

2021

Operational Plan



COMMISSION FOR
ENVIRONMENTAL
COOPERATION



Foreword

North America is home to nearly 500 million people, with Canada, Mexico, and the United States enjoying a long-lasting economic and trade relationship. In 2017, total trilateral merchandise trade (the total of each country's imports from one another) reached nearly US\$1.1 trillion,¹ securing North America as one of the world's largest free trade areas². Our continent is also rich in natural resources and biodiversity, which require sustainable use and management because of their vital importance to both present and future generations. Our three countries, together with state and local governments, as well as dedicated communities and enterprises spanning our continent, all share in the responsibility of protecting the environment and supporting sustainable development. It is in this context of increasing interconnectedness, which affects our quality of life now and will in years to come, that we must redouble our efforts to act swiftly and to deliver tangible, meaningful results across North America.

We are pleased to highlight the demonstrable impacts and benefits of cooperation and

partnerships fostered by the Commission for Environmental Cooperation (CEC) since its inception in 1994. Throughout its history, the CEC has led successful cooperative projects and initiatives in support of such key objectives as environmental training with the public and private sectors, education and awareness campaigns, knowledge sharing and network-building, and enhanced enforcement of environmental laws. Most recently, CEC work has supported progress in all three countries in areas such as helping to reduce air, land, and water pollution, encouraging better decision-making with data and information, improving responses to extreme weather and climate events, and preventing food loss and waste. In addition, the CEC has led efforts to conserve biodiversity and protect priority species on the North American continent, including the iconic monarch butterfly featured in the CEC logo.

This Operational Plan marks a major milestone for the CEC, as it is the first concrete step toward implementing the 2021-2025 Strategic Plan

and our work under the new Environmental Cooperation Agreement (ECA). This Plan is a demonstration of our renewed, enduring commitment to enhanced cooperation and to the CEC as forum to facilitate a coordinated response to many of the challenges we must meet. Our vision for the CEC is to actively pursue opportunities to help overcome these challenges and is rooted in the understanding that addressing environmental issues requires innovation and solutions that transcend our national boundaries for the benefit of the North American region.

As we enter this new phase of our cooperative relationship, we look forward to the CEC becoming an even stronger international model to address environmental concerns in the context of liberalized trade in North America, including major issues of our time such as contributing to climate change mitigation and adaptation and charting a course for a post-COVID-19 recovery with opportunities for sustainable and resilient growth.

1. Government of Canada website (<https://www.international.gc.ca/trade-commerce/trade-agreements-accords-commerciaux/agr-acc/cusma-aceum/index.aspx?lang=eng>)

2. <https://www.international.gc.ca/trade-commerce/trade-agreements-accords-commerciaux/agr-acc/nafta-alena/fta-ale/facts.aspx?lang=eng>

CEC Mission Statement

In the context of environmental, economic and social linkages between Canada, Mexico and the United States, the CEC facilitates effective cooperation and public participation to conserve, protect and enhance the North American environment in support of sustainable development for the benefit of present and future generations.

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Introduction

About the CEC

Ever since its creation in 1994, the Commission for Environmental Cooperation (CEC) has been a leading catalyst for effective cooperation among the Governments of Canada, Mexico and the United States for the conservation, protection and enhancement of the environment in our territories. With the entry into force on 1 July 2020 of the new trade agreement (CUSMA, USMCA, T-MEC³) and the Environmental Cooperation Agreement (ECA) and the endorsement on 26 June 2020 of the 2021-2025 Strategic Plan, the three countries have renewed their commitment to the CEC and designed a path forward to work together on pressing regional and global issues.

The CEC's mandate is fulfilled through three constituent parts: the Council, the governing body of the Commission, composed of cabinet-level or equivalent representatives responsible for environmental affairs; the Joint Public Advisory Committee (JPAC), composed of nine citizens representing various segments of society, who advise the Council on matters within the scope of the ECA and help promote and enhance public participation and transparency in the CEC's activities; and the Secretariat, which provides support to the Council, manages the implementation of CEC projects and activities under the ECA, and carries out functions in relation to Submissions on Enforcement matters under the free

trade agreement. The cooperative work program is supported by numerous trilateral working bodies of government experts, industry, Indigenous and local communities, academia, and the public.

This Operational Plan presents five multi-year cooperative projects focused on addressing key areas for cooperation under the six strategic pillars for 2021–2025: clean air, land and water; preventing and reducing pollution in the marine environment; circular economy and sustainable materials management; shared ecosystems and species; resilient economies and communities; and effective enforcement of environmental laws. These projects were designed by the respective government experts and the CEC Secretariat, and informed by advice and input of the public through JPAC and the Traditional Ecological Knowledge Expert Group (TEKEG).

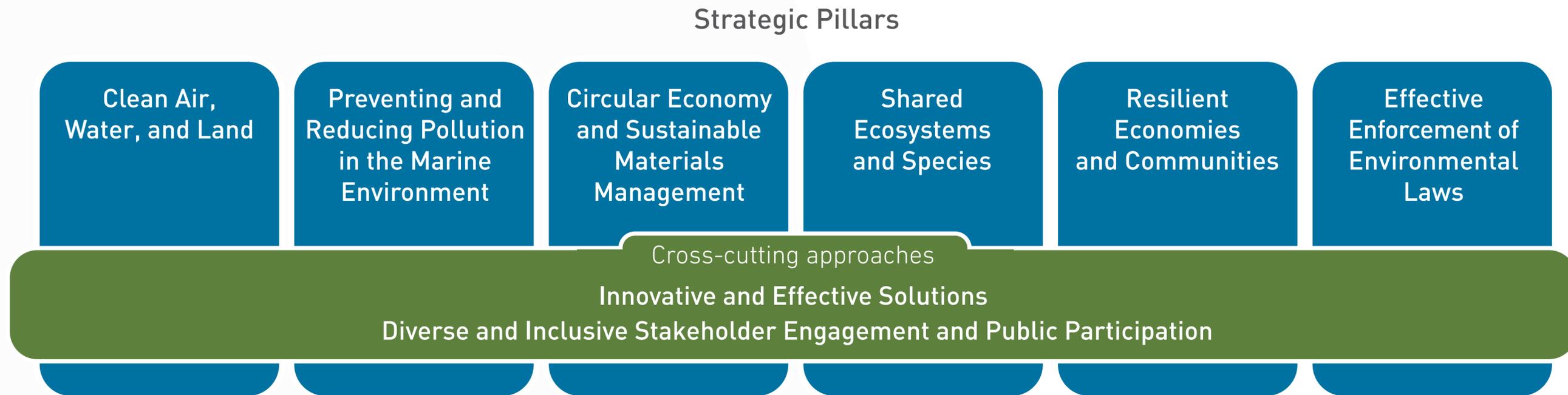
This Operational Plan also describes other areas of work and activities, aligned with the CEC's 2021-2025 Strategic Plan, including direct support to community-level projects through two grant programs, ensuring transparency and public participation in environmental law enforcement, providing relevant and reliable environmental data and information for decision making, and encouraging diverse and inclusive stakeholders and the public to harness their potential as catalysts for change and progress.

3. In Canada and Mexico, the trade agreement is referred to as CUSMA (Canada-United States-Mexico Agreement) and T-MEC (*Tratado entre México, Estados Unidos y Canadá*), respectively. In the US the trade agreement is referred to as USMCA (the United States, Mexico, Canada Agreement).

CEC Strategic Plan 2021-2025

Approved in June 2020 by the CEC Council, the Strategic Plan 2021-2025 marks a renewed commitment by Canada, Mexico and the United States to work together on pressing regional and global issues related to trade and the environment within the framework of the new trilateral free trade agreement and new Environmental Cooperation Agreement (ECA).

The Strategic Plan 2021-2025 encompasses six thematic pillars and two cross-cutting approaches:



The Strategic Plan represents trilateral guidance on effective trilateral cooperation on environmental issues of common interest and concern. It establishes Council guidance and direction of the CEC's efforts for the 2021-2025 period and guides the development of the specific projects and initiatives to be included in the Operational Plans.

Projects and initiatives included in this Operational Plan 2021 will deliver on the Council's objectives and goals and support the strategic pillars and cross-cutting approaches detailed in the CEC Strategic Plan 2021-2025.



2021 Budget

The CEC's 2021 budget is based on total revenues of C\$13,380,000, of which each Party has contributed an equal annual share, supplemented by the allocation of surplus funds from previous years' contributions. The operational budget is complemented by staff time, expertise, and travel support, as well as other in-kind and financial contributions from the Parties and project partners.

In September 2021, the Council authorized the transfer of an additional C\$4,125,000 from the CEC's unrestricted surplus funds to undertake a set of larger-scale initiatives and a new grant program described in this Operational Plan (see under "2021 Work Program").

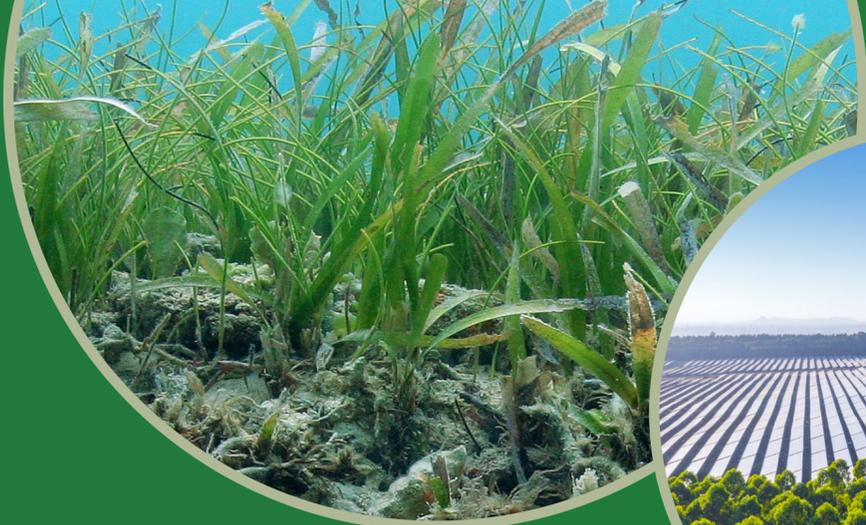


REVENUES

	2021 budget
Parties' Contributions (Contributions US\$7,650,000, at exchange rate US\$1.3272/CDN\$)	10,098,000
Apportioned Amount from Surplus Funds to Supplement Parties' Contributions	1,782,000
Apportioned amount from Surplus Funds to supplement other initiatives (i.e. NAPECA, projects, Council initiatives)	1,500,000
TOTAL REVENUES	13,380,000

EXPENSES

	2021 budget	%
PROJECTS AND INITIATIVES		
Cooperative Projects	4,132,000	
Council-Supported Initiatives	500,000	
North American Partnership for Environmental Community Action (NAPECA)	1,750,000	
Submissions on Enforcement Matters	280,000	
Tracking Pollutant Releases and Transfers in North America (PRTR)	185,000	
CEC Interactive Platforms (Atlas)	98,000	
TOTAL PROJECTS AND INITIATIVES	6,945,000	52%
INSTITUTIONAL SUPPORT AND MAINTENANCE		
Council Support	270,000	
JPAC Support	300,000	
TEK Expert Group Support	100,000	
Communications	310,000	
Stakeholder engagement and Partnership Development	205,000	
Information System Infrastructure Maintenance	250,000	
Performance Measurement and Reporting	155,000	
Strategic and Operational Planning	105,000	
Institutional Transition	0	
TOTAL INSTITUTIONAL SUPPORT AND MAINTENANCE	1,695,000	13%
ADMINISTRATION AND MANAGEMENT		
Salaries, Benefits and Professional Development	3,310,000	
Operating Expenses	625,000	
External Administrative Support	365,000	
Relocation/Orientation, Recruitment	75,000	
Executive Director's Office	65,000	
TOTAL ADMINISTRATION AND MANAGEMENT	4,440,000	33%
Contingency Fund	300,000	2%
TOTAL EXPENSES	13,380,000	100%



2021 Work Program

Working Together to Protect the North American Environment

Cooperative Projects

The following trilateral cooperative projects, directly support North American communities and governments efforts in addressing issues related to the 2021-2025 Strategic Plan's six priority pillars. Full project descriptions, including activities and budgets, are presented in Appendix I.



Strengthening the Implementation and Effective Enforcement of CITES for Timber in North America

CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) provides crucial mechanisms to ensure that international trade in wild animals and plants is carried out in a controlled manner that does not threaten the survival of species. Appendix II of CITES covers species that are not necessarily threatened with extinction, but for which trade must still be controlled to avoid the possibility that they become endangered. The CEC project will help reduce illegal trade in CITES Appendix II timber species in North America by bringing together and leveraging the knowledge and roles of management and scientific authorities, enforcement officers, wood identification experts and forensic scientists, and other relevant experts to address specific needs within CITES regulations and enforcement activities.





This project will develop information on CITES enforcement relevant to the trilateral North American context, enhance the capacity of enforcement officials to identify CITES timber species reaching our borders, explore methods and systems for tracking timber species in trade, and support scientific assessment of a new CITES source code (related to timber species). These efforts will strengthen communication and coordination between key actors throughout North American CITES implementation and provide them with invaluable information to strengthen CITES enforcement and contribute to addressing the root causes of illegal trafficking of timber species.





Grasslands Conservation and Migratory Birds

The central grasslands of the Great Plains are a shared ecosystem stretching from southern Canada, through the United States, into northern Mexico. These grasslands are one of the most endangered ecosystems in North America, home to many endemic grassland-dependent species that are at-risk, threatened, or endangered. The central grasslands also provide other valuable environmental services (e.g., carbon sequestration, water supply and flow regulation, and erosion control), and play a crucial role in agricultural sustainability for rural communities and economies.





In this context and recognizing the need to achieve adequate ecosystem representation for grasslands, the three countries have made commitments to conserve at least 30 percent of our respective land and waters by 2030 (“30 x 30”). To help fulfill these commitments, the CEC will support central grasslands cross-sector, mainstreamed management, restoration, and conservation in Canada, Mexico, and the United States by raising awareness on the importance of grasslands, providing new knowledge for decision-making, and strengthening collaboration, through inclusive network-building and strategic planning.

In particular, the project will contribute by filling three recognized gaps in central grasslands conservation: 1) produce the first human dimensions study of central grasslands conservation, to support more effective conservation actions; 2) develop a standardized framework to support data-based, comparable monitoring of grasslands change; and 3) strengthen and expand collaboration through more inclusive engagement and messaging aimed at underrepresented and new partners.





Reduction of Marine Litter

As a growing problem that negatively affects economies and threatens ecosystems and potentially human health, marine litter is a high-priority global issue being addressed from several different angles. It is estimated that 80 percent of marine litter originates from land-based sources, often due to the improper disposal of items or uncollected waste that becomes litter and travels through watersheds to the oceans. To prevent and reduce marine litter, actions are needed across the lifecycle of products. Recognizing the importance of acting on this issue, Canada, Mexico and the United States have committed to taking measures to prevent and reduce marine litter through their environmental cooperation work program.

Building on previous CEC efforts, the project will build public awareness about marine litter, deploy litter capture devices, collect comparable data across the three countries, and reduce land-based marine litter, including single-use plastic products and packaging, in communities located inland along waterways and river systems in North America. By demonstrating, educating, and communicating about the flow of commonly littered items downstream to the ocean, using low-cost technology and a variety of communication tools, the project will help prevent and reduce marine litter originating from inland cities.

Transforming Recycling and Solid Waste Management in North America

The World Bank estimates that around 2 billion tonnes of municipal solid waste were generated in 2016, with Canada, Mexico and the United States generating 0.4-1.5 kg more waste per capita per day than the global average. North America has the highest per capita plastic and paper consumption in the world. The region represents 21% of total plastics consumption and four times the global average in per capita paper consumption. Reducing waste and closing material loops will help minimize the environmental impacts along the value chain of resources and products, as well as presenting considerable economic opportunities. The transition to a circular economy and increased material recovery also offers solutions to mitigate climate change.

This project aims to accelerate the uptake of circular economy and sustainable materials management practices that are needed to transform North American recycling and solid waste management and to realize the economic and environmental benefits for the region. The project will address information gaps, inform policymaking across Canada, Mexico and the United States, identify potential areas for policy coherence, and advance circularity and sustainable material management practices. This information will support the three countries in their efforts to promote circular economy and sustainable materials management approaches to encourage eco-design and thus increase product and material reuse, recovery and recycling rates in North America.



Nature-based Solutions to Address Flooding in Coastal Cities

Many North Americans live in coastal cities that produce a high value of goods and services but are vulnerable to flooding. The risks associated with coastal flood hazards are escalating due to land-use changes, ecosystem loss or transformation, population growth in coastal zones, sea-level rise, changes in the frequency and severity of storms, and ageing flood protection infrastructure. Tide- and storm-driven flooding is increasingly damaging homes and infrastructure, and generally disrupting coastal communities and their economies. Natural areas adjacent to cities provide ecosystem benefits and services that support climate change adaptation for communities. Inspired by these systems, nature-based solutions (NBS) reduce flood and erosion risk through the protection, restoration, and sustainable management of natural coastal environments, and the construction of new features that mimic or work with ecological processes. NBS contribute to increased resilience in coastal areas, helping to manage risks with cost-effective, holistic, and innovative approaches, while also delivering co-benefits, such as habitat, recreation, and water quality.



