacional de Áreas Naturales Protegidas*, International Boundary and Water Commission/ *Comisión Internacional de Límites y Aguas*, *Comision Nacional de Agua*, *Instituto Nacional de Ecología*, Department of the Interior, US Fish and Wildlife Service, National Park Service, US Geological Survey, US Environmental Protection Agency, Texas Parks and Wildlife Department, Texas Commission on Environmental Quality, Sul Ross State University, Utah State University, World Wildlife Fund, Environmental Defense, Trans Pecos Land and Water Trust, Profauna, and others.

For more information about this project, contact:
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Big Bend-Río Bravo Collaboration for Transboundary Landscape Conservation

North American Invasive Species Network

Kyle T. Ramírez

The Asian longhorn beetle (*Anoplorophera glabripennis*) is a wood-borer that attacks healthy hardwood trees, such as maple, elm, poplar and willow.

The prevalent spread of different invasive species across the continent has put almost half of North America's threatened or endangered species at serious risk.

Global trade and transportation systems now connect people and places as never before. These connections sometimes bring exotic, invasive species with them that, once established in a new environment, can wreak havoc on natural areas and essential infrastructure alike. Invasive species have caused over $100 billion dollars worth of damage in economic losses across North America. For example, the United States spends over $1 billion dollars annually to control aquatic invasive plants such as the Eurasian water-milfoil in the southeastern United States. This species has dramatically altered some water bodies, changing sedimentation rates, oxygen and light levels, and impeding boating, fishing, and other recreational activities.

The prevalent spread of different invasive species across the continent has also put almost half of North America's threatened or endangered species at serious risk. Invasive species adaptation has also been exacerbated by climate change. One way to address this problem is to establish networks of experts to share and collaborate on information, maps, and data.

The North American Invasive Species Network is a consortium of experts and institutions working on the eradication of invasive species through science-based understanding of and effective response to exotic invasive species in North America. As one component of a larger project that includes work to conserve the Big Bend-Río Bravo transboundary area, this initiative will allow the consortium to improve its capacity to develop and deliver information on invasive species and train local communities to take action to prevent and manage new biological invasions.

Accomplishments

The CEC has already supported risk management guidelines and tools to identify aquatic invasive species in priority areas highly susceptible to biological invasions. It has also provided support for scoping studies on the risk of invasive species in the Gulf of Maine/Gulf of St. Lawrence, and the Laguna Madre/Río Bravo area of northeastern Mexico and southern Texas. Most recently, the CEC has supported the North American Invasive Species Network in developing a North American consortium of experts.

South Florida Water Management District

Burmese pythons (*Python molurus bivittatus*) have invaded Florida's Everglades National Park.

An invasion of lionfish *(Pterois volitans)* threatens coral reefs in the Atlantic and Caribbean.

Related CEC Initiatives

This initiative will work closely with the Big Bend-Río Bravo initiative (*Big Bend-Río Bravo Collaboration for Transboundary Landscape Conservation*), including a workshop on lessons learned from this binational effort. The consortium of experts associated with this initiative will also provide information and data for the grasslands project (*North American Grasslands: Management Initiatives and Partnerships to Enhance Ecosystem and Community Resilience*).

Partners

Partners in this initiative include the **North American Invasive Species Network**, **Environment Canada**, **US Department of the Interior,** and the ***Comisión Nacional Para el Conocimiento y Uso de la Biodiversidad*** (Conabio) and the ***Comisión Nacional de Áreas Naturales Protegidas*** (Conanp).

For more information about this project, contact:
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Engaging Communities to Conserve Marine Biodiversity through NAMPAN

Octavio Aburto

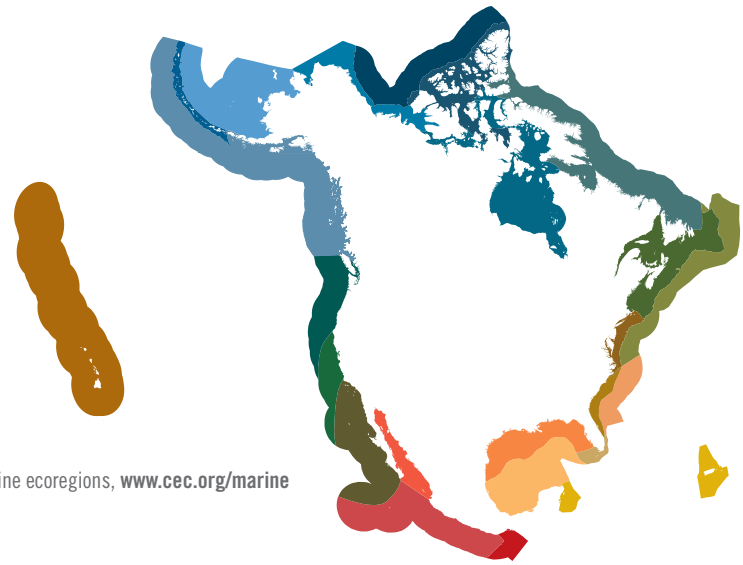
The rocky reefs of the Gulf of California provide refuge for a wide variety of territorial and demersal fish.

The majority of North Americans live near the coast, yet awareness of the impacts of climate change and other stressors on ocean health is limited.

Fish don't have passports. They travel freely across borders, moving through the spawning areas, nurseries and feeding grounds that they rely on, sometimes over great distances. And while it is often difficult for us to see fish and other marine animals and measure their populations, we know that most species use distinct areas of the ocean throughout their lives. Some of these vital areas have been identified as marine protected areas (MPAs), set aside to help restore and maintain the health of oceans and provide some protection from stressors such as fishing, habitat destruction, and pollution. Together, these MPAs will form networks of key areas and provide safe havens for the life stages of different species.