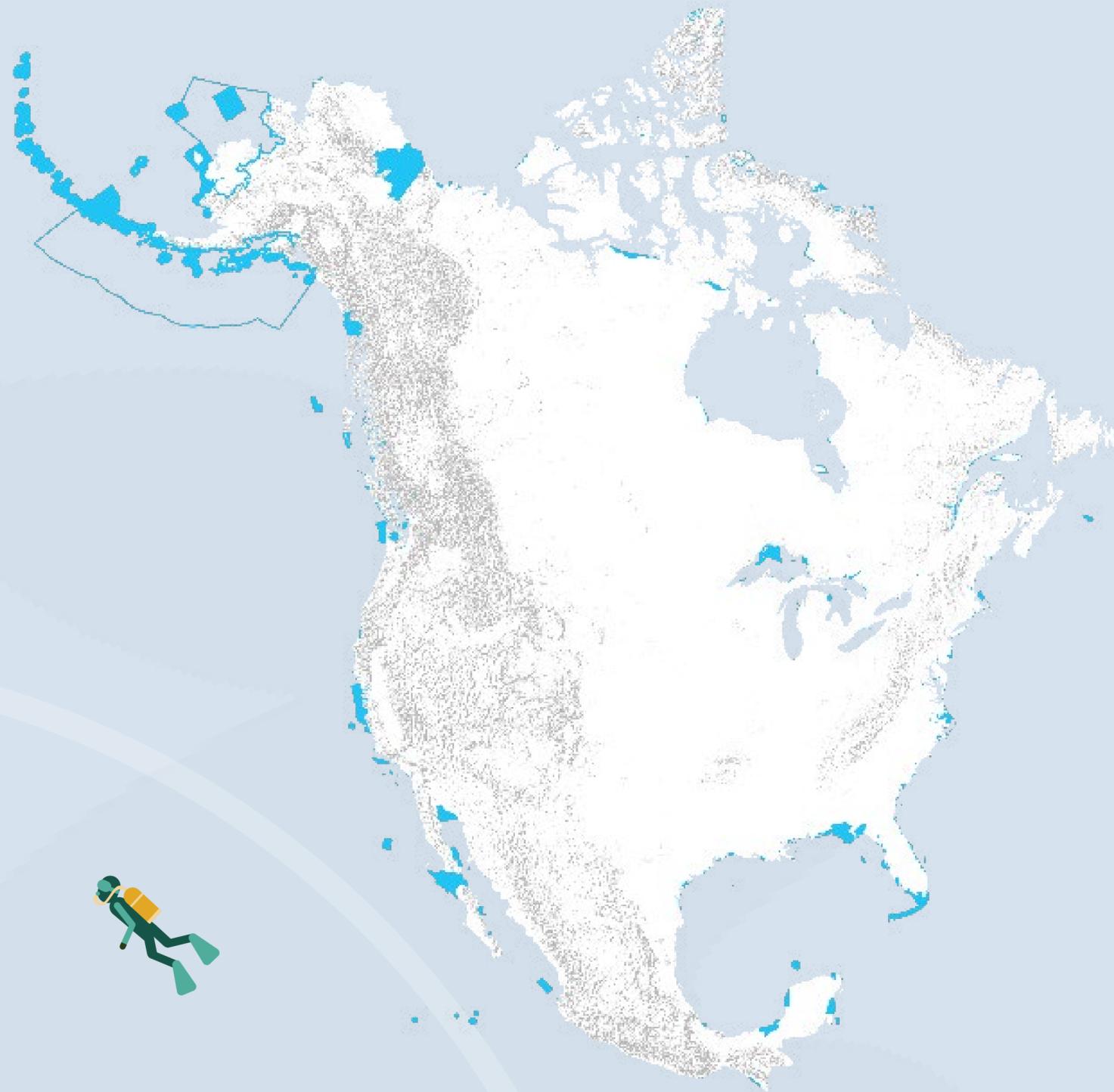


This project provides a first opportunity for NBS practitioners, working across North America in a broad range of disciplines, to lay the foundation for a North American community of practice that can offer an interdisciplinary approach to implementing NBS. It also addresses barriers to using NBS by filling knowledge gaps on co-benefits, retrofitting and monitoring, and by training practitioners and educating community members on the use of NBS.

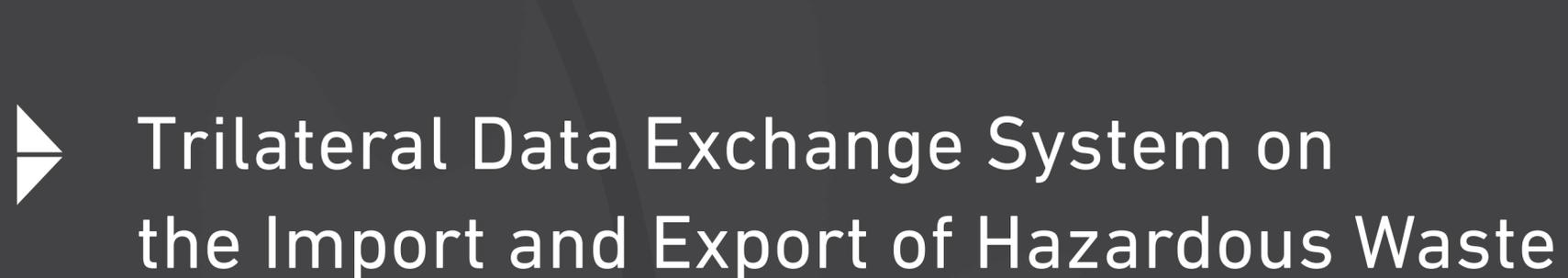




Enhancing Co-Benefits of Marine Protected Areas



The marine environment is inherently connected and transboundary in nature, causing threats to biodiversity to have impacts at local, regional, and global scales. Climate change has increased the need for collaboration across seascapes, as climate change impacts can affect the distribution and movement of species and cause habitat shifts. Marine Protected Areas (MPAs) are key to conserving and restoring coastal and marine ecosystems, delivering many natural and socio-economic co-benefits. Strengthening collaboration and capacity across MPAs in North America has been an ongoing priority for the CEC. Previous work has included the development of tools to identify vulnerabilities in coastal and marine ecosystems and develop targeted adaptation strategies. Building on this past work, the current project aims to support the development of an ecologically and socially inclusive network of MPAs for the benefit of coastal and marine ecosystems, coastal communities, and a more resilient North America. Recognizing the leadership role of Indigenous and local communities in the management and conservation of coastal and marine areas, the project aims to increase Indigenous and local community engagement in North American MPA networks. This follow-up project will provide opportunities for knowledge sharing and capacity building to enhance the role of coastal and marine protected areas as nature-based solutions for climate adaptation and mitigation, while ensuring socio-economic co-benefits to fisheries, tourism, and other sectors.



▶ Trilateral Data Exchange System on the Import and Export of Hazardous Waste

Pursuant to relevant regulations, Canada, Mexico and the United States control the import and export of hazardous wastes by exchanging notice and consent prior to shipping these wastes across their borders. In the context of CEC's 2019-2020 Operational Plan, the CEC supported the countries to update their Notice and Consent Electronic Data Exchange (NCEDE) system to facilitate the seamless exchange of notifications relative to cross-border movements of hazardous waste and have the flexibility to respond to updates in regulations, with the goal of protecting the North American environment.

Modernizing the NCEDE system is in itself an innovative and effective solution, since improving existing NCEDE data exchange between the North American countries directly improves environmental protection by establishing more efficient control of hazardous waste exports and imports. For example, it can prevent unauthorized dumping and recycling of hazardous waste that could lead to environmental and health risks—particularly for vulnerable populations (e.g., women and children) that are exposed to these contaminants through their work or in their communities.

This follow-up project primarily involves the enforcement agencies in the three countries and supports continuation of the joint work carried out within the previous project by the three countries, representing authorization management for transboundary movements of waste, and information technology to finalize the IT system that hosts the new API exchange.





Preventing and Reducing Food Loss and Waste – Continued Outreach, Enhancement and Promotion of CEC Related Products and Stakeholder Engagement

Food loss and waste (FLW) is an increasingly important issue in Canada, Mexico and the United States, where close to 170 million tonnes of food produced for human consumption are lost and wasted each year—across the food supply chain, including in pre-harvest and consumer sectors. Disposal of food waste in landfills produces methane, a powerful greenhouse gas many times more potent than carbon dioxide. FLW also has environmental and socio-economic impacts, including the inefficient use of natural resources, economic loss, biodiversity loss, and public health issues. Therefore, preventing food from becoming waste in the first place is one of the most impactful approaches Canada, Mexico and the United States can take to reduce the environmental harm associated with FLW.

The main goal of this follow-up project is to build upon momentum achieved through promotion and awareness-raising during past CEC projects related to FLW prevention and reduction. The CEC actively works to elevate the visibility of preventing, recovering, recycling, and reducing food loss and waste through continued outreach, enhancement, and promotion of CEC-related products and stakeholder engagement.



EcolInnovation Network - Transition

Innovation centers play a key role in sustainable economic development and job creation within and beyond the communities they serve. A key feature of the innovation centers is to provide inclusive and equal access to students and the public to capitalize on training, tools and resources for innovation, sustainable design, entrepreneurship, and business development and sustainable innovation for students and communities in North America. In 2019, the CEC launched the EcolInnovation Network (EIN) to promote the creation and interconnection of innovation centers at academic institutions across North America and provide tools for youth and communities to further green growth through entrepreneurship, innovation and sustainable design.

This follow-up project is intended to create a financially independent and sustainable EIN by 30 June 2023, transferring the financial, operational and governance responsibilities of the Network from the CEC to the EIN members, partners, and the managing institution, and build the necessary operational and financial capacity for the Network to continue its efforts in the future.





Council-supported Initiatives

During its 2021 Regular Session, the CEC Council endorsed an additional initiative on Indigenous approaches to freshwater management in North America.



Indigenous Approaches to Freshwater Management in North America

Water is at the core of the six pillars under CEC's Strategic Plan: water management, water cleanliness, ecosystem health, marine pollution, and supporting economic sectors heavily reliant on the sustainable management of water. Indigenous Peoples' traditional cultures and knowledge systems are globally recognized as holding critical information related to achieving sustainable practices in environmental management. As such, a fuller appreciation of Indigenous Peoples' perspectives is essential to advancing inclusive and diverse sustainable environmental management approaches in meeting the goals and priorities of the CEC, and to institutionalizing the inclusion of traditional ecological knowledge (TEK) in the activities of the organization.

This initiative will document Indigenous approaches to freshwater management in North America and make lessons learned available to the public through an online portal on CEC's website. This initiative will include a series of case studies identified by the Traditional Ecological Knowledge Expert Group (TEKEG), a public consultation to complement the case studies and a workshop with water experts on potential opportunities to apply TEK to the CEC's operations and policy recommendations. A full project description is presented in Appendix I.





Large-scale Initiatives

Two new large-scale initiatives will be introduced in 2021, demonstrating the CEC's eagerness to undertake bolder steps in addressing issues of common interest: addressing 'ghost' fishing gear in marine ecosystems, and working on mitigating 'black carbon' for the improvement of air quality and support for environmental justice in a local context.



Addressing Abandoned, Lost or Discarded Fishing Gear in the Marine Environment

The CEC project on marine debris (i.e., ghost gear) initiative will focus specifically on abandoned, lost or discarded fishing gear (ALDFG). Addressing this source of marine debris is an issue of trilateral importance, as signaled by the United States and Mexico joining Canada in becoming signatory countries of the Global Ghost Gear Initiative.

This project will implement immediate actions to reduce ALDFG, as well as assist in developing protocols and strategies for sustainable fisheries, build fishing industry understanding and collaboration, and ensure that end-of-life fishing gear is responsibly managed in coastal fishing communities.





▶ Black Carbon Mitigation and Air Quality Improvement and Environmental Justice

The initiative aims to provide opportunities to improve air quality and mitigate climate change by addressing black carbon emissions within environmental justice communities.

This project will deploy low-cost air pollution sensors to identify the contributions of black carbon sources and better measure $PM_{2.5}$ exposure levels in environmental justice communities, and work with municipal stakeholders to assess the benefits of emission mitigation strategies.

The full descriptions for these initiatives are in development.

Supporting Communities

➤ EJ4Climate Community Grant Program

Recognizing that the effects of climate change pose great challenges to North American communities and that building community resilience to the climate crisis is urgent, the US Environmental Protection Agency (EPA) transferred US\$1 million to the CEC towards a new grant program to support underserved and vulnerable communities, including Indigenous communities, as they prepare for climate-related impacts. The CEC will also inject an additional US\$1 million from previous years' surplus in order to provide C\$2,125,000 in funding to communities to develop and deliver community-based solutions across the region. The most innovative and impactful projects will be selected in a competitive process that will begin in fall 2021.

➤ North American Partnership for Environmental Community Action (NAPECA)

With C\$5,979,810 disbursed since 2010, the CEC's North American Partnership for Environmental Community Action (NAPECA) grants program has supported the delivery of projects led by nonprofit and nongovernmental organizations that build partnerships and drive action at the local level. This program promotes a sense of shared purpose and responsibility for the environment and has served as an important mechanism for bringing direct benefits to local communities in the region and for engaging the public in addressing the CEC's priorities. These projects have also served to complement the work of the CEC. The latest iteration of the NAPECA grants program, to be launched in November 2021, will provide C\$1,500,000 to projects that help communities recover from the COVID-19 pandemic.





Improving Access to Information for Decision-Makers

The CEC's online library, data tools and resources provide the public with access to high-quality environmental information and resources, including scientific reports, databases, and maps, to support the efforts of government officials, the private sector, academic and research institutions, nongovernmental organizations, and communities relative to environmental research and management.

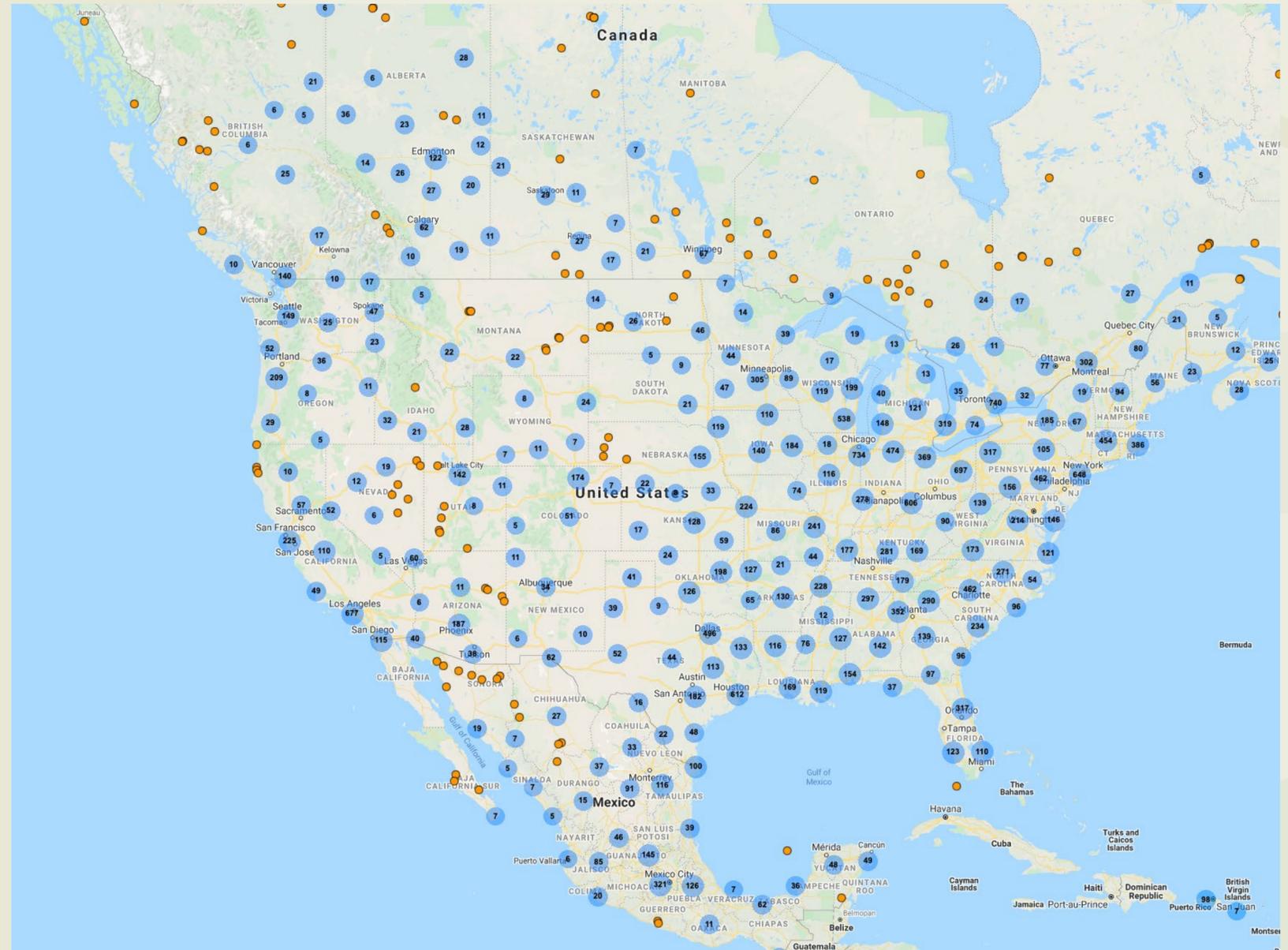
Activities in 2021 will focus on improving accessibility and readability of the online library and the upkeep and expansion of CEC's trilateral datasets and maps, including Taking Stock Online, the North American Environmental Atlas, and the North American Land Change Monitoring System (NALCMS). The list of activities and budgets for these initiatives are presented in Appendix II.