Climate change must also be factored into the design and management of marine protected areas. The majority of North Americans live near the coast, yet awareness of the impacts of climate change and other stressors on ocean health is limited. Coastal communities need information on the role the oceans play in providing the goods and services—such as food, recreation and tourism—that sustain healthy coastal economies.

This project has two components: a community-based education and awareness initiative featuring the role of North American marine protected areas in sustaining healthy oceans and coastal communities, and a synthesis of scientific information on how climate change is impacting the ranges and distributions of marine species. Both components will support the design and management of marine protected areas in North America.



Marine ecoregions, **www.cec.org/marine**

Accomplishments

This project builds on several past CEC projects, including a recent project entitled, **Conserving Marine Species and Spaces of Common Concern**. It also builds on prior initiatives that described and mapped North America's marine ecoregions, developed priority conservation areas in the Bering Sea to Baja California region, designed North American Conservation Action Plans for Species of Common Conservation Concern, and supported the North American Marine Protected Areas Network (NAMPAN).

Related CEC Initiatives

This project will provide scientific information on the impacts of climate change on marine protected areas, which will be of interest to policy-makers as they define adaptation strategies. It will also be relevant to users of the information platform on climate change (**North American On-line, Interactive Informational Platform on Climate Change** project).

Partners

Partners in this project include the **Canadian Department of Fisheries and Oceans, Parks Canada**, the **US National Oceanic and Atmospheric Administration** (NOAA), Mexico's ***Comisión Nacional de Áreas Naturales Protegidas*** (Conanp), the **International Council for the Exploration of the Sea**, and the **Coastal Ecosystem Learning Centers**—a trinational network of aquaria and research centers.

For more information about this project, contact:
Karen Richardson, Program Manager, at **krichardson@cec.org, 514 350-4326.**

Tracking Pollutant Releases and Transfers in North America

The CEC's North American PRTR (NAPRTR) project promotes public access to PRTR data to improve understanding of the sources and management of pollutants of common concern.

In 1984, an industrial plant in Bhopal, India, released a toxic cloud of methyl isocyanate that killed thousands. Less than a year later, a chemical leak at a plant in West Virginia resulted in the hospitalization of six employees and over 100 local residents. Incidents such as these spurred demands for public information about the substances released to the environment by industrial facilities, and triggered community Right-to-Know movements around the world.

As a result, many countries have established pollutant release and transfer registers (PRTRs), requiring facilities to report the amounts and types of pollutants they release to air, water and land, or transfer to disposal, recycling or other management.

North America has taken the lead in gathering and publishing PRTR data. Through a CEC-coordinated effort begun in 1995—which led to the creation of Mexico's mandatory PRTR program in 2004—North American PRTR work has become a model for regional cooperation.

The CEC's North American PRTR (NAPRTR) project promotes public access to PRTR data to improve understanding of the sources and management of pollutants of common concern. It also promotes use of the data for priority-setting and decision-making to protect the health of North American communities and ecosystems, support chemicals management, and reduce pollution.

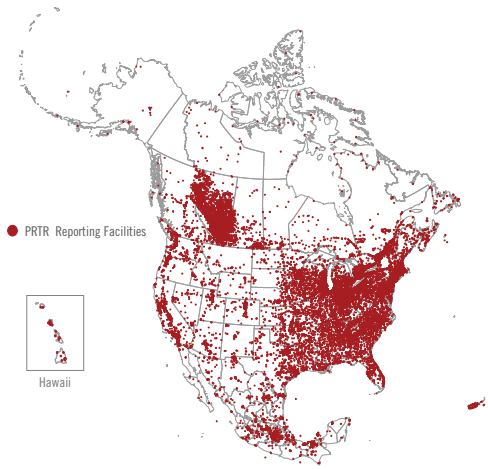
The NAPRTR project compiles and disseminates data reported by facilities to the three national PRTRs. Efforts are focused on adding value to the data through their integration, analysis and dissemination via the *Taking Stock* report and *Taking Stock Online* website (**www.cec.org/takingstock**). Incorporating information about the context of PRTR reporting, such as differences among the three programs, facilitates data use and interpretation. The *Taking Stock Online* searchable database allows users to explore pollutant releases and transfers from more than 35,000 facilities in North America, generate reports in a variety of formats; create maps and view them using Google Earth, and analyze PRTR data in the context of information such as locations of watersheds and population centers, using geospatial data from the CEC's North American Environmental Atlas.

Accomplishments

The NAPRTR project has contributed to national PRTR efforts, including the establishment of a mandatory Mexican PRTR program and the publication of PRTR information from two Mexican states. This collaboration has resulted in enhanced comparability and quality of reported data.

The public meetings of the NAPRTR project have served as a catalyst for dialogue among stakeholders to address local environmental issues of concern. For example, the meeting held in Guadalajara, Mexico, in 2009, brought together representatives from civil society, industry, and federal and state governments to discuss chemical pollution in the community of El Salto, and deficient PRTR reporting and access to information.

Distribution of PRTR Reporting Facilities in North America, 2006



Note: Readers are reminded that each country has specific reporting requirements for sectors, facilities and pollutants that affect the North American picture of industrial pollution.