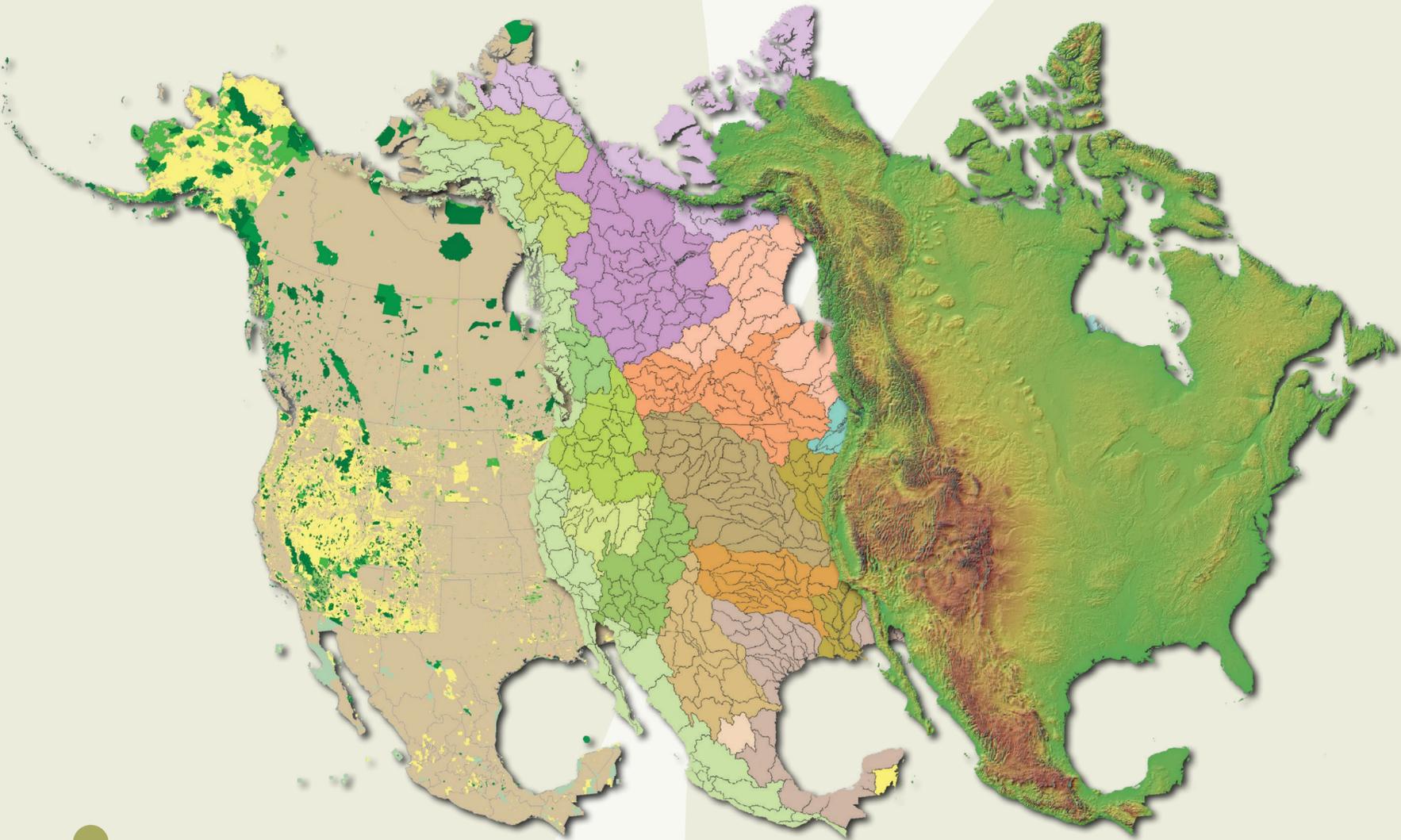
North American Pollutant Release and Transfer Register (NAPRTR)

The NAPRTR Initiative integrates and harmonizes data on the sources, amounts and management of industrial pollutants from approximately 30,000 facilities reported by industrial facilities to the Canadian, Mexican and US pollutant release and transfer registers (PRTRs). These data, accessible via the *Taking Stock* report series and Taking Stock Online website and searchable database, are used by industry, researchers, NGOs and the public to examine facility reporting and to better understand potential risks associated with industrial substance use and emissions, and the effectiveness of pollution prevention measures.

Coordination among national PRTR programs will continue in 2021 to enhance NAPRTR data quality, comparability and accessibility; integrate the most recent PRTR data available for all three countries in Taking Stock Online; publish Volume 16 of the *Taking Stock* report, featuring a special analysis of off-site pollutant disposals; and carry out discussions with stakeholders to develop a voluntary industrial pollution prevention “Challenge” initiative.



The North American Environmental Atlas



The North American Environmental Atlas is an online mapping resource that assembles over sixty seamless and accurate cartographic data and maps, documentation, and interactive map layers of North America at a scale of 1:10,000,000 or greater. The thematic map layers allow for the visualization of various environmental topics, such as impacts on ecosystems and communities of a variety of economic activities and support research, analyses and management of environmental information in Canada, Mexico and the United States.

Activities in 2021 will be focused on updating individual map layers, including (but not limited to) Blue Carbon, Terrestrial Ecoregions, North American Forests, and Reporting Industrial Facilities. Additional activities and resources will also be dedicated to improving the visibility and dissemination of this work.



North American Land Change Monitoring System (NALCMS)



The NALCMS depicts information about land cover and land cover change in a seamless, consistent, and automated way across North America. The system provides valuable indicators to help the three countries better understand the dynamics of land cover and its changes over time and can be used in analyses for decision making about issues such as ecosystem management and conservation, climate change mitigation and adaptation, and urban sprawl.

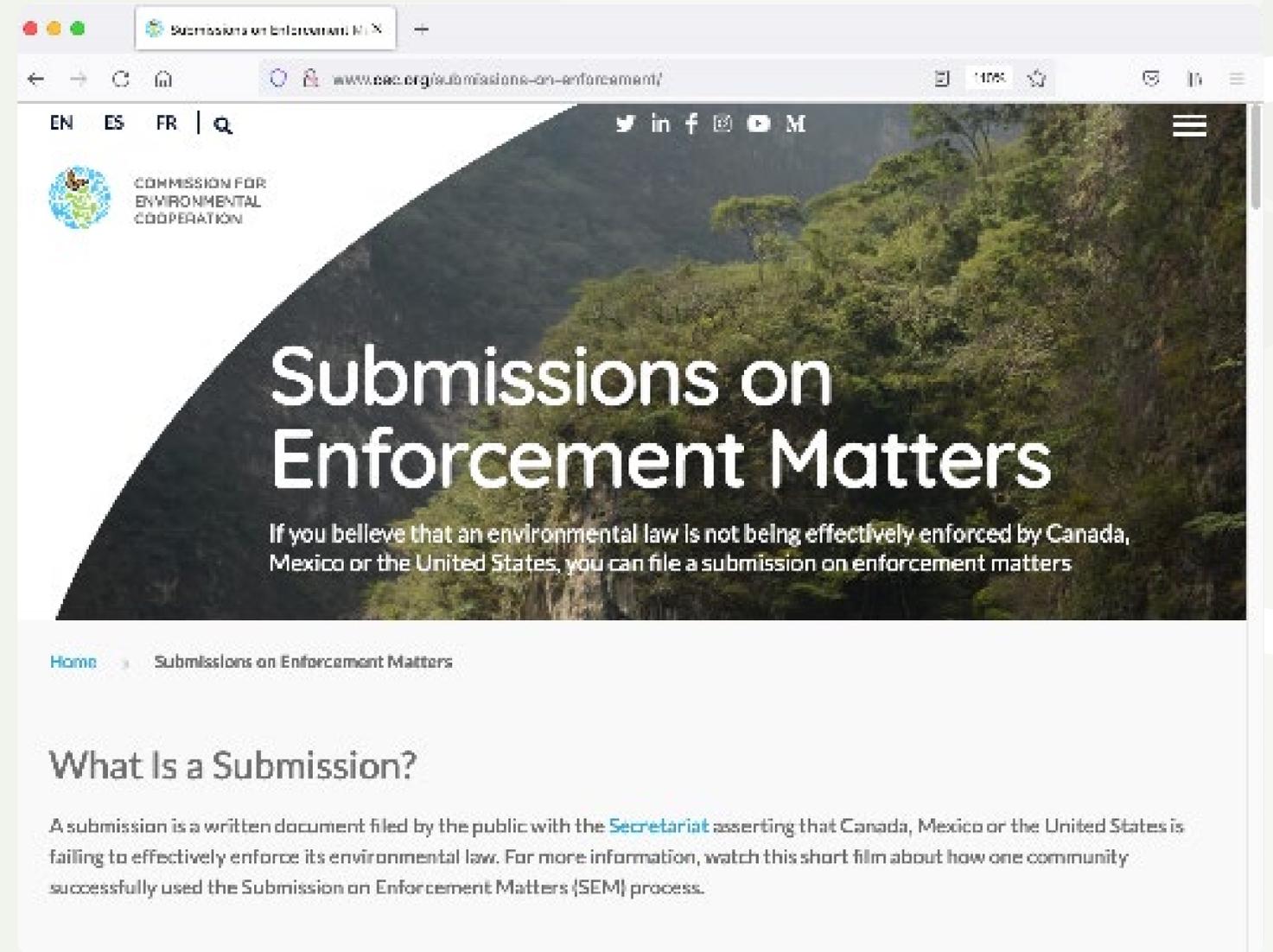
Activities will be undertaken in 2021 to integrate and publish the North American land cover 2020 dataset and develop promotional material to reach and engage stakeholders.



Ensuring Transparency and Public Participation in Effective Environmental Law Enforcement

The Submission on Enforcement Matters (SEM) process is a mechanism originally established under the 1994 North American Agreement on Environmental Cooperation that allows any person of a Party to raise concerns on an alleged failure of any of the three Parties to effectively enforce its environmental laws. The process, continued and now governed by Articles 24.27 and 24.28 of the Environment Chapter of CUSMA/T-MEC/USMCA, aims to promote transparency and public participation by enhancing understanding of environmental law enforcement in North America. The CEC Secretariat is responsible for implementing key stages of this process as per the 2020 ECA and the trade agreement.

In 2021, efforts and emphasis will be placed on maintaining a rigorous, transparent, timely, and efficient SEM implementation; with emphasis on making the filing of submissions simple, straightforward, and consistent with the trade agreement; and strengthening public awareness on the SEM process through outreach and engagement activities with relevant stakeholders in North America. The list of SEM activities and associated budget are presented in Appendix II.





Promoting Diverse and Inclusive Stakeholder Engagement

In 2021, the CEC will seek an even more diverse and inclusive engagement of a broader range of sectors of the population to strengthen its work and facilitate the dissemination and delivery of its outputs and results for a wider audience, broadening its impact and reach. To be inclusive is to ensure that the perspective of all, whose safety, livelihood and health are compromised by environmental degradation, including extreme climate events, are recognized and considered in our engagement and collaborative efforts.





Joint Public Advisory Committee (JPAC) Activities

As the core mechanism for transparency and public participation in CEC's work, the Joint Public Advisory Committee (JPAC) will continue to engage extensively with stakeholders and the public in all three countries through public forums and consultations and provide advice to the Council on matters within the scope of the Strategic Plan 2021–2025 and the ECA.

The 2021 JPAC's annual plan of activities will focus on the following topics and deriving issues of interest described in the Strategic Plan 2021-2025: Climate Change, Indigenous perspectives and integration of Traditional Ecological Knowledge (TEK) into the work of the CEC, Water, and Trade and Environment.

Traditional Ecological Knowledge Expert Group (TEKEG) Activities

The CEC will continue working with the Traditional Ecological Knowledge Expert Group (TEKEG) to inform, support and enhance CEC engagement activities, and identify and incorporate traditional ecological knowledge, Indigenous perspectives and stewardship practices into its activities and policy recommendations, as appropriate.

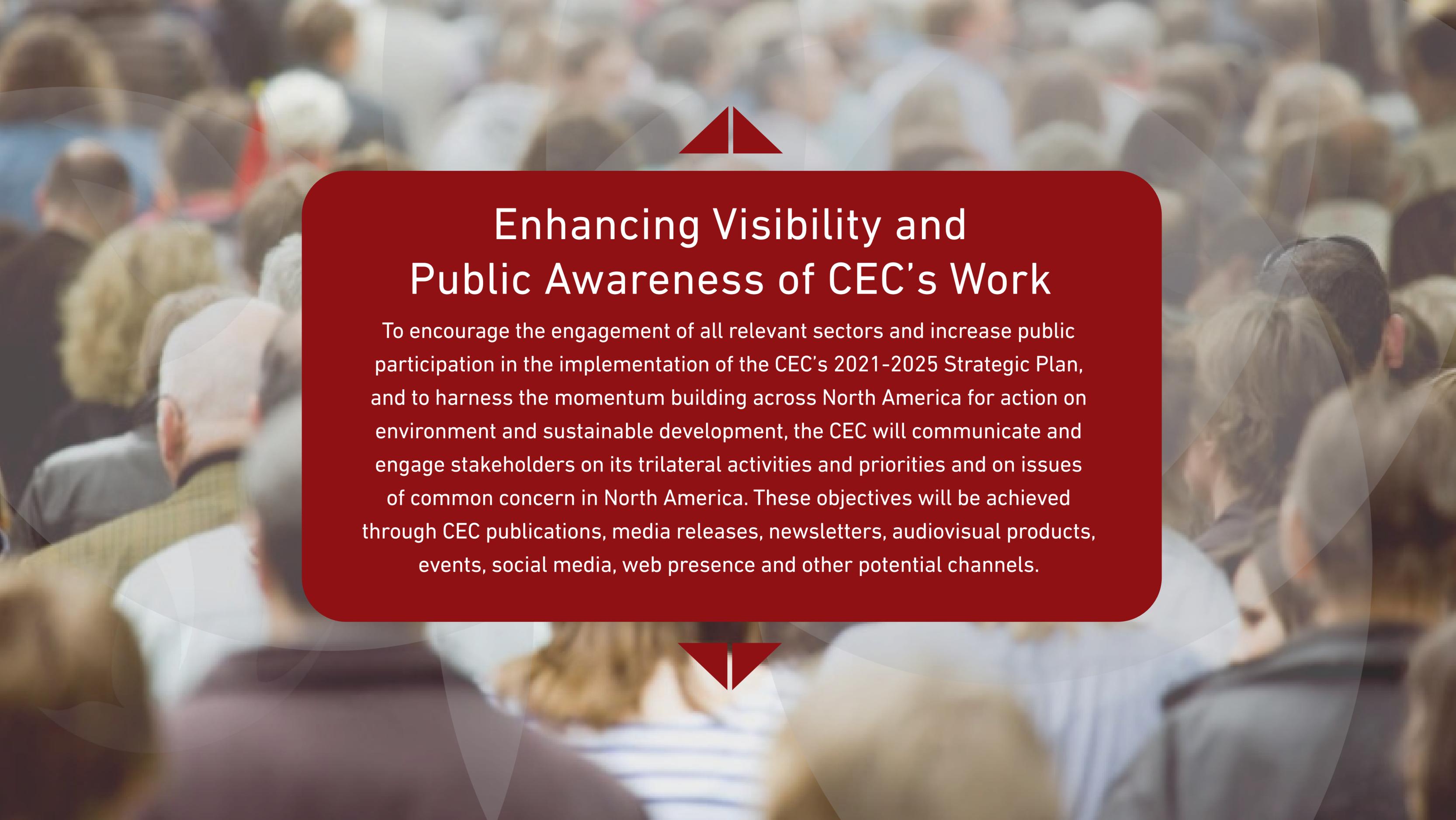
Other Outreach and Partnership Activities

Specifically, in 2021, efforts will be focused on expanding CEC's stakeholder network and strengthening the relationship with current collaborators and partners through, for example, the implementation of innovative engagement tools and communication channels for targeted sectors; developing and implementing a youth engagement strategy; communicating consistently with stakeholders; facilitating events and fora to ensure public participation; and harmonizing internal practices and processes for more effective and efficient engagement efforts. In line with the initiatives outlined previously, the CEC will also reinvigorate its engagement efforts with the business community, to ensure a more effective role for the private sector in addressing trilateral priorities under the CEC.

Outreach and partnership activities will be geared toward increasing regional and international presence and recognition of the CEC's crucial role in ensuring a sustained and substantial effort in promoting trilateral cooperation in North America. Activities aimed at strengthening relationships with collaborators and developing and maintaining partnership linkages and channels will be managed to maximize resources and impact.

A list of activities and associated budget for JPAC, the TEKEG, and other stakeholder engagement efforts are presented in Appendix II.





Enhancing Visibility and Public Awareness of CEC's Work

To encourage the engagement of all relevant sectors and increase public participation in the implementation of the CEC's 2021-2025 Strategic Plan, and to harness the momentum building across North America for action on environment and sustainable development, the CEC will communicate and engage stakeholders on its trilateral activities and priorities and on issues of common concern in North America. These objectives will be achieved through CEC publications, media releases, newsletters, audiovisual products, events, social media, web presence and other potential channels.

Continuing a Model of Collaboration and Success

The CEC is a recognized model of collaboration and success. It provides a neutral forum for examining emerging and complex issues and possible strategies to address them. Much of the CEC's success can be attributed to its ability to act as a convener and to facilitate consensus among experts and policy makers in the three countries.

In 2021, the CEC will continue building on this collaboration to deliver an expanded and durable agenda for action. It will also be counting on the contribution of JPAC whose commitment and experience will be invaluable in terms of providing high quality advice to the CEC Council and incorporating the public's perspective in planning and implementing the CEC's work.





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2021 Operational Plan Appendix I



Appendix I: Cooperative Project Descriptions

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Transforming Recycling and Solid Waste Management in North America

1. **Project duration:** from November 2021 to October 2025 (48 months)

2. **Budget (C\$):** 1,530,000

Phase I (Years 1 and 2 – Objective 1): C\$745,000

Phase II (Years 3 and 4 – Objective 2): C\$785,000

3. **Short statement of the issue(s) under this topic, need/gap identified; the project objective(s) and activities to address the issue; and expected outcomes and benefits/beneficiaries:**

The World Bank estimates that around 2 billion tonnes of municipal solid waste were generated in 2016, with Canada, Mexico and the United States generating 0.4-1.5 kg more waste per capita per day than the global average.¹ North America has the highest per capita plastic and paper consumption in the world. The region represents 21% of total plastics consumption² and four times the global average in per capita paper consumption.³

According to the World Bank, while waste is generally managed in an environmentally sound manner in North America, globally the mismanagement of waste is polluting the oceans, clogging sewers, and causing flooding, transmitting diseases, and increasing respiratory problems, and, according to 2016 data, generating 1.6 billion tonnes of carbon dioxide.

Reducing waste and closing material loops will help minimize the environmental impacts along the value chain of resources and products, as well as presenting considerable economic opportunities. Circular economy strategies, including various recovery options, are estimated to unlock \$4.5 trillion of economic growth around the globe.⁴ The World Business Council for Sustainable Development

¹ Kaza, Silpa; Yao, Lisa C.; Bhada-Tata, Perinaz; Van Woerden, Frank. 2018. [What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050](#). Urban Development. Washington, DC: World Bank. © World Bank. License: CC BY 3.0 IGO.

² Heller, M., Mazor, M., & Keoleian, G. (2020). [Plastics in the US: toward a material flow characterization of production, markets and end of life](#). Environmental Research Letters, 15(9), 94034–.

³ Mandy Haggith, Susan Kinsella, Sergio Baffoni, Patrick Anderson, Jim Ford, Rune Leithe, Emmanuelle Neyroumande, Neva Murtha and Bas Tinhout. 2018. [The State of the Global Paper Industry. Shifting Seas: New Challenges and Opportunities for Forests, People and the Climate](#). Environmental Paper Network

⁴ Accenture (2018), retrieved from <https://newsroom.accenture.com/news/the-circular-economy-could-unlock-4-5-trillion-of-economic-growth-finds-new-book-by-accenture.htm>

estimates that the global bioeconomy market could be worth up to US\$7.7 trillion by 2030, with significant opportunities for circular solutions.

The transition to a circular economy and increased material recovery also offers solutions to mitigate climate change. The magnitude of avoided GHG-emissions benefits from material circularity is highly dependent on the type of material and the local circumstances for energy offsets. For example, the US EPA estimates that recycling of various paper products could result in 2.64-3.59 Mt CO₂e reduction per short ton of paper,¹ and a study of the Canadian plastic sector estimates that diverting 90% of the plastic waste now going to landfills could result in 1.8Mt of CO₂e reduction by 2030.²

The objective of this proposal is to accelerate the uptake of circular economy and sustainable materials management practices that are needed to transform North American recycling and solid waste management and to realize the economic and environmental benefits for the region. This will be accomplished by developing milestone studies to better understand the opportunities for the recycling sector and secondary material markets in North America, an overview/description of the legal and policy relevant frameworks, identify emerging materials and technologies, and support stakeholder collaboration and knowledge sharing via networking activities. Building on the results of milestone studies and stakeholder input, the project will include pilot projects to assess the feasibility of innovative technologies or practices for adoption at scale across North America.

The project is expected to address information gaps, inform policy-making across Canada, Mexico and the United States, identify potential areas for policy coherence, and advance circularity and sustainable material management practices. The project will support CEC member states in their efforts to promote circular economy and sustainable materials management approaches to encourage eco-design and thus increase product and material reuse, recovery and recycling rates in North America. The transition to circular economy approaches that are restorative or regenerative by design is intended to prevent and eliminate waste through improved design of materials, products, and systems (including business models), allowing resources used in such processes and activities to maintain their highest values for as long as possible.

¹ US-EPA (2016), Waste Reduction Model, Documentation for Greenhouse Gas Emission and Energy Factors Used (2016), retrieved from: [Waste Reduction Model \(WARM\), Documentation for Greenhouse Gas Emission and Energy Factors Used](#)

² Government of Canada (2019), [Economic Study of the Canadian Plastic Industry, Markets and Waste](#)

4. Select the strategic pillar(s) from the 2021-2025 Strategic Plan that the project addresses:

- Clean Air, Land and Water
- Preventing and Reducing Pollution in the Marine Environment
- Circular Economy and Sustainable Materials Management
- Shared Ecosystems and Species
- Resilient Economies and Communities
- Effective Enforcement of Environmental Laws

5. Describe how the project uses strategic cross-cutting approaches in its implementation: Innovative and Effective Solutions and/or Diverse and Inclusive Stakeholder Engagement and Public Participation (including gender and diversity effects and opportunities, and youth):

The proposed activities will add value and accelerate sustainable materials management and inform the development of a circular economy in North America by supporting foundational knowledge creation; fostering collaboration between industry, academia, governments, and other relevant stakeholders; and strengthening public information sharing. The project will be an opportunity for entrepreneurs, including youth, in the recycling and recovery sector to develop sustainable materials practices and scale other emerging technologies for waste management and material recovery. The project will consider circular economy and sustainable material management opportunities for Indigenous communities, as appropriate.

6. Explain how the project can achieve more impact through trilateral cooperation:

The acceleration of the uptake of circular economy and sustainable materials management practices that are needed to transform North American recycling and solid waste management can be done through a process of exchange and discussion among the three countries. The milestone studies of the state of opportunities for the recycling sector in the region will offer wider perspectives on the supply and demand for secondary material and opportunities for innovation, given the integrated nature of key value chains across North America. By working together to collect information about recycling and waste management and facilitate a forum for open exchange with stakeholders, the three countries can create a shared understanding of potential barriers as well as opportunities for supporting the sector and making progress. The outcomes of the pilot testing phase will highlight different approaches and

technologies that could be expanded beyond national boundaries. As part of this project, the three countries will also strengthen their waste management networks, disseminate relevant information in the three CEC official languages and promote other initiatives focused on the circular economy.

7. Describe how the project complements, or avoids duplication with, other national or international work:

The project will expand on existing material recovery studies from the United States and Canada and cover a targeted scoping study of recycling infrastructure in Mexico. The milestone studies will open potential ways to scale-up opportunities around this industry, while broad stakeholder engagement in the process, and specifically in the pilot testing, is key to potential implementation of improvements in materials management in North America.

8. Describe how the project engages traditional ecological knowledge (TEK) experts or Tribal/First Nations/Indigenous communities, if applicable:

Where possible, the project will take into account traditional ecological knowledge of tribal and Indigenous communities that has the potential to be applied in the circular economy and opportunities for sustainable material management. In addition, Indigenous and tribal communities or organisations could participate in the project's discussion forums and final dissemination stage of the project outcomes.

9. Describe how the project engages new audiences or partners, if applicable:

The project has the potential to bring together stakeholders along North American value chains, from brand-owners and producers to recyclers and municipalities to exchange information, identify barriers to material recovery, and explore opportunities to expand the secondary material markets in North America. In this context, the project will create opportunities for discussions and exchange, the development of pilot projects as well as potential partnerships, amongst industry, academia, government organizations, and NGOs.

10. Identify the designated partner agencies or organizations committed to implementing this project, as well as other organizations that could be involved, or benefit from it, including through outreach efforts, collaborations or partnerships (e.g., federal agencies, other levels of government, academia, NGOs, the private sector, civil society, and youth):

Lead agencies or organizations	Country
Natural Resources Canada (NRCan)	Canada
Environment and Climate Change Canada (ECCC)	Canada
Agriculture and Agri-food Canada	Canada

Innovation, Science and Economic Development Canada	Canada
US Environmental Protection Agency (USEPA)	United States
US Department of State	United States
US Department of Energy ReMade Institute	United States
<i>Secretaría de Medio Ambiente y Recursos Naturales (Semarnat)</i>	Mexico
<i>Instituto Nacional de Ecología y Cambio Climático (INECC)</i>	Mexico
<i>Procuraduría Federal de Protección al Ambiente (Profepa)</i>	Mexico

Potential Expert Organizations and Networking Partners	Country
FPInnovations, researchers within government and universities (e.g., UBC Bioproducts Institute, Smart Prosperity Institute)	Canada
Regional recycling agencies	Canada
Canada Plastics Pact, BioDesign	Canada
PIP360, Canadian Product Stewardship Council	Canada
National Zero Waste Council	Canada
Circular Economy Leadership Coalition	Canada
Pembina Institute	Canada
World Wildlife Fund	Canada
Other actors implementing practices such as cities with plastic bags and fees, bottle bills	Canada
Researchers within government and universities (e.g., Center for Bioplastics and Biocomposites, Golisano Institute for Sustainability), Ellen MacArthur Foundation, University of Florida SMM research lab, University of Georgia	United States
US Plastics Pact, Association of Plastic Recyclers	United States

Sustainable Packaging Coalition	United States
The Recycling Partnership	United States
Closed Loop	United States
Institute of Scrap Recycling Industries (ISRI)	United States
Keep America Beautiful	United States
Plastics Industry Association	United States
Alliance to End Plastic Waste	United States
Circulate Capital	United States
Center for Biological Diversity	United States
Greenpeace	United States
Surfrider	United States
Beyond Plastics	United States
Natural Resources Defense Council	United States
Other actors implementing practices such as cities with plastic bags and fees, bottle bills	United States
Researchers within government and universities (e.g., University of Valle de Atemajac and University of Guadalajara research in bioplastics), National Autonomous University of Mexico, National Polytechnic Institute, Monterrey Institute of Technology and Higher Studies)	Mexico
Asociación Mexicana de Envase y Embalaje	Mexico
Asociación Nacional de Industrias del Plástico A.C.	Mexico

<i>ECOCE A.C.</i>	Mexico
PetStar	Mexico
Proyecto Fronterizo de Educación Ambiental	Mexico
Federación Nacional de Municipios de México	Mexico
Red Queretana de Manejo de Residuos A.C.	Mexico
Instituto Nacional de Recicladores A.C.	Mexico
Other actors implementing practices such as cities with plastic bags and fees, bottle bills	Mexico

11. In the following table, describe: the project objective(s) and the activities and subtasks planned to achieve the objective(s); the corresponding outputs, expected results and how they will be measured (performance measures); baselines (if known), and targets by end of the project; and the timeline and budget:

PHASE I: YEAR 1 AND 2 (OBJECTIVE 1)

OBJECTIVE 1	Accelerate the uptake of circular economy and sustainable materials management practices that are needed to transform North American recycling and solid waste management.
Activity 1 Budget C\$580.000	Milestone studies
Output(s)	<p>Three key studies, based on robust definitions of key terms that will allow sound compilation of specific data and figures, will be implemented with a focus on various waste streams, for example, plastics, bioplastics, and paper:</p> <ul style="list-style-type: none"> • Evaluating the current state of recycling infrastructure across North America. This would include expanding on existing studies in the United States and Canada, as well as evaluating the current state of recycling infrastructure across Mexico and could include regulatory frameworks in the region. • Evaluating opportunities and barriers in enhancing/improving secondary material markets and trade. • Evaluating emerging technologies and sustainable materials design pathways and best practices and examples implementing circular economy principles, taking into account traditional ecological knowledge of Indigenous communities. <p>The milestone studies will be key input for defining and developing appropriate pilot projects in phase two of this initiative, which may result in tools and resources to support stakeholder action. Examples of these could be catalogues of innovative packaging designs or other technologies, reports of best practices and case studies, traditional knowledge, practical guides for industry, etc.</p>
Expected results, performance measures	These studies will collate foundational knowledge to inform policy options that drive the transformation of materials management in North America, including potential ways to scale-up opportunities around this industry.

	<p>These studies will go beyond the existing studies of US and Canadian recycling and recovery infrastructure, including a targeted scoping study of recycling infrastructure in Mexico that focuses on sustainable materials; the studies will also evaluate opportunities and barriers in secondary markets throughout North America and consider emerging technology for materials recovery and recycling infrastructure and product design (e.g., sorting-related, material selection).</p> <p>Each study will include recommendations and possibly tools and resources for key actions by stakeholders that could further the development of the circular economy in North America. Recommendations could cover areas such as potential recycling metrics, harmonized regulatory framework for sustainable materials management, improvements in labeling clarity for recyclability/compostability, improvements in secondary markets, targeted investment in post-consumer solid waste management infrastructure, recycling standardization, consumer education, and increases in packaging biodegradability and compostability.</p>	
Baseline (current status), if known	Existing US/Canada recycling infrastructure studies and basic studies of waste management in Mexico	
Target (by project end)	Milestone studies completed and stakeholders successfully engaged	
Subtask 1.1	Conduct studies on recycling and recovery markets, innovative product design, sustainable packaging designs currently on the market and emerging materials recovery and recycling technologies.	Years 1 and 2
Subtask 1.2	Finalize report documenting outcomes of studies and outlining next steps.	Years 1 and 2
Activity 2 Budget C\$165,000	Stakeholder engagement: Develop a work program to identify relevant stakeholders and interested partners and promote their engagement into collaborative work on the topics related to the studies.	

Output(s)	<p>Consolidated group of engaged and relevant stakeholders (e.g., manufacturers that recycle post-consumer and residential materials, all levels of governments, the economic ministries of the three countries, business chambers, academia, NGOs, independent workers). The nature of this group will be two-fold:</p> <ul style="list-style-type: none"> - A consolidated group of engaged stakeholders acting as an “expert group” contributor to the preparation of the milestone studies, with the main goal of informing priority areas and scope as well as the general development of the studies. - A consolidated group of engaged stakeholders and a series of networking events. These networking events will provide opportunities to share and seek feedback on the result of the milestone studies as well as feedback and recommendations to be carried out in scoping pilot projects, and tools and resources to support stakeholders’ future endeavors. 	
Expected results, performance measures	Through the networking series, the CEC will analyze milestone studies, formulate working groups to determine next steps and receive feedback.	
Baseline (current status), if known	N/A	
Target (by project end)	Support knowledge dissemination, greater collaboration, and funding aligned for transformation with the appropriate North American stakeholders (e.g., industry, investors, academia, governments and NGOs) and facilitate networking activities/events.	
Subtask 2.1	Schedule and implement work program for the stakeholder expert group.	Years 1 and 2
Subtask 2.2	Schedule and implement work program on stakeholder engagement, including the organization and hosting of networking events for stakeholders to share and seek feedback on the result of the milestone studies, as well as feedback and recommendations to be carried out in the scoping pilot projects, and support decisions for next steps, including voluntary involvement in the pilots.	Years 1 and 2

PHASE II: YEAR 3 AND 4 (OBJECTIVE 2)

<p>OBJECTIVE 2</p>	<p>Pilot test the identified opportunities and technologies in the milestone studies to better understand the state of and opportunities for the recycling sector in North America, supporting the collaboration of stakeholders via networking activities/events.</p>
<p>Activity 3 Budget C\$460,000</p>	<p>Implement pilot testing</p>
<p>Output(s)</p>	<p>Building on the findings of the milestone studies, design and implement pilot projects through collaboration between industry, academia, governments and civil society on issues of circular economy and sustainable materials management strategies, with findings supported and adopted by various stakeholders.</p> <p>A report compiling the results of pilot projects that illustrate recommendations will be assessed at the project’s final conference.</p>
<p>Expected results, performance measures</p>	<p>Outcomes may include improvements in materials management in North America related to such topics as finance, product design, and cross-border trade enablers for recovered materials.</p> <p>Pilot projects demonstrating feasibility and providing evidence for level of impact, if technologies or practices are adopted at scale across North America.</p> <p>Other expected results are recommendations that can direct future innovation, research, and development.</p>

Baseline (current status), if known	N/A	
Target (by project end)	<p><u>Possible areas of focus for pilot projects may include:</u></p> <ul style="list-style-type: none"> • Analysis of circular materials design pathways to address waste reduction and maximize recovery of materials and improve circular economy practices • Analysis of improvements in sustainable, currently marketed packaging designs, incorporating biodegradability and compostability features into emerging and new product designs, while taking into consideration potential trade-offs • Analysis of improvements in sorting infrastructure to improve recycling and reduce contamination of recycling streams • Evaluation of recycling feedstock accessibility through better integration with existing supply chains, including secondary materials markets, recycling and composting facilities 	
Subtask 3.1	Analyze findings of the milestone studies and integrate stakeholder input in select pilot projects.	Years 3 and 4
Subtask 3.2	Conduct the pilot projects.	Years 3 and 4
Subtask 3.3	Finalize report documenting results/outcomes of pilot projects.	Years 3 and 4
Activity 4 Budget C\$325,000	Organize and host networking series and a project final conference	
Output(s)	A networking series of events and a project final conference are held.	

Expected results, performance measures	The networking series offers a forum for discussion and progress as well as increasing awareness of CEC reports and pilot projects. The series contributes to enhanced stakeholder engagement in disseminating pilot project findings and follow-up actions. Offering specific training may be considered. The final event is expected to assess progress and provide recommendations for next steps on adding value and accelerating the transition to circular economy in North America.	
Baseline (current status), if known	N/A	
Target (by project end)	The networking series promoted knowledge transfer, exchange, and cooperation amongst the project partners and the stakeholders.	
Subtask 4.1	Organization and coordination of the networking series	Years 3 and 4
Subtask 2.1	Organization and coordination of the project final conference	Year 4

12. Describe post-project expected impacts:

Expected impact (by when: month, year)	SMART performance measure(s)
By September 2023, an evaluation of emerging technology and sustainable materials design pathways and existing experiences implementing circular economy principles will be developed.	The Parties and the stakeholders will have a better understanding of emerging technology and previous experiences in the region.
By September 2023, a network for the recycling, reuse, material design and economics sector will be consolidated.	The network with all sectors (governments, academia, NGO and industry) will have identified potential activities.

By September 2025, project pilots will have been implemented.	The pilot project in each country will serve as a model for the implementation of new initiatives.
By September 2025, results dissemination to stakeholders and the general public will be completed.	The dissemination of results will further the exchange of knowledge.

Strengthening the Implementation and Effective Enforcement of CITES for Timber in North America

1. **Project duration:** from November 2021 to October 2023 (24 months)
2. **Budget (C\$):** 535,000
3. **Short statement of the issue(s) under this topic, need/gap identified; the project objective(s) and activities to address the issue; and expected outcomes and benefits/beneficiaries:**

CITES provides crucial mechanisms to ensure that international trade in wild animals and plants is carried out in a controlled manner that does not threaten the survival of species. Appendix II of CITES covers species that are not necessarily threatened with extinction, but for which trade must still be controlled in order to avoid the possibility that they become endangered. Appendix II also includes so-called "look-alike species"—whose morphology closely resembles that of species listed for conservation. The CEC can help reduce illegal trade in CITES Appendix II timber species in North America by bringing together and leveraging the knowledge and roles of management and scientific authorities, enforcement officers, wood identification experts and forensic scientists, and other relevant experts to address specific needs within CITES regulations and enforcement activities. Specifically, this project will develop information on CITES enforcement relevant to the trinational North American context, enhance the capacity of enforcement officials to identify CITES timber species reaching our borders, explore methods and systems for tracking timber species in trade, and support scientific assessment of a new CITES source code (related to timber species). These efforts will strengthen communication and coordination between key actors throughout North American CITES implementation, provide them with invaluable information to strengthen CITES enforcement, and contribute to addressing the root causes of illegal trafficking of timber species.

4. **Select the strategic pillar(s) from the 2021-2025 Strategic Plan that the project addresses:**

- Clean Air, Land and Water
- Preventing and Reducing Pollution in the Marine Environment
- Circular Economy and Sustainable Materials Management
- Shared Ecosystems and Species
- Resilient Economies and Communities
- Effective Enforcement of Environmental Laws

5. **Describe how the project uses strategic, cross-cutting approaches in its implementation (i.e., Innovative and Effective Solutions and/or Diverse and Inclusive Stakeholder Engagement and Public Participation, including gender and diversity effects and opportunities, and youth):**

This project focuses on Appendix II timber species, including look-alike species, which must be better monitored to ensure that they are not adversely affected by international trade. To do so, this project will facilitate the exchange of expertise between relevant stakeholders, including enforcement officers and forensics experts, on recent and innovative developments in identification and traceability solutions, including software, devices and forensic technologies, that can facilitate improved North American identification, tracking, and enforcement of CITES Appendix II specimens in international trade.