At the international level, the NAPRTR project serves as a model for other regional PRTR initiatives such as the Central America PRTR project, sponsored by the United Nations Institute for Training and Research (UNITAR) and the Central American Commission for Environment and Development (CCAD). UNITAR has also proposed the development of an Arctic PRTR report based on the CEC's *Taking Stock* publication.

Related CEC Initiatives

The NAPRTR project's information resources and tools will support the **Capacity Building to Improve the Environmental Health of Vulnerable Communities in North America** project under the CEC's 2011–2012 Operational Plan. It also leverages activities and products of the North American Environmental Atlas and pollutant monitoring and assessment work under the **Sound Management of Chemicals (SMOC)** program.

Partners

In addition to collaborating with national and international organizations, the CEC works closely with the PRTR programs in **North America: Canada's National Pollutant Release Inventory** (NPRI), Mexico's ***Registro de Emisiones y Transferencia de Contaminantes*** (RETC), and the **US Toxics Release Inventory** (TRI).

For more information about this project, contact:
Orlando Cabrera, Program Manager, at **ocabrera@cec.org, 514 350-4323.**

Approaches for Identifying and Tracking Chemicals in Commerce in North America

Canada, Mexico and the United States have established cooperative initiatives through the CEC to reduce the risks of chemicals that are harmful to human health and the environment in North America.

Chemicals are used to make the products we use every day, from clothes and furniture to toys, cars, buildings, and even the food we eat. Chemicals play an important role in our quality of life but some can be harmful to our health and the environment, especially when improperly used or poorly managed at any stage in their life cycle.

Historically, in North America and around the world, the way we characterize and manage some chemicals as harmful or toxic has at times been haphazard, often determined only after a chemical was found to pose a risk to human health or the environment. Canada, Mexico and the United States have established cooperative initiatives through the CEC to reduce the risks of chemicals that are harmful to human health and the environment in North America. These initiatives have supported the implementation of international agreements that address the assessment process for chemicals and improve their management worldwide.

Identifying and tracking chemicals is central to reducing risks associated with their production, use and disposal and provides the basis for establishing controls and regulation at national level. This project brings together experts from North America to improve the compatibility and comparability of each country's databases of commercial chemicals, and provides technical support to Mexico as it completes its own chemicals inventory. Once the Mexican inventory is completed, decision-makers and the public in all of North America will have improved information to reduce risks of chemicals in use and to facilitate their sound management.

Beyond the preparation of inventories to achieve better understanding of chemicals, this project will highlight the efforts made in North America for the sound management of chemicals. In this regard, a North American Chemicals Conference would provide a forum to build transparency, discuss management of chemicals, and provide an opportunity to engage a wide range of stakeholders, including industry, business, trade unions, environmental nongovernmental organizations, organizations of women, indigenous organizations and tribes, academic institutions, and local and federal governments.

Accomplishments

Over the past few years, the CEC has supported significant advances in tracking chemicals in commerce and trade in Mexico. This has included preparing an inventory of chemicals imported into Mexico as well as analysis of the regulatory framework for the management of chemicals in the country.

Related CEC Initiatives

Information gathered in North America's chemical inventories will support CEC project work on **Risk Reduction Strategies to Reduce Exposure to Chemicals of Mutual Concern, Environmental Monitoring and Assessment of Chemicals of Concern, Strengthening Regional Environmental and Wildlife Law Enforcement,** and **Tracking Pollutant Releases and Transfers in North America**.

Partners

Tracking chemicals across three countries requires cooperation among the federal agencies and experts responsible for protecting and managing health, environment, natural resources, agriculture, and cross-border trade. It also requires sharing information with and among industry associations and their members, including the chemical manufacturing, processing, treatment/recycling/disposal, transportation, and import/export sectors.

For more information about this project, contact:
Ned Brooks, Program Manager, at **nbrooks@cec.org, 514 350-4372**.

Risk Reduction Strategies to Reduce Exposure to Chemicals of Mutual Concern

Scientists have determined that certain harmful chemicals remain in the environment for a long time without breaking down. These chemicals build up in the environment and humans through the food chain because plants and animals accumulate these chemicals in their tissues. It is not unusual for fish from the lakes, rivers and oceans of North America, even in pristine areas, to be contaminated with these chemicals, to the point that their consumption can be harmful for people and wildlife. Meat, dairy products and human breast milk can also be contaminated.

In 1995, Canada, Mexico and the United States established a chemicals management program through the Commission on Environmental Cooperation (CEC) to reduce the risks of chemicals to human health and the environment in North America. This project focuses on harmful substances that persist and build up in the environment and food. The pesticides DDT, lindane and chlordane, as well as polychlorinated biphenyls (PCBs) and mercury have been the focus of significant trinational work. These chemicals are of mutual concern because of the risks that exposure to them can pose to human health, which include effects on the nervous system, the reproductive system and child development. CEC-facilitated projects have assisted in reducing these risks. Current projects target a limited set of substances, as follows.

Dioxins and furans are toxic, persistent, and bioaccumulative chemicals that are found in very small amounts in the environment, including air, water and soil. Exposure to these substances has been associated with a wide range of adverse health and environmental effects. Dioxins and furans are byproducts of the combustion of garbage, wood and other fuels and can also be generated by some industrial processes. The CEC is working to understand how much of these chemicals is present in the environment, foods and humans, as well as where they come from and how they are transported. This work also includes an examination of strategies and the preparation and dissemination of information on reducing the risks of exposure.

Mercury is a powerful neurotoxicant that can harm humans and wildlife through the inhalation of its vapors or by consumption of mercury-containing fish. While mercury occurs naturally in the earth's crust, human activities such as mining and coal combustion release mercury into the environment. Build-

ing on extensive and comprehensive work on mercury, the CEC will develop a new trinational mercury management strategy that will explore ways to safely manage and store mercury wastes.

Flame retardants are chemicals used in plastics, foams and other products to reduce fire hazards. One group of these chemicals, known as polybrominated diphenyl ethers (PBDEs), persists in the environment and is suspected of causing deleterious health and environmental effects. CEC-sponsored work will help identify the sources, fate and effects of PBDEs being released into the environment and identify alternative for use in small and medium-size manufacturing facilities in Mexico, as well as strategies to keep these chemicals out of the recycling stream.

Accomplishments

Through the CEC, North America has made significant progress in reducing or eliminating risks associated with chemicals of mutual concern to North America:

- The use of the pesticides chlordane, lindane and DDT—all early targets of the CEC's sound management of chemicals program—has been severely restricted or eliminated in North America.
- The use of PCBs has been limited to existing electrical transformers and capacitors, where they are used as coolants. The CEC's North American Regional Action Plan for PCBs has focused government action in the three countries on the properly storage for end-of-life PCBs and implementing programs for their safe destruction.

Related CEC Initiatives

In addition to these risk reduction strategies, the CEC is also working with North American chemical and health agencies on **Environmental Monitoring and Assessment of Chemicals of Mutual Concern**. Similarly, the **Approaches for Identifying and Tracking Chemicals in Commerce in North America** will help us better understand which chemicals are being produced and used by industry in the three countries, while the **Tracking Pollutant Releases and Transfers in North America** is key to following chemicals that are released into the environment.

Partners

The CEC and the environmental and health agencies of Canada, Mexico and the United States are collaborating with a variety of nongovernmental organizations, such as the Mexican group ***Red de Acción sobre Plaguicidas y Alternativas***, to conduct this work. In addition, the CEC coordinates with international organizations, such as the **World Health Organization** and the **United Nations Environment Program**. In collaboration with the federal agencies responsible for health and environment, the CEC also engages the support and participation of the public, other stakeholders and experts, as required.

For more information about this project, contact:
Ned Brooks, Program Manager, at **nbrooks@cec.org, 514 350-4372.**

Environmental Monitoring and Assessment of Chemicals of Mutual Concern

Some of these chemicals—pesticides like DDT and lindane, as well as mercury and dioxins and furans, and flame retardants like polybrominated diphenyl ethers (PBDEs)—have been identified by Canada, Mexico and the United States as chemicals of mutual concern.

Once released to the environment, some chemicals can travel around the globe, transported freely across national boundaries by winds and ocean currents, rivers and streams, ending up in even the most remote environments. They can also remain in the environment for a long time and build up in the food chain to levels that are harmful to human and ecosystem health.

Some of these chemicals—pesticides like DDT and lindane, as well as mercury and dioxins and furans, and flame retardants like polybrominated diphenyl ethers (PBDEs)—have been identified by Canada, Mexico and the United States as chemicals of mutual concern because of the risks they pose to North America's citizens and ecosystems. Many of these same substances are also the subjects of international agreements that seek to reduce chemical risks worldwide.

In order to understand the movement of these chemicals in the environment and reduce their potential adverse effects, their presence must first be accurately identified and quantified in the environment, and in humans and wildlife. This continuing CEC project will measure selected chemical compounds in environmental media, such as in soil, water and air, as well as in plants, animals and selected human populations.

Canada and the United States have comprehensive monitoring and assessment programs that have been in place for a number of years. Mexico recently began to monitor chemicals at three sites under its National Program for Monitoring and Evaluation (*Programa Nacional de Monitoreo y Evaluación*—Proname). Supported by the CEC, Proname was created by the Mexican federal government, through

the Secretariat of Environment and Natural Resources (*Secretaría de Medio Ambiente y Recursos Naturales*—Semarnat), with the first of three monitoring sites established in 2008. In 2011 and 2012, the CEC will support the establishment of three additional Proname sites, bringing Mexico's total to six.

When the sites in Mexico become fully operational, North America will have environmental monitoring and assessment programs in all three countries, generating comparable data that will provide a North American picture of levels and trends of these chemicals in the environment and facilitate decision making on managing them and reducing risks.

Along with this enhanced monitoring network, the CEC continues to support the development of analytical capacity in Mexican labs through high-level analytical training and quality assurance and quality control exercises. This is crucial to ensure reliable, high-quality analytical results on a trinational level.

Accomplishments

With support from the CEC, three comprehensive monitoring sites have been established in Mexico in the past two years. In addition, the CEC has supported training of Mexican staff for improved reliability of sampling and analysis at Mexican laboratories.

Related CEC Initiatives

Tracking Pollutant Releases and Transfers in North America
Risk Reduction Strategies to Reduce Exposure to Chemicals of Mutual Concern

Partners

In collaboration with the federal agencies responsible for health and environment in all three countries, the CEC engages the support and participation of stakeholders and experts in various disciplines, such as environmental monitoring, biomonitoring and analytical chemistry.

For more information about this project, contact:
Ned Brooks, Program Manager, at **nbrooks@cec.org, 514 350-4372**
or **Lucie Robidoux,** Project Coordinator, at **lrobidoux@cec.org, 514 350-4355**.

Enhancing Environmental Law Enforcement in North America

The CEC provides a trinational forum for Canada, Mexico, and the United States to share information and expertise in cooperative efforts to curb illegal international trade in wildlife and environmentally regulated materials.