6. Explain how the project can achieve more impact through trilateral cooperation:

The CEC is well positioned to bring together experts and government officials from Canada, Mexico and the United States to create networks, share experience, develop knowledge on CITES implementation and enforcement related to trade in wood products from CITES-listed timber species (e.g., species identification), and examine similarities and differences in national legislation and regulations. Building on CEC's 2017–2018 project "Sustainable Trade of Priority Species in North America" and leveraging each country's strengths, this project will improve CITES implementation and prevent and reduce illegal timber trade in North America.

7. Describe how the project complements, or avoids duplication with, other national or international work:

This project leverages ongoing national and international work on forest legality and illegal logging. Specifically, members from this CEC working group are coordinating with, and in many cases, are directly participating in complementary programs and initiatives, such as the North American Forest Commission, the CITES Plants Committee Working Group on timber identification, US-Mexico-Canada Agreement (USMCA), World Forest ID (WFID), the Canadian Wood Identification Research Project, and other joint efforts. Collaboration amongst the various working groups, initiatives and programs ensures complementarity of our actions to accelerate adoption of best practices and avoids duplicative work.

8. Describe how the project engages traditional ecological knowledge (TEK) experts or Tribal/First Nations/Indigenous communities, if applicable:

No in-depth engagement with TEK experts or Tribal/First Nations/Indigenous communities is expected during the implementation of this project.

9. Describe how the project engages new audiences or partners, if applicable:

This project involves possible communications and collaborations with the United Nations Office on Drugs and Crime (UNODC), Interpol, the North American Forest Commission and the Global Illegal Logging and Associated Trade Program.

10. Identify the designated partner agencies or organizations committed to implementing this project, as well as other organizations that could be involved, or benefit from it, including through outreach efforts, collaborations or partnerships (e.g., federal agencies, other levels of government, academia, NGOs, the private sector, civil society, and youth):

Lead agencies or organizations	Country
Environment and Climate Change Canada (ECCC) - Wildlife Enforcement Directorate	Canada
Natural Resources Canada–Canadian Forest Service (CFS)	Canada
<i>Secretaría de Medio Ambiente y Recursos Naturales (Semarnat)</i>	Mexico
<i>Procuraduría Federal de Protección al Ambiente (Profepa)</i>	Mexico
<i>Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (Conabio)</i>	Mexico
US Department of Agriculture’s Forest Service (USFS)	United States
US Fish and Wildlife Service (USFWS)	United States

Other organizations/individuals (if applicable)	Country
US Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS)	United States
US Trade Representative	United States
US Department of State, Office of Conservation and Water in the Bureau of Oceans and International Environmental and Scientific Affairs (OES/ECW)	United States
US Environmental Protection Agency	United States
US Department of Homeland Security	United States
US Department of Justice	United States
<i>Comisión Nacional Forestal</i>	Mexico
Wildlife Conservation Society (Latin America Coordination for Wildlife Trafficking; Mr. Adrian Reuter, Regional Coordinator)	United States-Mexico
National Autonomous University of Mexico (Department of Botany)	Mexico
Chapingo Autonomous University (Laboratory of Wood Anatomy and Identification)	Mexico
<i>Administración General de Aduanas—SAT</i>	Mexico

11. In the following table, describe: the project objective(s) and the activities and subtasks planned to achieve the objective(s); the corresponding outputs, expected results and how they will be measured (performance measures); baselines (if known), and targets by end of the project; and the timeline and budget.

OBJECTIVE 1	Increase understanding of national contexts for CITES implementation in North America, especially relating to the verification process for legal trade of wood products.	
Activity 1 Budget: \$55,000	Share information on, and assess similarities and differences between national legislation, regulations, and processes for implementation of CITES by enforcement officers, with particular reference to laws and regulations specifically related to what information needs to be verified for traded wood products and the process for that verification. The results of this activity will inform activities 2 and 3.	
Output(s)	Report compiling relevant national legislation, regulations, and processes for implementation of CITES by enforcement officers in North America, with particular reference to what information needs to be verified for traded wood products and the process for that verification.	
Expected results, performance measures	This information is used by enforcement officers, forensics experts and other actors within North America to facilitate collaboration and to develop training curricula for enforcement officers.	
Baseline (current status), if known	N/A	
Target (by project end)	N/A	
Subtask 1.1	Conduct a survey and organize online meetings to exchange and compare information on national legislation, regulations, and processes for implementation of CITES by enforcement officers.	First half of Year 1
Subtask 1.2	Develop a report of the findings, including recommendations for activities 2 and 3 (internal document).	First half of Year 1
OBJECTIVE 2	Increase the knowledge and capacity to intercept suspicious wood products of CITES-regulated species at North American borders.	
Activity 2 Budget: \$205,000	Provide training, including information on novel tools and risk assessment, to enforcement officers to improve their ability to determine if a timber import is at high risk of being illegal.	
Output(s)	Training on identification tools and risk assessment for suspicious wood products of CITES-regulated species.	
Expected results, performance measures	An increased number of enforcement officers with capacity to identify and assess risk related to wood products at North American borders.	

Baseline (current status), if known	N/A	
Target (by project end)	12 new officers trained per country	
Subtask 2.1	Develop the curriculum and materials for training enforcement officers (including tools, as appropriate and feasible), in close collaboration with enforcement officials in the three countries, to ensure their needs and interests are taken into account.	Second half of year 1
Subtask 2.2	Organise and conduct training sessions, following a “train the trainer” model.	First half of year 2
OBJECTIVE 3	Form an alliance of laboratories to facilitate collaboration on wood identification between the three countries.	
Activity 3 Budget: \$115,000	Form an alliance of the laboratories providing forensic and research capacity for wood products identification, in order to harmonize databases, share reference samples, and facilitate accurate, rapid and expedient species identification of timber evidence.	
Output(s)	Hold exchanges and training sessions with laboratories in the three countries to share reference samples and data, facilitate identification of timber evidence, and develop related standard operating procedures.	
Expected results, performance measures	An alliance of laboratories from the three countries will have been created and exchanges have taken place.	
Baseline (current status), if known	No such alliance currently exists, and no exchanges of expertise and samples have yet taken place at the North American level.	
Target (by project end)	N/A	
Subtask 3.1	Develop an alliance among forensic and research laboratories that conduct timber testing, beginning with each country identifying who is or will be doing timber identification for CITES enforcement and optimum choices for laboratory equipment.	First half of Year 1
Subtask 3.2	Conduct a meeting that brings together relevant scientists and staff from the identified institutions.	Year 1

Subtask 3.3	Determine priority species and the number of validated samples needed and available.	Year 1
Subtask 3.4	Develop and implement approaches for sharing samples and harmonizing relevant wood identification reference databases.	Years 1 and 2
Subtask 3.5	Assist each country in capacity development for priority taxa.	Years 1 and 2
Subtask 3.6	Conduct a meeting with scientists from alliance laboratories for sharing of tools and methodologies for wood identification.	Year 2
Subtask 3.7	Conduct virtual and in-person meetings and training sessions with wood identification scientists and enforcement officers to share samples, data, and knowledge on wood identification techniques.	Years 1 and 2
Subtask 3.8	Publish a case study (e.g., brochure) highlighting the outcomes of this activity.	Year 2
OBJECTIVE 4	Improve North America's capacity to track the origin of timber in trade.	
Activity 4	Identify potential methods and processes, exchange best practices, and deliver recommendations to improve North American capacity to track the origin of timber in trade.	
Budget: \$90,000		
Output(s)	Report on best practices and recommendations to improve North American capacity to track the origin of timber in trade.	
Expected results, performance measures	This information is used by the three countries to inform decisions to improve the tracking of the origin of timber in trade.	
Baseline (current status), if known	N/A	
Target (by project end)	N/A	
Subtask 4.1	Establish a technical working group, including enforcement officers.	Year 1
Subtask 4.2	Carry out research and exchanges of best practices to identify methods and processes to track wood products in trade.	Year 1
Subtask 4.3	Develop a report and recommendations to improve North American capacity to track the origin of timber in trade.	Year 2

OBJECTIVE 5	Develop guidance on CITES source code Y implementation and conducting non-detriment findings for tree species.	
Activity 5 Budget: \$70,000	Coordinate exchanges and produce information to increase guidance to CITES Parties on CITES regulation and enforcement in North America.	
Output(s)	Report on guidelines and tools on source code Y implementation and conducting non-detriment findings (NDFs)	
Expected results, performance measures	This information is used by the three countries to inform the implementation of CITES source code Y and conducting NDFs and shared with the rest of CITES parties in order to contribute to better implementation of the Convention worldwide.	
Baseline (current status), if known	No specific guidance exists on CITES source code Y.	
Target (by project end)	N/A	
Subtask 5.1	Organize and conduct a workshop and other consultations, as needed, to develop guidance on source code Y implementation and conducting non-detriment findings (NDF).	Year 1
Subtask 5.2	Publish a report of the findings, guidance and tools on CITES source code Y implementation and conducting NDFs, based on the workshop outcomes.	First half of Year 2

12. Describe post-project expected impacts:

Expected impact (by when: month, year)	SMART performance measure(s)
By December 2025, an increased number of enforcement officers will have received training to identify and assess risk related to wood products traded at North American borders.	Number of frontline officers trained, by country
By December 2025, ongoing exchanges and sharing of reference samples and data between alliance laboratories will have taken place to facilitate identification of timber evidence.	Number of meetings between alliance laboratories Number of samples shared
By December 2025, the information produced through this project will have proved useful to the CITES Parties and other stakeholders in informing implementation and enforcement efforts.	Perceived usefulness of the information (through survey)

Grasslands Conservation and Migratory Birds

1. **Project duration:** from November 2021 to October 2024 (36 months)
2. **Budget (C\$):** 450,000
3. **Short statement of the issue(s) under this topic, need/gap identified; the project objective(s) and activities to address the issue; and expected outcomes and benefits/beneficiaries:**

The central grasslands of the Great Plains are a shared ecosystem stretching from southern Canada, through the United States, to northern Mexico. These grasslands are one of the most endangered ecosystems in North America, home to many endemic grassland-dependent species that are at-risk, threatened, or endangered. The central grasslands also provide other valuable environmental services (e.g., carbon sequestration, water supply and flow regulation, and erosion control), and play a crucial role in agricultural sustainability for rural communities and economies.

In this context, and recognizing the need to achieve adequate ecosystem representation for grasslands, the three countries have made commitments to conserve at least 30% of our respective land and waters by 2030 (“30 X 30”). North American collaboration is required to address conservation at the ecosystem scale.

Building on its past work on grasslands conservation, the CEC is well placed to leverage ongoing efforts, such as the Central Grasslands Roadmap and JV8 Central Grasslands Initiative, two complementary international partnerships engaging diverse partners and communities to conserve grasslands and ensure thriving human and wildlife communities. In particular, the project will contribute by filling three recognized gaps in central grasslands conservation: First, the project will produce the first human dimensions study of central grasslands conservation, to support more effective conservation actions. This has been identified as a key priority, based on the improvement in conservation outcomes observed by practitioners who include both biological and social sciences knowledge in conservation planning, design and implementation. Second, the project will develop a standardized framework to support data-based, comparable monitoring of grasslands change. Finally, collaboration for conservation will be strengthened and expanded through more inclusive engagement and messaging aimed at underrepresented and new partners.

As a result, the CEC will support central grasslands cross-sector, mainstreamed management, restoration, and conservation in Canada, Mexico, and the United States by raising awareness on the importance of grasslands, providing new knowledge for decision-making, and strengthening collaboration, through inclusive network-building and strategic planning.

4. Select the strategic pillar(s) from the 2021-2025 Strategic Plan that the project addresses:

- Clean Air, Land and Water
- Preventing and Reducing Pollution in the Marine Environment
- Circular Economy and Sustainable Materials Management
- Shared Ecosystems and Species
- Resilient Economies and Communities
- Effective Enforcement of Environmental Laws

5. Describe how the project uses strategic cross-cutting approaches in its implementation: Innovative and Effective Solutions and/or Diverse and Inclusive Stakeholder Engagement and Public Participation (including gender and diversity effects and opportunities, and youth):

The project will produce social science knowledge to integrate in conservation decision-making, an innovative and effective solution in conservation practice, which traditionally has been informed mainly by biological sciences. The approach has demonstrated its effectiveness, as recognized notably by the creation of [HDgov](#), a US interagency initiative to inform decision-making on environmental issues with human dimensions consideration. More generally, the project collaborates with efforts that promote the use of Innovative and Effective Solutions (such as regenerative ranching) for ecosystem conservation, biodiversity protection, carbon sequestration and the sustainable management of natural resources. It also focuses on Diverse and Inclusive Stakeholder Engagement to strengthen trilateral collaboration for the continued advancement and implementation of the Central Grasslands Roadmap and JV8 conservation strategy, supporting intentional engagement of those traditionally less represented in grasslands conservation processes and using communications targeted at expanding collaboration to new stakeholders.

6. Explain how the project can achieve more impact through trilateral cooperation:

The central grasslands of the Great Plains are a shared ecosystem stretching continuously across international borders from southern Canada, through the United States, to northern Mexico, providing habitat to many migratory species and livelihoods to many local communities. As a natural system, it will greatly benefit from being managed at the correct scale with recognition of the different social, economic, and legal contexts that affect its management. This is best achieved through trilateral cooperation, which helps ensure that knowledge is shared and collaborative actions are aligned to increase efficiency, efficacy, and complementarity, delivering stronger outcomes that also help protect national investments in conservation.

7. Describe how the project complements, or avoids duplication with, other national or international work:

Ongoing initiatives to build collaboration on grasslands conservation include commitment from the Trilateral Committee for Wildlife and Ecosystem Conservation (TCWEC), and the JV8 Central Grasslands Initiative and its Central Grasslands Roadmap (CGR), which offers a shared vision and priorities identified with input from several sectors and the three countries, providing a solid foundation

for trinational collaborative action. The project will work directly with the CGR team to identify opportunities to complement and leverage their work, informed by the TCWEC’s priorities to be presented at their May 2021 meeting.

8. Describe how the project engages traditional ecological knowledge (TEK) experts or Tribal/First Nations/Indigenous communities, if applicable:

The project includes activities specifically focused on engaging Indigenous communities in support of an inclusive, representative approach to grasslands conservation.

9. Describe how the project engages new audiences or partners, if applicable:

The project includes activities specifically focused on intentional engagement of new partners and audiences in grasslands conservation processes (including private and communal landowners in Mexico, Indigenous communities).

10. Identify the designated partner agencies or organizations committed to implementing this project, as well as other organizations that could be involved, or benefit from it, including through outreach efforts, collaborations or partnerships (e.g., federal agencies, other levels of government, academia, NGOs, the private sector, civil society, and youth):

Lead agencies or organizations	Country
Federal: ECCC/CWS, Natural Resources Canada, Agriculture and Agri-Food Canada	Canada
Federal: Semarnat, Conanp, Sader, Conagua, Conabio, Profepa, Bienestar	Mexico
Federal: USFWS, other agencies	United States
NGOs: JV8 Grassland Initiative (partnership of 8 Habitat Joint Ventures throughout the Great Plains from southern Canada to northern Mexico)	Trinational
NGOs: Bird Conservancy of the Rockies	United States
P3: National Fish and Wildlife Foundation (NFWF)	United States (NA scope)
Other organizations/individuals (if applicable)	Country
Local land cooperatives: Winnett Agricultural Community Enhancement and Sustainability (ACES), Ranchers Stewardship Alliance, South Dakota Grazing Lands Coalition, Thunder Basin Grasslands	United States
Indigenous organizations and governments	Canada, Mexico, United States
Locally engaged NGOs (TBD): WWF	Canada, Mexico, United States
Provincial and State agencies	Canada, Mexico, United States
Pheasants Forever/Quail Forever “Call of the Uplands” campaign	United States
Academic experts	Canada, Mexico, United States

11. In the following table, describe: the project objective(s) and the activities and subtasks planned to achieve the objective(s), the corresponding outputs, expected results and how they will be measured (performance measures), baselines (if known), and targets by end of the project, and the timeline and budget:

OBJECTIVE 1	Produce knowledge to inform decision-making and actions that stop and prevent loss of central grasslands and support sustainable grasslands, wildlife, and human communities.	
Activity 1 Budget C\$170,000	Produce a social science analysis of challenges, constraints, and drivers for grasslands conservation, analyzing socio-economic factors and human dimensions (motivations, values, economics, needs of communities and barriers) to inform grasslands conservation strategies.	
Output(s)	A social science study that identifies the challenges, constraints, and drivers to grasslands conservation in the three countries, that can support mainstreaming biodiversity and identify opportunities to improve cross-sectional coordination	
Expected results, performance measures	Decision-makers and conservation practitioners that understand the values, needs and barriers to address to increase participation in grassland conservation programs and implement successful conservation actions	
Baseline (current status), if known	No comprehensive social science investigations on central grasslands conservation, to date	
Target (by project end)	<p>A social science analysis including:</p> <ul style="list-style-type: none"> - a conceptual model representing a baseline assessment that identifies the threats to central grasslands and the social, economic, cultural, and political factors that drive them (the social-ecological system) - a set of strategies, and related theories of change, designed to mitigate/address threats - a plan for evaluating strategies 	
Subtask 1.1	Develop a social science study analyzing the social, economic, and political context of central grasslands conservation.	early – late 2022
Subtask 1.2	Support integration of local stakeholder input (through surveys, facilitated discussions).	early to mid 2022–