Organized crime is estimated to earn millions of US dollars worldwide from illegal activities, including hazardous-waste dumping, illegal trafficking in protected wildlife, and smuggling of such restricted or banned materials as ozone-depleting substances. Curbing this illegal traffic in wildlife and environmentally regulated materials in our more dynamic and integrated global economy remains as serious a challenge as ever for our enforcement agencies.

To aid in combating this challenge, the CEC provides a forum for Canada, Mexico, and the United States to share information and expertise in cooperative efforts to curb illegal international trade in wildlife and environmentally regulated materials. Under this umbrella, areas of mutual interest include trade in electronic wastes (e.g., cathode-ray tubes), hazardous wastes and hazardous recyclables, ozone-layer depleting substances, engines that do not meet required emission standards (i.e., motorcycle engines), and illegal traffic in protected species of wild flora and fauna.

As part of the North American Working Group on Environmental Enforcement and Compliance Cooperation (EWG), enforcement agencies will implement proactive approaches aimed at anticipating, disrupting, dismantling and deterring illegal trade in a more efficient and targeted manner.

EWG members will jointly embark on the following activities:

- Information collection among countries including processing and sharing of data on illegal trade to target environmental and wildlife compliance and enforcement activity;
- Assessments of threats, risks and preparation of products to support decision-making as well as dissemination of appropriate information to the North American public; and
- Building strong partnerships with law-abiding parties.

Our collaborative approach will also provide an opportunity for participating North American agencies to assess progress and adjust actions on an ongoing basis, with the added value of sharing expertise and building capacity in cutting-edge techniques, such as crime-scene forensic analysis and covert-computer investigative techniques to identify offenders.

Accomplishments

Recent accomplishments of the EWG include: online training courses for environmental and customs officials on ozone-depleting substances and on hazardous wastes and hazardous recyclable materials, the delivery of an accredited course on wildlife forensics, and a series of seminars spaced over three years for training the judiciary in Mexico on adjudicating cases involving aspects of environmental criminality (published as *Environmental Legislation in North America*, UNAM and CEC 2011).

For more information on these initiatives, go to: **www.cec.org/enforcement.**

Partners

Members of the EWG are senior officials from the enforcement arms of **Environment Canada**, the **US Environmental Protection Agency**, the **Office of Law Enforcement** of the **US Fish and Wildlife Service**, and the ***Procuraduría Federal de Protección al Ambiente*** (Office of the Federal Attorney for Environmental Protection) in Mexico.

For more information about this project, contact:
Marco Heredia, Program Manager, at **maheredia@cec.org**, **514 350-4302**.

Improving Comparability of Emissions Data, Methodologies and Inventories in North America

The effective implementation of emissions reduction and climate change mitigation initiatives at the local, regional, and international levels requires the establishment of consistent methodologies for reporting and quantifying GHG emissions.

The three countries of North America are the source of approximately one- quarter of the world's greenhouse gas (GHG) emissions. Any joint North American mitigation objectives would benefit from reliable and comparable GHG emissions data and information that can be shared across the region.

At present, North America features multiple GHG-reporting regimes, both voluntary and mandatory, at national and sub-national levels, and with varying degrees of detail and complexity. GHG reporting requirements for industrial sources, including sector coverage, vary by jurisdiction. For example, reporting thresholds range from 10 kilotonnes (kT) under Mexico's federal PRTR, the *Registro de Emisiones y Transferencia de Contaminantes* (RETC), 20–25kT in the United States, depending on the state or region concerned, to 10–100 kT in Canada, depending on the province.

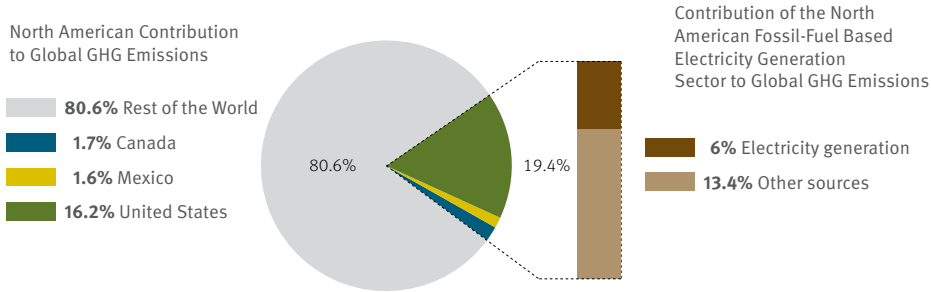
The effective implementation of emissions reduction and climate change mitigation initiatives at the local, regional, and international levels requires the establishment of consistent methodologies for reporting and quantifying GHG emissions. This project's objective is to improve the comparability of greenhouse gas emissions inventories across North America and enable the three countries to share results and strengthen capacities in the collection and management of these emission estimates, while working towards their climate change mitigation objectives.

The first step of this project involves conducting a comprehensive review and assessment of relevant inventory elements. Both

greenhouse gas and black carbon inventories will be considered, as well as current state or provincial inventory efforts in Canada, Mexico and the United States. The elements of the various inventories will be compared to the reporting guidelines developed by the United Nations Framework Convention on Climate Change (UNFCCC).

This assessment will provide a complete picture of North American inventory development efforts. It will also identify specific issues and areas where improvements in GHG inventory comparability and structure can advance the three countries' climate change mitigation objectives and support areas of future cooperative work.

North American Contribution to Global GHG Emissions from All Six IPCC Categories in 2005



Note: Data for Mexico are for 2006 as no specific data are available for 2005 in the "*Cuarta Comunicación Nacional ante la Convención Marco de las Naciones Unidas sobre el Cambio Climático.*"

Related CEC Initiatives

Information from this project will support the **North American On-line, Interactive Informational Platform on Climate Change** project.

Partners

Partners in this project include **Environment Canada**, the **US Environmental Protection Agency**, Mexico's ***Instituto Nacional de Ecología***, as well as provincial/state and regional agencies involved in climate mitigation strategies.

For more information about this project, contact:
Orlando Cabrera, Program Manager, at **ocabrera@cec.org, 514 350-4323.**

Ecosystem Carbon Sources and Storage: Information to Quantify and Manage for Greenhouse Gas Emissions Reductions

One way to reduce greenhouse gas emissions is to maintain or increase natural carbon storage in our ecosystems by preventing drastic changes in land cover.

Take a trip across North America and you will see landscapes change as you travel, from urban areas to cropland, deserts to forests. These landscapes encompass the ecosystems that cover the surface of the Earth. They also play an important role in how our planet transforms, absorbs and stores carbon, the chemical basis for all life. But carbon is also released to the atmosphere as a consequence of human activity, becoming a component of greenhouse gases that contribute to climate change. Reducing emissions of these gases is a key goal of the three North American countries in order to reduce the impacts of climate change while transitioning to low-carbon economies.

One way to manage greenhouse gas emissions is to maintain or increase natural carbon storage in our ecosystems by preventing drastic changes in land cover, such as large-scale deforestation. Another is to increase the forested area through plantations or sustainable management of forests. Since the beginning of the 20th century, deforestation has contributed one-third of total greenhouse gas emissions globally. In Mexico alone, deforestation and forest degradation accounts for 10 percent of greenhouse gas emissions annually. One way to address this is to manage forests in a more sustainable way. Mexico's improvements in forest management are already reducing its forest-related greenhouse gas emissions by more than 10 million tons per year.

Understanding how carbon storage varies across a landscape and how much change there has been in land cover and land use over time helps scientists and policy makers develop effective, science-based initiatives to reduce greenhouse gas emissions. Because North America's landscapes span national boundaries, international cooperation to ensure consistent reporting on carbon sources and storage is crucial.

This project will bring together experts who map land cover and land cover change to solidify a North American approach to measure and track those changes over time. The project will use satellite images to develop spatially and temporally consistent information for assessing land cover and land cover change. It will also bring together experts to help report on the amount of carbon stored in ecosystems, and changes associated with that, using publically available maps and data.

Accomplishments

The CEC has already supported the **North American Land Cover Monitoring System** to complete a land cover (2005) map for North America and develop a methodology to detect changes in land cover. It has also supported the development of the *North American Environmental Atlas*, an interactive mapping tool to research, analyze and manage environmental issues across North America. The Atlas will house all land cover data and maps.

Land Cover 2005, from the *North American Environmental Atlas*. www.cec.org/naatlas/NALCMS

Related CEC Initiatives

This project will contribute to understanding carbon storage in North American grasslands (**North American Grasslands: Management Initiatives and Partnerships to Enhance Ecosystem and Community Resilience** project). It will also complement the GHG emissions inventory work of the three countries (**Improving Comparability of Emissions Data, Methodologies and Inventories in North America** project) and will provide data and information for the climate change platform (**North American On-line, Interactive Informational Platform on Climate Change** project).

Partners

Partners in this project include **Natural Resources Canada** along with its **Canada Centre for Remote Sensing**, the **United States Forest Service**, the **United States Geological Survey**, and three Mexican organizations: ***Instituto Nacional de Estadistica Geografia e Informatica*** (INEGI), ***Comisión Nacional para el Conocimiento y Uso de la Biodiversidad*** (Conabio), and the ***Comisión Nacional Forestal*** (Conafor).

For more information about this project, contact:
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North American On-line, Interactive Informational Platform on Climate Change

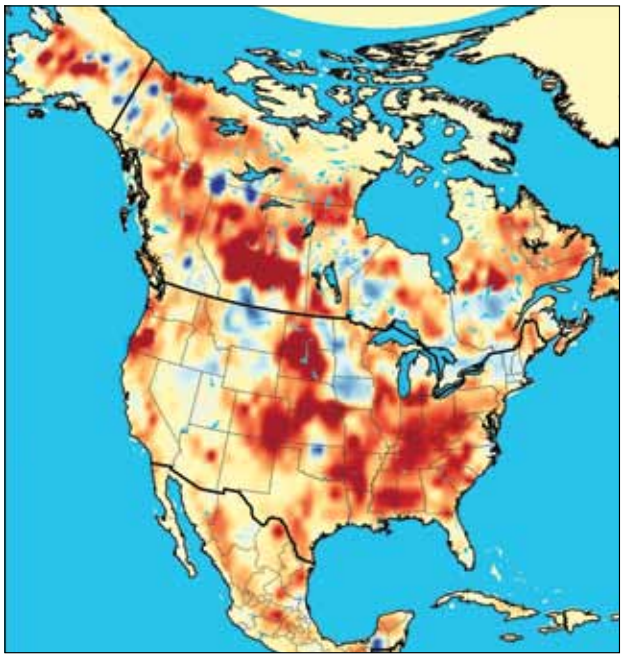
Since 1990, North American greenhouse gas emissions have increased by almost 18 percent, or at roughly the same rate as total energy use.