Subtask 1.3	Hold an internal workshop to present findings.	late 2022
Subtask 1.4	Develop messaging on the importance of grasslands to local communities (informed by input from the social science study).	early-late 2023
Activity 2 Budget C\$140,000	Identify a standardized, annually updated trinational framework for monitoring grasslands change, indicator species and methodology to track loss/gain in native grasslands.	
Output(s)	Recommended standardized metrics for measuring grasslands change	
Expected results, performance measures	A common system to measure grasslands loss will be available for use across the entire central grasslands.	
Baseline (current status), if known	Several systems for monitoring grassland loss exist (e.g., WWF Plowprint), but no common system.	
Target (by project end)	Needs/requirements document and recommendation on platform & metrics	
Subtask 2.1	Establish an ad hoc scientific group on measuring grasslands change to scope needs.	early 2022
Subtask 2.2	Task consultant with analysing current monitoring approaches, identifying needs and identifying approach.	mid 2022– mid 2023
Subtask 2.3	Task ad hoc scientific group with recommending standardized approach.	mid 2023–mid 2024
OBJECTIVE 2	Strengthen trinational collaboration for the continued advancement and implementation of the Central Grasslands Roadmap and JV8 conservation strategy.	
Activity 3 Budget C\$140,000	Create and support (virtual) events and materials focused on intentional engagement of those less represented in or absent from the Central Grasslands Roadmap and JV8 conservation strategy (such as private and communal landowners (<i>ejidos</i>) in Mexico, Central Grasslands Indigenous communities and other potential partners).	
Output(s)	- Agreement for support of the Central Grasslands Roadmap as the main platform for coordination, communication and tracking of progress with convenors (focus on increasing participation of key groups, facilitation, and communication support among participants)	

	<ul style="list-style-type: none"> - Agreement to support development of the JV8 Central Grasslands Initiative conservation strategy (with increased participation of key groups from Central Grasslands Roadmap work), including support for facilitation, translation, and communication around the strategy - Communications material to increase support on grasslands conservation 	
Expected results, performance measures	Develop a more inclusive network for wide adoption of conservation measures through intentional engagement of a more diverse and representative group of stakeholders.	
Baseline (current status), if known	<ul style="list-style-type: none"> - The first Central Grasslands Roadmap Summit was held in July 2020; organizers plan to host a second Summit in Winter 2021 or early 2022 (virtual or in-person meeting, depending on COVID-19 status). - A coordinator was hired for the JV8 and started in November 2020. The strategy is currently in development and will be ready for review in spring 2021. - The first Central Grasslands Roadmap Summit included limited participation from Indigenous communities and some communities in Mexico, resulting in their limited representation in the Roadmap. After the Roadmap Summit, additional efforts were made to engage underrepresented communities from Mexico. 	
Target (by project end)	<ul style="list-style-type: none"> - Websites for Central Grasslands Roadmap and JV8 are updated, and relevant materials are available in multiple languages (English, French, Spanish). - Second Central Grasslands Roadmap Summit is held with more inclusive participation 	
Subtask 3.1	Support intentional engagement for underrepresented groups.	early – mid 2022 (TBC, dependent on Summit date)
Subtask 3.2	Support inclusive trinational engagement at the second Central Grasslands Roadmap Summit through coordination, facilitation, and translation support.	Mid-2022 (TBC, dependent on Summit date)
Subtask 3.3	Support continued focus for on-the-ground conservation delivery of grasslands conservation through the development of the JV8 Strategy.	early 2022–TBD (dependent on JV8 timeline)
Subtask 3.4	Develop communications material to increase support for grasslands, complementing and leveraging existing efforts (e.g., material focused on economic value, carbon sequestration value, story from Indigenous communities to private landowners, connectivity and trinational cooperation across the three countries).	mid 2022–mid 2024

12. Describe post-project expected impacts:

Expected impact (by when: month, year)	SMART performance measure(s)
By December 2025, a large, diverse, representative array of stakeholders will be participating in central grasslands conservation.	Evidence that the group of engaged stakeholders has expanded to be more diverse and inclusive.
By December 2025, a shared system for measuring grasslands loss across three countries will create common understanding and supporting shared goals.	Knowledge gaps have been identified and recommendations have been implemented by stakeholders (governments, producers, etc.) to support pollinator conservation.
By December 2025, social scientists and communication specialists will have been engaged to promote grasslands conservation to key audiences.	Evidence that knowledge on the human dimensions of grasslands conservation has been integrated into decision-making and outreach.
By December 2026, key mechanisms causing the conversion of grasslands to other land-use types will be better understood.	Evidence that strategies to decrease the rate of conversion of grasslands to other land-use are under implementation.

13. Describe post-project expected impacts:

Expected impact (by when: month, year)	SMART performance measure(s)
By June 2024, a large, diverse, representative array of stakeholders will be participating in central grasslands conservation.	Evidence that the group of engaged stakeholders has expanded to be more diverse and inclusive.
By June 2024, a shared system for measuring grasslands loss across three countries will create common understanding and supporting shared goals.	Knowledge gaps have been identified and recommendations have been implemented by stakeholders (governments, producers, etc.) to support pollinator conservation.
By June 2024, social scientists and communication specialists will have been engaged to promote grasslands conservation to key audiences.	Evidence that knowledge on the human dimensions of grasslands conservation has been integrated into decision-making and outreach.
By December 2025, key mechanisms causing the conversion of grasslands to other land-use types will be better understood.	Evidence that strategies to decrease the rate of conversion of grasslands to other land-use are under implementation.

Reduction of Marine Litter

1. **Project duration:** from November 2021–April 2024 (30 months)
2. **Budget (C\$):** 800,000
3. **Short statement of the issue(s) under this topic, need/gap identified, the project objective(s) and activities to address the issue, and expected outcomes and benefits/beneficiaries:**

As a growing problem that negatively affects economies and threatens ecosystems and potentially human health, marine litter is a high-priority global issue being addressed from several different angles. It is estimated that 80% of marine litter originates from land-based sources, often due to the improper disposal of items or uncollected waste that becomes litter and travels through watersheds to the oceans. In order to prevent and reduce marine litter, actions are needed across the lifecycles of products.

North America is a significant contributor of land-based marine litter. Recognizing the importance of acting on this issue, Canada, Mexico and the United States have committed to taking measures to prevent and reduce marine litter through their environmental cooperation work program. Initially, the CEC focused on reducing land-based marine litter originating near the coast through community action and empowerment, convening local stakeholders to implement low-tech and low-cost solutions in two transboundary watersheds: the Salish Sea and the Tijuana River watershed. This work was the first of its kind—a trilateral effort to tackle marine litter across North America. Subsequently, recognizing that public awareness around the journey and impacts of inland litter and its contribution to marine litter remains low, the CEC developed guidance and engagement and communications tools to reduce marine litter, targeting inland communities.

Building on these previous efforts, the proposed collaborative work aims to build public awareness about marine litter, deploy litter capture devices, collect comparable data across the three countries, and reduce land-based marine litter, including single-use plastic products and packaging, in communities located inland along waterways and river systems in North America. By demonstrating, educating, and communicating about the flow of commonly littered items downstream to the ocean, using low-cost technology and a variety of communication tools, the project will help prevent and reduce marine litter originating from inland cities.

Using devices such as trash traps in waterways will help build local capacity, remove plastic pollution from the environment, and strengthen public awareness. The project will also demonstrate capture device technologies, collect information on the amount and type of waste found in those waterways, bring attention to local land-based sources of marine litter, communicate the impacts and threats on the issue, and inform and empower further actions. The work will integrate the community engagement toolkit and public

awareness campaign material developed through the previous CEC project and benefit from lessons learned about how to change behavior locally to reduce and prevent marine litter.

4. Select the strategic pillar(s) from the 2021-2025 Strategic Plan that the project addresses:

- Clean Air, Land and Water
- Preventing and Reducing Pollution in the Marine Environment
- Circular Economy and Sustainable Materials Management
- Shared Ecosystems and Species
- Resilient Economies and Communities
- Effective Enforcement of Environmental Laws

5. Describe how the project uses strategic cross-cutting approaches in its implementation: Innovative and Effective Solutions and/or Diverse and Inclusive Stakeholder Engagement and Public Participation (including gender and diversity effects and opportunities, and youth):

The project aims to mobilize a diverse range of relevant stakeholders across the lifecycles of products, including academia, the private sector and the public, and help them become active, informed and engaged participants in marine litter reduction through the innovative use of demonstration projects, participation, engagement, and communications. The project will also provide tools to support positive and sustained behaviour change with benefits extending after the project is completed.

6. Explain how the project can achieve more impact through trilateral cooperation:

The project builds on the knowledge and results of two previous trilateral projects, leveraging existing work and current national experience to support capacity building across the three countries. Trilateral cooperation increases the visibility and audience reach of the work and facilitates the exchange of knowledge, data and lessons learned between experts from the three countries. It will also provide valuable insight to inform future actions on land-based marine litter nationally and trilaterally, through comparison of information obtained using recognized and consistent methodology across the three countries.

7. Describe how the project complements, or avoids duplication with, other national or international work:

In a context where marine litter reduction is the focus of many initiatives, the project implements harmonized actions in communities that have not previously been the focus of marine litter reduction efforts. No previous efforts to implement a common trash-capture initiative locally across the three countries were identified. The project will offer the first opportunity to test and tailor the new awareness campaign material and community engagement tool developed by the CEC.

8. Describe how the project engages traditional ecological knowledge (TEK) experts or Tribal/First Nations/Indigenous communities, if applicable:

Indigenous communities will be engaged as part of inclusive engagement with the local community at the chosen test sites, as applicable.

9. Describe how the project engages new audiences or partners, if applicable:

The project will be implemented in three communities not previously engaged in CEC marine litter work, working with a new audience and new partners, including representatives of government, industry, and nongovernmental organizations. The results will be communicated to a broad North American audience, further extending the audience reach.

10. Identify the designated partner agencies or organizations committed to implementing this project, as well as other organizations that could be involved, or benefit from it, including through outreach efforts, collaborations or partnerships (e.g., federal agencies, other levels of government, academia, NGOs, the private sector, civil society, and youth):

Lead agencies or organizations	Country
ECCC	Canada
Semarnat, INECC, Profepa	Mexico
EPA, Department of State, National Oceanic and Atmospheric Administration (NOAA)	United States
Other organizations/individuals (if applicable)	Country
Local/ municipal/ regional authorities; NGOs	Canada, Mexico, United States
Academia, SEMAHN and government-supported research institutes (e.g., Institute of Marine Sciences and Limnology of the National Autonomous University of Mexico, Veracruz University, Metropolitan Autonomous University), NGOs	Mexico
Industry (e.g., capture device developers and innovators)	Canada, Mexico, United States
Community-based social marketing experts	Canada, Mexico, United States

11. In the following table, describe: the project objective(s) and the activities and subtasks planned to achieve the objective(s), the corresponding outputs, expected results and how they will be measured (performance measures), baselines (if known), and targets by end of the project, and the timeline and budget:

OBJECTIVE 1	Demonstrate the flow of commonly littered items downstream to the ocean.
Activity 1 Budget C\$500,000	Install trash capture devices in small to mid-size streams or urban waterways (one inland pilot city per country).
Output(s)	<ul style="list-style-type: none"> - Trash capture devices installed in three cities (at least one in each country) - Targeted communication materials for each trash capture device installed (in-situ signage, etc.) - Report on trash captured by the devices (including quantities, sources, and type of materials and how those results differ across the three countries) - Digitized map showing trash capture device locations within watersheds with additional demographic and location data - Plan of action informed by stakeholder input following waste analysis of trash capture device - Information on successful installation and operation as well as challenges and limitations of trash capture devices to inform potential future implementation in other communities
Expected results, performance measures	<ul style="list-style-type: none"> - Information on the amount, type and source of litter is available for decision makers and the public. - Local stakeholders from all relevant sectors have engaged and have a plan of action identifying next steps to reduce land-based marine litter. - The local community is aware of the links between littering on land and the state of their local waterway.
Baseline (current status), if known	<ul style="list-style-type: none"> - No known information on litter is available for selected sites. - Studies on waste composition and its transport in waterways available for Canada, Mexico and the United States. - Results of trash capture device demonstration projects is available from North American or other international projects.
Target (by project end)	<ul style="list-style-type: none"> - Trash capture devices deployed - On-site communication materials - Stakeholders successfully engaged - Report on trash captured by devices - Digitized map

	- Local plan of action for each test site, including raising public awareness of the problem and identifying next steps.	
Subtask 1.1	Select test cities (one per country) and trash capture devices (same technology type) and hold virtual meetings with local authorities to confirm feasibility and identify key stakeholders.	early 2022
Subtask 1.2	Acquire, install, operate, and monitor trash capture devices for set time (at least one device per test site), with targeted communications material installed at each site.	mid 2022 - -mid 2023
Subtask 1.3	Identify a consistent methodology for data collection and reporting across the three test sites and conduct waste analyses to track the amount and type of litter captured by the devices.	mid 2022 –mid 2023
Subtask 1.4	Create a digitized map showing trash capture device locations within watersheds with additional demographic, location and results.	mid 2023 -late 2024
Activity 2 Budget C\$75,000	Implement Community Science Activities.	
Output(s)	<ul style="list-style-type: none"> - Data and information collected from community science activity using a harmonized approach - Community engaged in science activity related to local trash capture device 	
Expected results, performance measures	<ul style="list-style-type: none"> - The local community is aware of the state of litter in their local waterway and engaged in marine litter reduction. 	
Baseline (current status), if known	<ul style="list-style-type: none"> - It is not known if an activity such as this has been undertaken in each of these communities previously. - Existing community science initiatives in Canada, Mexico and the United States. 	
Target (by project end)	<ul style="list-style-type: none"> - Community science activity is successfully completed. - Data is contributed to report (and digital map as appropriate) that summarizes information collected by trash capture devices. 	
Subtask 2.1	Select local consultant and identify participants (from local government, local schools, environmental groups, etc.) for community science activity (based on data collected under activity 1).	early 2022
Subtask 2.2	Engage groups in community science activities at the site of the local trash capture device, based on engagement plan.	mid-late 2022

Subtask 2.3	Consolidate results of community science activity into trash capture report.	early 2023
OBJECTIVE 2	Communicate about the flow of commonly littered items downstream to the ocean.	
Activity 3 Budget C\$225,000	Implement the inland litter public awareness campaign developed by the CEC in collaboration with local organizations engaged with the community on related issues and communicate results.	
Output(s)	<ul style="list-style-type: none"> - Report on public awareness campaign at each location (on-site and virtual) - “Waterway litter snapshot” for each pilot site - Trinational virtual workshop to present results and lessons learned on this collaboration - Awareness-raising materials (e.g., ads, graphics, videos, social media), from 2021 CEC public awareness campaign, implemented in public spaces within community and through virtual channels 	
Expected results, performance measures	<ul style="list-style-type: none"> - Local communities are aware of the demonstration projects and the journey of marine litter and engaged in solutions. - Lead agencies in the three countries have information on litter at test sites and on the use of trash capture devices as awareness-raising and marine litter prevention tools. 	
Baseline (current status), if known	No implementation of communications at test sites	
Target (by project end)	<ul style="list-style-type: none"> - Communication campaign informed by local information is developed - Information and lessons learned on effort available for the three countries 	
Subtask 3.1	Implement the inland litter public awareness campaign developed by the CEC in collaboration with local organizations engaged with the community on related issues.	early–late 2023
Subtask 3.2	Convene local stakeholders at workshops to discuss information collected from the trash capture device and community science activity and contribute to a plan of action using the data to inform future land-based litter reduction efforts (integrating the 2021 CEC community engagement toolkit).	early–late 2023
Subtask 3.3	Conduct trinational virtual workshop to present results and lessons learned on this collaboration.	early 2024

12. Describe post-project expected impacts:

Expected impact (by when: month, year)	SMART performance measure(s)
By December 2024, projects results will have been disseminated to a wide North American audience.	Evidence that project results have reached communities outside the test sites
By December 2026, local collaborative action on marine litter reduction is under implementation.	At least one local action to reduce marine litter implemented at each test site.
By December 2026, local communities are aware of the journey of marine litter.	Evidence that local community members are aware of the journey of marine litter

Nature-based Solutions to Address Flooding in Coastal Cities

1. **Project duration:** from November 2021 to April 2024 (30 months)
2. **Budget (C\$):** 560,000
3. **Short statement of the issue(s) under this topic, need/gap identified; the project objective(s) and activities to address the issue; and expected outcomes and benefits/beneficiaries:**

Many North Americans live in coastal cities that produce a high value of goods and services but are vulnerable to flooding. The risks associated with coastal flood hazards are escalating due to land-use changes, ecosystem loss or transformation, population growth in coastal zones, sea-level rise, changes in the frequency and severity of storms, and ageing flood protection infrastructure. Tide- and storm-driven flooding is increasingly damaging homes and infrastructure, and generally disrupting coastal communities and their economies.

Natural areas adjacent to cities provide ecosystem benefits and services that support climate change adaptation for communities. Inspired by these systems, nature-based solutions (NBS) reduce flood and erosion risk through the protection, restoration, and sustainable management of natural coastal environments, and the construction of new features that mimic or work with ecological processes. NBS contribute to increased resilience in coastal areas, helping to manage risks with cost-effective, holistic, and innovative approaches, while also delivering co-benefits, such as habitat, recreation, and water quality. As countries look to finance infrastructure work in the context of a COVID-19 economic recovery, NBS represent one promising way to combine development, climate, disaster risk reduction and conservation objectives.

Despite growing interest in these solutions, there are many gaps and barriers currently preventing broader implementation of NBS in North America. These include a lack of data and authoritative design guidance, difficulty quantifying co-benefits and creating business cases, and uncertainty concerning efficacy and performance in extreme conditions, different environments, and changing climate conditions. Collaboration and interdisciplinary approaches that consider future climate conditions are needed to overcome these challenges.

Building on past collaborative experiences advancing knowledge on blue carbon, coastal adaptation, and extreme events, the CEC is uniquely placed to build capacity for coastal communities to manage flood risk in a changing climate through NBS that maximize co-benefits to human and natural communities. In particular, the project provides a first opportunity for NBS practitioners, working across North America in a broad range of disciplines, to lay the foundation for a North American community of practice that can offer an interdisciplinary approach to implementing NBS. It also addresses barriers to using NBS by filling knowledge gaps on co-benefits, retrofitting and monitoring, and by training practitioners and educating community members on the use of NBS.