Since 1990, North American greenhouse gas emissions have increased by almost 18 percent, or at roughly the same rate as total energy use. Increases in atmospheric greenhouse gas levels are driving important and long-term changes to our global climate. The impacts of climate change include warmer year-round average air temperatures (which have already risen by more than 2° in the last 50 years and are projected to continue to increase), high-intensity precipitation events, more frequent heat waves and prolonged drought, warmer ocean temperatures, rising sea levels, and, ocean acidification.

Understanding how our climate is changing and where impacts will be felt requires long-term data and information. Climate change information however, is complex, dynamic, and rapidly growing. Some of the information is highly technical and buried in the large amounts of data available. Government scientific officials need effective ways to determine which information is scientifically-based, regionally-relevant and vetted internationally. They also need easy access to up-to-date information to inform decisions on policy and directions for research. More importantly, there is a significant need for information at the North American scale to enable continental climate change impacts to be addressed and to build a shared context for regional adaptation and mitigation through trinational cooperation.

This project will develop a new, dynamic approach to enable data and information exchange, in part through the incorporation of emerging social media tools. The platform will provide access to information that is comparable and compatible and in a form that is useful at a North American scale. In addition, the project will act as a knowledge broker, both gathering and disseminating relevant information.

Drought-induced Changes in Terrestrial Carbon Absorption Capacity in North America



Red areas denote reduced carbon dioxide absorption from the atmosphere during the summer drought of 2002, with blue areas showing enhanced absorption. *Source: NOAA*

Accomplishments

The CEC has already supported an online platform for its geospatial data through the *North American Environmental Atlas*. It has also developed several comparable and compatible data platforms at the North American scale, including the North American Pollutant Release and Transfer Register project.

Related CEC Initiatives

The ecosystem carbon project (*Ecosystem Carbon Sources and Storage: Information to Quantify and Manage for Greenhouse Gas Emissions Reductions*) will develop data and maps to populate the informational platform. Data from the greenhouse gas emissions inventory work of the three countries (*Improving Comparability of Emissions Data, Methodologies and Inventories in North America project*) will also be incorporated into the Platform.

Partners

Partners in this project include **Environment Canada**, the **US Environmental Protection Agency** and Mexico's ***Secretaría de Medio Ambiente y Recursos Naturales*** (Semarnat).

For more information about this project, contact:
Orlando Cabrera, Program Manager, at **ocabrera@cec.org, 514 350-4323**.

Improving Conditions for Green Building Construction in North America

Debbie Franke

The US Green Building Council estimates that green buildings, on average, reduce energy consumption by 30 percent, water use by 30 to 50 percent, and carbon emissions by 35 percent.

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. In fact, the US Green Building Council estimates that green buildings, on average, reduce energy consumption by 30 percent, water use by 30 to 50 percent, and carbon emissions by 35 percent.

Green buildings are already being constructed across North America, winning awards for cutting-edge design, intelligent use of "gray" water, integrating solar panels or passive solar construction, or achieving "net-zero" carbon emissions status, and yet we lack a comprehensive understanding of the wide range of innovative green building technologies, materials and practices available throughout North America.

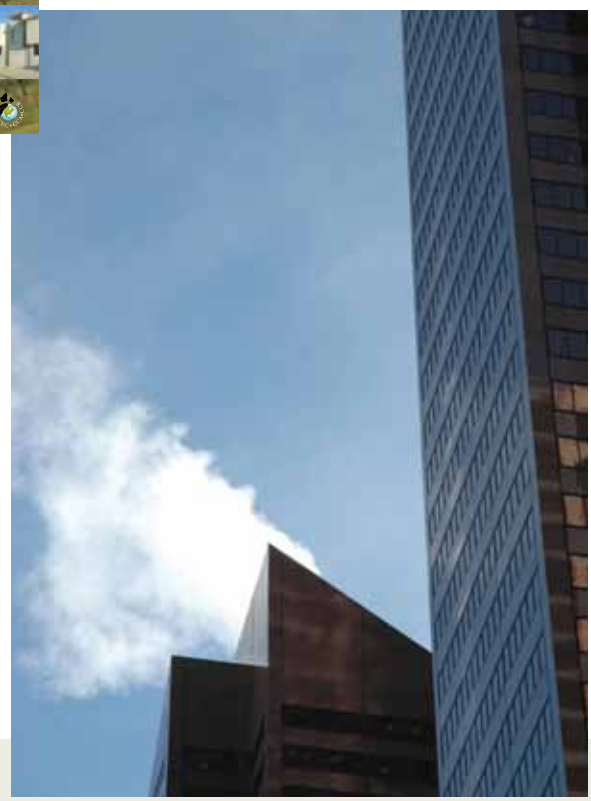
The CEC's 2008 *Green Building in North America: Opportunities and Challenges* report made specific recommendations to help make green building a standard practice for all new and existing buildings in North America. Through this project, a new Trilateral Green Building Construction Task Force will build on those recommendations by creating a blueprint for eliminating barriers and accelerating the growth of green building across the continent.

The task force, whose members will include leaders from the green building industry, researchers, and government officials from across North America, will help identify opportunities for, as well as obstacles to, the construction of green buildings and the use of green building materials in North America.

To develop its blueprint, the task force will meet with building industry leaders and experts, who will help address issues such as common approaches to certification systems for green building practices and materials, best practices for building performance, and incentives for reducing energy and water consumption.

Accomplishments

The CEC Secretariat's 2008 *Green Building in North America* report was supported by many of North America's leading architects, engineers and developers to recommend specific ways reduce the environmental impact of buildings. In 2010, the CEC brought together government agencies in the three countries to help align standards and rating systems for energy efficiency in buildings.