4. Select the strategic pillar(s) from the 2021-2025 Strategic Plan that the project addresses:

- Clean Air, Land and Water
- Preventing and Reducing Pollution in the Marine Environment
- Circular Economy and Sustainable Materials Management
- Shared Ecosystems and Species
- Resilient Economies and Communities
- Effective Enforcement of Environmental Laws

5. Describe how the project uses strategic cross-cutting approaches in its implementation: Innovative and Effective Solutions and/or Diverse and Inclusive Stakeholder Engagement and Public Participation (including gender and diversity effects and opportunities, and youth):

The project's first objective is to seed new intersectoral, international collaboration through diverse and inclusive engagement to help fill knowledge gaps and implementation challenges that currently limit the use of NBS. As such, it will promote the use of underutilized innovative and effective solutions to address flooding in coastal cities. Effective NBS deliver on coastal flooding management and prevention while adding several co-benefits not offered by traditional infrastructure, namely carbon sequestration, habitat creation and other conservation objectives that will translate into ecosystem services of high value to fisheries and tourism, among other sectors.

6. Explain how the project can achieve more impact through trinational cooperation:

While there is expertise and experience applied to develop NBS to address flooding in coastal cities in each of the three countries, there is very little collaboration and knowledge-sharing across countries, approaches, and fields of expertise. The CEC offers a unique forum to foster the development of integrated flood risk management approaches across North America, integrating sector-specific knowledge and expertise from the three countries to lay the foundation for the creation of a North American NBS community of practice and leverage existing knowledge.

7. Describe how the project complements, or avoids duplication with, other national or international work:

While each country has developed expertise and experience applying NBS to coastal flooding, there is no international multidisciplinary community of practice focused on this. The project committee has identified and shared the main relevant initiatives and sources of information available in each country and internationally and will begin the project with an intersectoral scoping workshop to discuss most recent developments, opportunities, and specific priorities to advance within the project in the context of ongoing national and international work.

8. Describe how the project engages traditional ecological knowledge (TEK) experts or Tribal/First Nations/Indigenous communities, if applicable:

The project will engage Indigenous and local communities as it develops its community of practice, and as participants in webinars, trainings, and site visits, as applicable.

9. Describe how the project engages new audiences or partners, if applicable:

The project targets coastal city decision-makers, planners and managers, project funders and evaluators, infrastructure engineers, coastal engineers, risk reduction practitioners, conservation and restoration ecologists and researchers in several disciplines, most of whom have not engaged with the CEC in the past.

10. Identify the designated partner agencies or organizations committed to implementing this project, as well as other organizations that could be involved, or benefit from it, including through outreach efforts, collaborations or partnerships (e.g., federal agencies, other levels of government, academia, NGOs, the private sector, civil society, and youth):

Lead agencies or organizations	Country
Infrastructure Canada, Natural Resources Canada, National Research Council of Canada,	Canada
Semarnat, Conabio, Conagua, Profepa, INECC	Mexico
NOAA, USACE, USGS, FEMA, EPA	United States
Other organizations/individuals	Country
Department of Fisheries and Oceans Canada	Canada
Conanp, Mexican Chamber of Construction Industry	Mexico
International Joint Commission (IJC)	Canada-United States
NGOs (WWF, others TBD)	Canada, Mexico, United States
Provincial and State agencies	Canada, Mexico, United States
Local/ municipal/ regional authorities	Canada, Mexico, United States
Academic experts	Canada, Mexico, United States

11. In the following table, describe: the project objective(s) and the activities and subtasks planned to achieve the objective(s); the corresponding outputs, expected results and how they will be measured (performance measures); baselines (if known), and targets by end of the project; and the timeline and budget:

OBJECTIVE 1	Produce knowledge informed by multidisciplinary expertise to support the use of NBS by coastal communities vulnerable to flooding.	
Activity 1 Budget C\$40,000	Establish trinational intersectoral collaboration to support the use of NBS to address coastal flooding in cities.	
Output(s)	<ul style="list-style-type: none"> - A workshop report identifying specific opportunities and priority areas for trinational work - A North American multidisciplinary core group of practitioners (ad hoc community of practice) sharing experience on integrated coastal flood risk management in urban areas 	
Expected results, performance measures	Members of the ad hoc multidisciplinary community of practice can collaborate on common priorities to support the implementation of NBS for coastal flood risk management (measures TBD).	
Baseline (current status), if known	<ul style="list-style-type: none"> - Opportunities and priority areas for intersectoral trinational work have not been identified. - There is no North American multidisciplinary core group of NBS practitioners. 	
Target (by project end)	<ul style="list-style-type: none"> - Opportunities and priority areas for intersectoral trinational work are identified. - The ad hoc community of practice includes members from each country for most sectors identified. 	
Subtask 1.1	Host an intersectoral scoping workshop series with participants covering a range of NBS-relevant disciplines and agencies (e.g., NBS application, disaster risk reduction, climate change adaptation, municipal flood management, conservation practitioners, scientists, engineers, contractors, planners, policy makers, municipal representatives, project funders and evaluators), to identify specific opportunities to fill gaps and leverage existing efforts.	early2022
Activity 2 Budget C\$400,000	Provide knowledge and tools for communities to support NBS implementation.	
Output(s)	<ul style="list-style-type: none"> - A socio-economic analysis of NBS co-benefits - A practical synthesis of existing knowledge on retrofitting existing infrastructure while enhancing co-benefits - A practical synthesis of existing knowledge on monitoring the efficacy of NBS under current and future conditions - A high-level guidance document on methodology and indicators to monitor the efficacy of NBS - A collection of selected case studies highlighting best practices of implementing NBS in coastal cities - Communications material on NBS co-benefits 	

Expected results, performance measures	Outputs are used to inform the development of webinars and other engagement actions under Objective 2.	
Baseline (current status), if known	<ul style="list-style-type: none"> - Limited socio-economic analysis of NBS co-benefits - Limited practical synthesis of existing knowledge on retrofitting existing infrastructure while enhancing co-benefits - Limited practical synthesis of existing knowledge on monitoring the efficacy of NBS under current and future conditions - Limited guidance on methodology and indicators to monitor the efficacy of NBS - Case studies highlighting best practices of implementing NBS in coastal cities exist but they do not account for co-benefits and future conditions. - Limited communications material on NBS co-benefits 	
Target (by project end)	A minimum of 10 information products are made available.	
Subtask 2.1	Produce a socio-economic analysis of NBS co-benefits (job creation, resilience to climate change and other stressors, environmental quality, carbon sequestration, biodiversity conservation, access to nature, human health, equity and inclusion).	mid 2022–late 2023
Subtask 2.2	Produce a practical synthesis of existing knowledge on retrofitting existing infrastructure while enhancing co-benefits.	mid 2022–late 2022
Subtask 2.3	Produce a series of case studies highlighting best practices of implementing NBS in coastal cities (how communities achieve this under existing conditions, contrast with usual way of doing thing).	mid 2022–early 2023
Subtask 2.4	Produce a synthesis of existing knowledge on monitoring the efficacy of NBS under current and future conditions with proposed methodology and indicators to monitor the efficacy of NBS.	early 2022–late 2023
Subtask 2.5	Produce information products based on the results of the analyses on co-benefits and on retrofitting.	early - late 2023
OBJECTIVE 2	Strengthen local capacity to implement NBS by exchanging knowledge across disciplines and the three countries.	
Activity 3 Budget C\$120,000	Share practical experience on implementing NBS.	

Output(s)	<ul style="list-style-type: none"> - Online training for professionals and municipal and federal staff on good practices for planning, implementing, and monitoring NBS for coastal communities in a changing climate - Webinars for practitioners sharing their experience implementing and evaluating the performance of NBS projects - Site exchanges on different types of coastal assets 	
Expected results, performance measures	Professionals and staff can apply good practices for planning, implementing and monitoring NBS for coastal communities.	
Baseline (current status), if known	- There are online trainings on some aspects of NBS but they are not designed for a wide North American audience	
Target (by project end)	<ul style="list-style-type: none"> - Webinars on implementation and evaluation of NBS projects - Three site exchanges (focused on different types of coastal assets) 	
Subtask 3.1	Deliver trainings on the implementation and monitoring of NBS for local communities	mid-late 2023
Subtask 3.2	Create a series of webinars for practitioners to share their experience implementing and evaluating the performance of NBS projects	early-mid 2023
Subtask 3.3	Host workshops on barriers and opportunities for NBS	early-mid 2023

12. Describe post-project expected impacts:

Expected impact (by when: month, year)	SMART performance measure(s)
By December 2025, a North American community of practice that can offer an interdisciplinary approach to implementing NBS will have been formally established	A community of practice will have established the leadership and financial capacity to support engagement in NBS across North America
By December 2025, decision-makers in coastal cities will be using information developed by the project to support the use of NBS over that of traditional infrastructure when applicable	Evidence based on surveys that communities are planning to use NBS in infrastructure to address flooding based on information provided by the project
By December 2030, coastal cities will be using NBS in retrofitting or newly-developed infrastructure to address coastal flooding in a changing climate	Evidence based on surveys that communities are implementing NBS in infrastructure to address flooding based on information provided by the project

TEK Initiative: “Indigenous approaches to freshwater management in North America”

1. Project duration: from November 2021 to February 2023 (16 months)

2. Two-year budget (C\$): C\$500,000

Budget Year 1 (Nov. 2021–Aug. 2022): C\$376,000

Budget Year 2 (Sept. 2022–Feb. 2023): C\$124,000

3. Short statement of the issue(s) under this topic, need/gap identified; the project objective(s) and activities to address the issue; and expected outcomes and benefits/beneficiaries (max. 200 words):

Water is at the core of the six pillars under CEC’s Strategic Plan: water management, water cleanliness, ecosystem health, marine pollution, and supporting economic sectors heavily reliant on the sustainable management of water. Indigenous Peoples’ traditional cultures and knowledge systems are globally recognized as holding critical information related to achieving sustainable practices in environmental management. As such, a fuller appreciation of Indigenous Peoples’ perspectives is essential to advancing inclusive and diverse sustainable environmental management approaches in meeting the goals and priorities of the CEC, and to institutionalizing the inclusion of traditional ecological knowledge (TEK) in the activities of the organization.

This initiative will document Indigenous approaches to freshwater management in North America and make lessons learned available to the public through an online portal on CEC’s website. This initiative will include a series of successful case studies identified by the Traditional Ecological Knowledge Expert Group (TEKEG), an exchange of experiences through a knowledge dialogue to complement the successful case studies, and a workshop with water experts on potential opportunities to apply TEK to the CEC’s operations and policy recommendations.

4. Select the strategic pillar(s) from the 2021-2025 Strategic Plan that the project addresses:

- Clean Air, Land and Water
- Preventing and Reducing Pollution in the Marine Environment
- Circular Economy and Sustainable Materials Management
- Shared Ecosystems and Species
- Resilient Economies and Communities
- Effective Enforcement of Environmental Laws

5. Describe how the project uses strategic cross-cutting approaches in its implementation: Innovative and effective solutions and/or diverse and inclusive stakeholder engagement and public participation (including gender and diversity effects and opportunities, and youth) (max 100 words):

In its Strategic Plan, the CEC recognized the importance of Indigenous Peoples' approaches to generating innovative and effective solutions. Water is central to the spiritual, cultural and personal aspects of Indigenous life, and these holistic relationships and intergenerational knowledge transfer inform traditional approaches to sustainable management. This project will reflect upon these unique perspectives and engage Indigenous communities, promoting the participation of women and youth in North America, and increasing the CEC's diverse and inclusive stakeholder engagement efforts. Engagement with other groups will also be achieved via an exchange of experiences through a knowledge dialogue and the workshop. This engagement effort will allow for meaningful consideration of Indigenous Peoples' perspectives when sustainable freshwater management is addressed.

6. Explain how the project can achieve more impact through trinational cooperation (max 100 words):

Within each country there are diverse Indigenous peoples' perspectives and cultures born from relationships to specific ecosystems and environments that can contribute to innovative approaches in freshwater management. The CEC offers a unique platform to increase collaboration and knowledge sharing between Indigenous and non-Indigenous communities in the three countries, and to assess potential opportunities to apply TEK to the CEC's operations and policy recommendations, while respecting data/knowledge sovereignty and seeking free, prior and informed consent. All three countries share ecosystems and migratory species that rely on sustainable freshwater management and will benefit from a continental approach.

7. Describe how the project complements, or avoids duplication with, other national or international work (max 100 words):

Canada, Mexico, and the United States are all increasing their efforts to consider and integrate the approaches of Indigenous Peoples and TEK in decision-making and sustainable resource management, with respect to their national priorities, characteristics, and issues. This project will complement and inform those efforts at the North American scale. All three countries share ecosystems and migratory species that rely on sustainable freshwater management and will benefit from a continental approach. Furthermore, this project proposal is the result of previous efforts of the Parties, recognizing the importance of the approaches of Indigenous Peoples and communities in addressing shared priorities and goals and successfully implementing the CEC 2021-2025 Strategic Plan.

8. Describe how the project engages traditional ecological knowledge (TEK) experts or Indigenous Peoples and communities, if applicable (max 100 words):

The project seeks to document Indigenous Peoples and communities approaches and TEK related to freshwater management while respecting Indigenous oral traditions and work within the respective cultural contexts and protocols, capturing Indigenous perspectives through interviews, storytelling, and demonstrative displays of cultural teachings associated with water management in diverse contexts, with their free, prior and informed consent.

TEK experts, and Indigenous Peoples and communities will be actively engaged throughout the implementation of the project, including during the documentation of the successful case studies, the experience exchange through a knowledge dialogue, and the

workshop that will include water experts from the three countries. The project will provide opportunities to increase the integration of ancestral knowledge in the CEC’s work.

9. Describe how the project engages new audiences or partners, if applicable (max 100 words):

The project will provide the CEC the opportunity to reach out and engage Indigenous communities in the three countries in culturally appropriated ways. The project will also broaden CEC’s audience by targeting freshwater experts from Indigenous Peoples and communities, NGOs, private sector and local communities, to participate in a workshop.

10. Identify the designated partner agencies or organizations committed to implementing this project, as well as other organizations that could be involved, or benefit from it, including through outreach efforts, collaborations or partnerships (e.g., federal agencies, other levels of government, academia, NGOs, the private sector, civil society, and youth):

Lead agencies or organizations	Country
ECCC – Canada Water Agency Project (Tim Gull)	Canada
USEPA – Office of International and Tribal Affairs (Wenona Wilson, Andrew Baca)	United States
US State Department – Office of Conservation and Water OES/ECW (Julien Katchinoff, Allison Davis)	United States
Semarnat	Mexico
INPI – Instituto Nacional de los Pueblos Indígenas [National Institute of Indigenous Peoples] (Saúl Vicente Vázquez, María Isabel Reyes Guerrero)	Mexico
Conagua (Dulce Carolina Salcedo García)	Mexico
Consejos de Cuenca	Mexico

Other organizations/individuals (if applicable)	Country
Indigenous communities	Canada, Mexico, United States
Academia/water research institutes	Canada, Mexico, United States
NGOs	Canada, Mexico, United States
Provincial and State agencies	Canada, Mexico, United States
Community/ municipal/ regional authorities	Canada, Mexico, United States
Private sector representatives, TBD	Canada, Mexico, United States
Assembly of First Nations	Canada

Inuit Taparit kanatami	Canada
Métis National Council	Canada
Water Security Agency	Canada
The National Tribal Water Center (NTWC)	United States
Secretaria de Pueblos y Barrios Originarios y Comunidades Indígenas Residentes	Mexico
Indigenous Guardians (from Indigenous Guardian Programs)	Canada
California Fish and Game Commission	United States
Waterlution	Canada, México
Coastal First Nations	Canada
National Council of Indigenous Peoples	Mexico

11. In the following table, describe: the project objective(s) and the activities and subtasks planned to achieve the objective(s); the corresponding outputs, expected results and how they will be measured (performance measures); baselines (if known), and targets by end of the project; and the timeline and budget:

OBJECTIVE 1	Advance the integration of TEK, Indigenous Peoples’ perspectives and stewardship practices in freshwater management led by Indigenous Peoples in CEC operations and across North America.	
Activity 1 Budget	Document Indigenous Peoples’ approaches to freshwater management in North America through six successful case studies, including site visits to each community, should public health conditions permit. It is anticipated that communities should be directly involved in gathering feedback on the possibility to synthesize information. In the case that public health conditions do not allow for in-person visits, successful case studies will be completed through virtual meetings. Year 1: \$246,000	
Output(s)	Report documenting successful case studies (at least 2 per country) of Indigenous Peoples’ approaches to freshwater conservation and sustainable use.	
Expected results, performance measures	Recommendations on how TEK can be used for the sustainable management of freshwater in North America to address different environmental issues.	
Baseline (current status), if known	Some information on Indigenous Peoples’ approaches to freshwater management exists but has not been analyzed and synthesized at the North American scale. New successful case studies will also increase the body of knowledge on the use of TEK for freshwater management.	
Target (June 2022)	Report on Indigenous Peoples’ approaches to freshwater management in North America disseminated and lessons learned shared with CEC departments to allow for their integration in CEC activities.	
Subtask 1.1	Development and analysis of six successful case studies, including site visits and feedback from communities to document Indigenous Peoples’ approaches to freshwater management in North America.	When: November 2021-June 2022
Activity 2 Budget	TEKEG-led experience exchange through a knowledge dialogue on Indigenous approaches to freshwater management in North America. Year 1: \$20,000	
Output(s)	Summary report on outcomes from the experience exchange complementing the successful case studies.	