Related CEC Initiatives

Since building energy consumption represents significant contributions to greenhouse gas emissions, this project may provide information relevant to the **North American On-line, Interactive Informational Platform on Climate Change** project.

Partners

Besides working with a broad range of green building leaders and experts through the Task Force, this project will continue partnerships with North America's green building councils, certification programs like the US EPA's Energy Star for buildings system and government agencies, including ***Mexico's National Commission for the Efficient Use of Energy*** (***Comisión Nacional para el Uso Eficiente de Energía***—Conae).

For more information about this project, contact:
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Improving the Economic and Environmental Performance of the North American Automotive Industry Supply Chain

The challenge in North America now is to build cars that are better environmental performers, precisely as the auto industry attempts to harness innovation to restructure its market share worldwide.

Many of the cars we drive are truly North American products: they may be built in the United States with an engine made in Canada and a transmission from Mexico. Those parts, along with thousands of others made and assembled by companies across the content, form a vast supply chain connecting all three countries.

The challenge in North America now is to build cars that are better environmental performers, precisely as the auto industry attempts to harness innovation to restructure its market share worldwide. This project seeks to support the "greening" of the automotive supply chain by 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.

Through an innovative partnership already on track in the United States—the Suppliers Partnership for the Environment—the CEC will help connect Canadian and Mexican suppliers to make this environmental initiative North American, just like the supply chain itself.

The project will create a network of industry partners to share best practices from work already done in the United States and share information highlighting how companies in the automotive supply chain are improving the environment and creating economic opportunity throughout the manufacturing process in each of the three countries.

Accomplishments

Work on greening North America's automotive supply chain began in 2007 with discussions to extend the Suppliers Partnership in Canada and Mexico, as well as early work on a "roadmap" strategy for pursuing sustainability with suppliers in the three countries. The project was put on hold in 2009 due to economic challenges facing the auto industry at that time.

Related CEC Initiatives

The CEC project, **Improving Conditions for Green Building Construction in North America**, has similar goals in terms of greening the North American building construction industry.

Partners

Several dozen automobile companies and their suppliers are already members of the Suppliers Partnership and work closely the **US Environmental Protection Agency**. This project will actively seek new members from Canada and Mexico, working closely with industry associations.

For more information about this project, contact:
Benjamin Teitelbaum, Program Manager, at **bteitelbaum@cec.org, 514 350-4334**.

Sound Management of Electronic Wastes in North America

Electronic devices contain approximately 40 to 60 compounds and metals that, if managed inappropriately, can pose significant risks to our health and the environment...

Electronic devices—TVs, smart phones, and computers—are integrated into modern life. They are more affordable than ever but they also become obsolete very rapidly. When this happens, most of them are discarded, stored, or shipped abroad, where recycling sometimes may not occur in environmentally sound ways. Electronic devices contain approximately 40 to 60 compounds and metals that, if managed inappropriately, can pose significant risks to our health and the environment due to leaching of metals, such as lead, mercury or cadmium, or exposure to potentially hazardous compounds, such as brominated flame retardants.

The environmentally sound management of e-waste is an issue of concern in North America, given the rapidly growing number of electronic devices being discarded each year that contain hazardous materials and substances. For this reason, Canada, Mexico and the United States have implemented a project to describe the transboundary movements, or flows, of used and end-of-life computers, monitors, and other electronic devices in North America. The project will quantify and characterize imports and exports of these used electronics, providing decision-makers with information they can use to develop and implement policies and strategies that will better address this problem on a North American scale.

A second component of the project seeks to enhance the capability of small and medium-size enterprises in the refurbishing and recycling of e-waste to implement environmentally sound management practices. The project will disseminate relevant information on sound management of hazardous substances and the recovery of precious metals and provide training tools for small businesses to aid them in supporting green jobs and improving the occupational health and safety of their workers.

Accomplishments

In February 2011, the CEC organized the first workshop on the environmentally sound management of e-waste, in Guadalajara, Mexico. At this meeting, experts from the three countries recommended strategies tailored to small and medium-size enterprises. The workshop showcased the wealth of knowledge and technical expertise provided by experts as well as the thoughtful questions of participants. See **www.cec.org/ewaste2011** for information on this and other e-waste meetings and resources.

In June 2011, the CEC Joint Public Advisory Committee (JPAC) organized a workshop to discuss the rapidly growing amount of electronic waste in North America and ways in which Canada, Mexico and the United States can jointly promote environmentally sound management of e-waste through product design, recycling, compliance and enforcement cooperation. Forum results helped JPAC in its consideration of recommendations to the CEC Council. These recommendations are included in Advice 11-03 to Council. To read the complete Advice, see: **www.cec.org/jpac_advice_11-03**.

Related CEC Initiatives

This project will continue to implement the work that the CEC has undertaken in e-waste and other electronics initiatives under the Greening the North American Economy strategic priority and the **Healthy Communities and Ecosystems**.

Partners

Partners in the implementation of this project include the **Waste Reduction and Management Division of Environment Canada**, the ***Dirección General de Gestión Integral de Materiales y Actividades de Riesgosas*** (General Bureau for Comprehensive Management of Hazardous Materials and Activities) at Semarnat, the ***Dirección General de Investigación sobre la Contaminación Urbana y Regional*** (General Bureau of Investigation on Urban and Regional Pollution) at the ***Instituto Nacional de Ecología*** in Mexico, and the US EPA **Office of Resource Conservation and Recovery**.

For more information about this project, contact:
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