Expected results, performance measures	Documenting Indigenous Peoples' approaches to freshwater management in North America. Number of comments/responses received from Indigenous communities.	
Baseline (current status), if known	Some information on Indigenous Peoples' approaches to freshwater management exists but has not been analyzed and synthesized at the North American scale. The dialogue will also increase the body of knowledge on the use of TEK for freshwater management.	
Target (May 2022)	Report on Indigenous Peoples' approaches to freshwater management in North America is disseminated and lessons learned shared with CEC departments to allow for their integration in CEC activities.	
Subtask 2.1	Elaborate an outreach and engagement plan.	When: February 2022
Subtask 2.2	Liaise with other regional or international initiatives to leverage network resources, efforts.	When: February 2022
Subtask 2.3	Conduct the knowledge dialogue	When: April 2022
Subtask 2.4	Compile and analyze information collected as part of the knowledge dialogue.	When: May-June 2022
Activity 3 Budget	Assess potential opportunities to integrate TEK, Indigenous Peoples' perspectives and stewardship practices in freshwater management led by Indigenous People in CEC operations and across North America. Year 1: \$70,000, Year 2: \$114,000	
Output(s)	Workshop report. Assessment report to the Council.	
Expected results, performance measures	<p>The Parties and the CEC have increased their capacity to integrate TEK, Indigenous Peoples perspectives and Indigenous communities-led stewardship practices in freshwater management in CEC operations and across North America.</p> <p>The workshop allowed for the identification of other potential areas of work related to Indigenous Peoples approaches to address environmental issues affecting the three countries under future operational plans. Identification of potential Indigenous Peoples and communities' partnerships for future work.</p> <p>Number of participants at the workshop and the diversity of organizations represented (e.g., governmental, local communities, NGO, private sector, etc.)</p> <p>Number of leads for future projects.</p> <p>Number of Indigenous Peoples and communities' partnerships identified for future work.</p>	

Baseline (current status), if known	CEC projects with Indigenous communities in the three countries.	
Target (November 2022)	CEC constituents have been informed of ways to integrate Indigenous approaches and TEK freshwater management into the organisations' activities.	
Subtask 3.1	Hold a hybrid workshop (in-person and virtual) involving water experts (Indigenous and non-Indigenous experts) to share results from the successful case studies and knowledge dialogue and assess how to integrate lessons learned in policies, programs, and projects at the local, regional, national, and international level.	When: September 2022
Subtask 3.2	Workshop summary on key findings.	When: September 2022
Subtask 3.3	Elaborate an assessment report including recommendations for the integration of TEK to programmes, policies and projects in North America including to CEC's activities.	When: October- November 2022
Activity 4 Budget	Creation of an online portal on CEC's website showcasing Indigenous Peoples' perspectives on freshwater management and sustainable use. Year 1: \$40,000, Year 2: \$10,000	
Output(s)	Online portal on CEC's website on "Indigenous Peoples' approaches to freshwater management in North America"	
Expected results, performance measures	Information about Indigenous Peoples' approaches to freshwater management in North America is publicly available in three languages. All relevant materials are easily accessible on-line. Number of visitors (traffic) on the portal.	
Baseline (current status), if known	The CEC has a general section on local and Indigenous ecological knowledge but with limited information on Indigenous Peoples' approaches to environmental management.	
Target (November 2022)	The online portal has been launched.	
Subtask 4.1	Develop a user-friendly webpage and post all relevant project outputs in the three languages.	When: November 2021- November 2022
Subtask 4.2	Elaboration of videos documenting freshwater management practices for outreach and communication purposes.	When: November 2021-October 2022
Subtask 4.3	Elaborate a communication campaign to inform the public and stakeholders of the creation of the online webpage.	When: August 2022-November 2022

12. Describe post-project expected impacts:

Expected impact (by when: month, year)	SMART performance measure(s)
Integration of Indigenous Peoples and communities' approaches and TEK in CEC operations and recommendations. Dec., 2027	Number of times the approaches of Indigenous Peoples and communities have been used as part of CEC operations and policy recommendations.
Increased visibility of Indigenous Peoples and communities' approaches and TEK in environmental management. Dec., 2027	Traffic on the "Indigenous Peoples and communities' approaches to freshwater management in North America" webpage.

Trilateral Data Exchange System on the Import and Export of Hazardous Waste – Maintenance, Implementation, Testing and Launch of US-Mexico API Exchange in Production

- 1. Project duration: 18 months**
- 2. Budget (C\$): 249,000**
- 3. Short statement of the issue(s) under this topic, need/gap identified; the project objective(s) and activities to address the issue; and expected outcomes and benefits/beneficiaries:**

Pursuant to the legal frameworks controlling imports and exports of hazardous wastes across North America, Canada, Mexico and the United States exchange notice and consent notifications prior to shipping hazardous wastes. The “Notice and Consent Electronic Data Exchange” (NCEDE) is a system developed through the CEC in 2012 to enable the three countries to process these notifications efficiently and effectively and thus protect the North American environment through appropriate control of transboundary hazardous waste movements.

Building on the OP 2019–2020 project, “Modernizing the data exchange system for hazardous waste transfers,” the current project continues the joint work carried out by the trinational working group/Steering Committee, representing areas of authorization management for transboundary movements of waste and information technology. This project is needed because of unexpected delays in modernizing the system, caused by contract lapses which have delayed issuance of security certification for the US IT system that hosts the API exchange.

The aims of the project are to:

- (1) test implementation of the maintenance approach created in 2021 for the node-based and API-based exchanges, including, at the trinational level, an optimization and update of the data catalogs (operational codes) developed, and the incorporation of the regulatory changes on cross-border movements between the three countries;
- (2) complete testing of the US-Mexico API exchange in production; and
- (3) ensure IT support for a full period after the US-Mexico API exchange is successfully launched.

- 4. Select the strategic pillar(s) from the 2021–2025 Strategic Plan that the project addresses:**

- Clean Air, Land and Water
- Preventing and Reducing Pollution in the Marine Environment

- Circular Economy and Sustainable Materials Management
- Shared Ecosystems and Species
- Resilient Economies and Communities
- Effective Enforcement of Environmental Laws

5. Describe how the project uses strategic cross-cutting approaches in its implementation: Innovative and Effective Solutions and/or Diverse and Inclusive Stakeholder Engagement and Public Participation (including gender and diversity effects and opportunities, and youth):

Modernizing the NCEDE system is itself an innovative and effective solution, since improving existing NCEDE data exchange between the North American countries directly improves environmental protection by establishing more efficient control of hazardous waste exports and imports. For example, it can prevent unauthorized dumping and recycling of hazardous waste that could lead to environmental and health risks—particularly for vulnerable populations (e.g., women and children) that are exposed to these contaminants through their work or in their communities.

The use of a trilateral electronic system supports paperless information-sharing, extensive reduction in processing delays, and more efficient decision-making, as the current NCEDE has had a significant economic impact on recycling and waste management companies. The effective management of waste through international trade also supports job creation in the three countries, as each country develops better technology and the processes to manage waste and recyclables. However, while this project has the potential to positively impact all North American communities, it primarily involves enforcement agencies in the three countries and does not involve direct stakeholder engagement nor public participation.

In the case of the Mexican system, an information capture module of the hazardous waste export notification format for access by companies or individuals interested in requesting authorizations from the government agency responsible for the management of transboundary movements of hazardous waste had been developed under the OP 2019–2020 modernization project. This has brought added value by facilitating the management of authorization requests from the US and Canada and thus reducing errors in capturing technical information from the formats.

6. Explain how the project can achieve more impact through trinational cooperation:

The international, regional and bilateral agreements that control the import, export, and transit of hazardous wastes are binding on Canada, the United States, and Mexico, and promote the application of the procedure for notification of attempted export of hazardous waste and prior consent. The NCEDE is a trilateral data exchange system that enables the three countries to comply with these requirements through electronic means.

Significant cost efficiency is gained in working trilaterally rather than developing three separate systems (e.g., US-Mexico, US-Canada and Canada-Mexico). Working trilaterally helps to harmonize hazardous waste management controls in the three countries, reducing the administrative burden on companies and facilitating compliance with environmental regulations. The NCEDE establishes common practices in handling regulatory and technical data so that they can be exchanged in an understandable way between the three countries. Working together is thus also necessary in order to update NCEDE, in order to maintain a user-friendly system that guarantees a good level of security as the data are exchanged. The CEC has been instrumental in facilitating the original development of the NCEDE and continues to serve as the best mechanism for achieving the necessary policy dialogue and technical discussions that are needed between the three countries to update the NCEDE.

Under the previous project that ended on June 30, 2021, the three countries successfully updated and tested the existing US-Canada and US-Mexico node exchanges to allow more flexibility for updating required field values. They identified the updates required for the field values and agreed to phase in the updates, based on effective dates of international waste and transportation data and Canadian regulatory changes. In addition, the three countries developed the required structure and scope for a more robust and efficient API exchange and developed a US-Mexico API exchange using that structure.

While initial testing for the US-Mexico API exchange was successful, the US and Mexico would benefit from extended implementation and limited additional development support under this project. The three countries also developed an updated maintenance approach to facilitate updates to the exchanges due to future domestic or international changes to regulations or technologies but lacked the time to test the implementation of the approach. This project includes the next steps necessary to support this important effort.

7. Describe how the project complements, or avoids duplication with, other national or international work (max 100 words):

The exchange of information on notices and consents prior to shipping hazardous wastes supports the implementation of numerous domestic and international regulations applicable for transboundary hazardous waste movements. The project complements national efforts and facilitates coordination and information sharing amongst the countries on any update or modifications.

8. Describe how the project engages traditional ecological knowledge (TEK) experts or Tribal/First Nations/Indigenous communities, if applicable (max 100 words):

While this project has the potential to positively impact all North American communities, it primarily involves enforcement agencies in the three countries and does not foresee direct engagement with TEK experts or Tribal/First Nations/Indigenous communities.

9. Describe how the project engages new audiences or partners, if applicable (max 100 words):

While this project has the potential to positively impact all North American communities, it primarily involves enforcement agencies in the three countries and does not foresee direct engagement with new audiences or partners.

10. Identify the designated partner agencies or organizations committed to implementing this project, as well as other organizations that could be involved, or benefit from it, including through outreach efforts, collaborations or partnerships (e.g., federal agencies; other levels of government; academia; NGOs; the private sector; civil society; and youth):

Lead agencies or organizations	Expert	Country
Environment and Climate Change Canada (ECCC)	Georges Kedl Unit Head, Regulatory Operations Modernization Unit	Canada
Environment and Climate Change Canada (ECCC)	Robin Tremblay Program Manager, Regulatory Operations Section	Canada
Environment and Climate Change Canada (ECCC)	Yann Guilbault Unit Head, Notification Unit	Canada
<i>Secretaría de Medio Ambiente y Recursos Naturales— Semarnat (Dirección General de Gestión Integral de Materiales y Actividades Riesgosas - DGGIMAR)</i>	Alejandra Medina Arévalo Lead, Hazardous waste and materials management staff	Mexico

<i>Secretaría de Medio Ambiente y Recursos Naturales— Semarnat (Dirección General de Gestión Integral de Materiales y Actividades Riesgosas - DGGIMAR)</i>	Jesús Ignacio López Olvera Deputy Director of Transboundary Movements of Hazardous Waste	Mexico
<i>Secretaría de Medio Ambiente y Recursos Naturales—Semarnat (Dirección General de Gestión Integral de Materiales y Actividades Riesgosas - DGGIMAR)</i>	Azucena Olivares Angeles Management staff of authorizations for transboundary movements of hazardous waste	Mexico
<i>Secretaría de Medio Ambiente y Recursos Naturales—Semarnat (Dirección General de Gestión Integral de Materiales y Actividades Riesgosas - DGGIMAR)</i>	Dania Zepeda Ramos Management staff of authorizations for transboundary movements of hazardous waste	Mexico
<i>Secretaría de Medio Ambiente y Recursos Naturales— Semarnat (Dirección General de Gestión Integral de Materiales y Actividades Riesgosas - DGGIMAR)</i>	Alejandra Cuenca Ortega Management staff of authorizations for transboundary movements of hazardous waste	Mexico
<i>Secretaría de Medio Ambiente y Recursos Naturales— Semarnat (Dirección General de Informática y Telecomunicaciones - DGIT)</i>	Claudia Leticia Guerrero López Lead, IT Development Staff	Mexico
<i>Secretaría de Medio Ambiente y Recursos Naturales— Semarnat (Dirección General de Informática y Telecomunicaciones - DGIT)</i>	Rodolfo Yañez Ramirez IT Development Staff	Mexico
<i>Secretaría de Medio Ambiente y Recursos Naturales—Semarnat (Dirección General de Informática y Telecomunicaciones - DGIT)</i>	Rudy Gustavo Gonzalez Ortiz IT Development Staff support	Mexico

US Environmental Protection Agency (USEPA)	Laura Coughlan EPA waste import/export branch, US import/export regulations and policy expert	United States
US Environmental Protection Agency (USEPA)	Jana Tatum EPA waste import/export branch, US notice team leader	United States
US Environmental Protection Agency (USEPA)	Audrianna Maki EPA waste import/export branch, US notice officer	United States
US Environmental Protection Agency (USEPA)	Katie Linder EPA waste import/export branch, US notice officer	United States
US Environmental Protection Agency (USEPA)	Roy Chaudet EPA Information Technology Services	United States
US Environmental Protection Agency (USEPA)	David Charbonneau Chief, EPA Information Collection and Analysis Branch	United States
US Environmental Protection Agency (USEPA)	Scott Christian EPA Information Collection and Analysis Branch	United States
US Environmental Protection Agency (USEPA)	Christopher Muir EPA Information Collection and Analysis Branch	United States

Other organizations/individuals (if applicable)	Country
Consultant(s)	

11. In the following table, describe the project objective(s) and the activities and subtasks planned to achieve the objective(s); the corresponding outputs, expected results and how they will be measured (performance measures); baselines (if known), and targets by end of the project; and the timeline and budget.

OBJECTIVE 1	To test implementation of the maintenance approach developed under the previous project, including, at trinational level, an optimization and update of the data catalogs (operational codes) developed, and the incorporation of the regulatory changes on cross-border movements of the three countries	
Activity 1 Budget year 1 and year 2: C\$57,000	Regular, periodic trilateral calls to ensure a sound maintenance of the system. Budget: Year 1 – C\$28,500; Year 2 – C\$28,500	
Output(s)	Updated the data catalogs (operational codes) developed in the previous project Regulatory changes on cross-border movements of the three countries incorporated Successful exchanges over trilateral calls	
Expected results, performance measures	Optimized and robust system complete	
Baseline (current status), if known	System to be launched by January 2022	
Target (by project end)	Operations and Maintenance (O&M) support has been ensured throughout the entire project. The “NCEDE Maintenance Communication and Change Management” document has been drafted under the OP19-20 NCEDE project	
Subtask 1.1	Regular and periodic trilateral CEC-hosted calls - simultaneous interpretation services provided for four planned meetings	When: Full length of the project
Subtask 1.2	Continuation of management of items dealt with during preceding months and any anticipated outages or updates needed	When: Full length of the project
Subtask 1.3	Note any problems with how maintenance approach worked during preceding months and propose revisions as needed	When: Full length of the project
Subtask 1.4	Translate any updates to the maintenance approach document (“NCEDE Maintenance Communication and Change Management”) and other project-related documents as required	When: by the end of the project
OBJECTIVE 2	To bilaterally conduct extended testing for US-Mexico exchange developed under the previous OP19-20 project	
Activity 2	Testing of US-Mexico API exchange after US launch of exchange in production in US system via virtual meetings. Budget: Year 1 – C\$28,500; Year 2 – C\$28,500	

Budget year 1 and year 2: C\$57,000		
Output(s)	The “Lessons learned” document is updated and serves as living useful reference	
Expected results, performance measures	The US-Mexico API exchange is successful after US launch of exchange in production	
Baseline (current status), if known	The “Lessons learned document” has been drafted under the OP19-20 NCEDE project	
Target (by project end)	Tests finalized and lessons learned identified and compiled in a document accessible to the three countries’ government officials	
Subtask 2.1	Regular and periodic CEC-hosted calls - simultaneous interpretation services provided for four planned meetings	When: Full length of the project
Subtask 2.2	Carry out the testing of the new API between US and Mexico after US launch of exchange in production	When: Second quarter of year 1
Subtask 2.3	Update lessons learned document drafted in the previous project to reflect testing outcomes	When: Third quarter of year 1

OBJECTIVE 3	To provide Operations and Maintenance (O&M) and development support for Semarnat’s IT system	
Activity 3 Budget year 1 and 2: C\$135,000	To provide IT support to complete any needed additional modifications or development for Semarnat’s IT system associated with Objective 2, along with Operations and Maintenance (O&M) support for Semarnat’s IT system. Budget: Year 1 – C\$67,500; Budget Year 2 – C\$67,500	
Output(s)	Completion of tests and full integration of the new system between US and Mexico and eventually with Canada	
Expected results, performance measures	Full integration of the new system between US and Mexico achieved	

Baseline (current status), if known	System to be launched by January 2022	
Target (by project end)	Adjustments and developments needed made	
Subtask 3.1	Provide IT project for Support and Maintenance	When: from third quarter of year 1 to end of project
Subtask 3.2	Assessment of the need for and provision of IT project support for modification or development activities arising from the US-Mexico API production testing conducted under Activity 2	When: from second quarter of year 1 to end of project

12. Describe post-project expected impacts:

Expected impact (by the end of the project)	SMART performance measure(s)
The project is expected to advance the modernization of a user-friendly computer platform, easy to update by the IT areas of the environmental authorities of the three countries.	Full exchange between US and Mexico is enabled through the new API.
The modernization of the system will contribute to facilitating the compilation of information for individual country reports on authorized cross-border movements of hazardous waste.	Exchange of information and optimization and update of the operational codes following regulatory updates in the region and at international level.
The modernization of the system will contribute to increasing information flow and coordination between the countries regarding hazardous waste imports and exports.	Increase of trilateral communications of updates and any changes.

Enhancing Co-Benefits of Marine Protected Areas

1. **Project duration:** 36 months
2. **Budget (C\$):** 590,000 (over 3 years)
3. **Short statement of the issue(s) under this topic, need/gap identified; the project objective(s) and activities to address the issue; and expected outcomes and benefits/beneficiaries:**

Marine Protected Areas (MPAs) are key to conserving and restoring coastal and marine ecosystems, delivering many natural and socio-economic co-benefits. Over several projects, the CEC has provided a unique forum for North American MPA practitioners, bringing them together to identify and describe the marine ecoregions of North America and priority conservation areas; communicate the vital roles MPAs play for communities, the economy, scientific knowledge and conservation; gather scientific information on the impact of climate change on MPAs; and develop tools to assess conditions and identify vulnerabilities in coastal and marine ecosystems and respond to these vulnerabilities, contributing to strengthened capacity to apply these and other tools, and thus improve resilience locally and the ability to share knowledge across seascapes.

Building on the resulting informal networks and the North American Marine Protected Area Network (NAMPAN), the CEC is well positioned to contribute further to developing tools, best practices and other solutions that meet ecological and social needs through local, seascape-level, and North American collaboration focused on providing opportunities for inclusive and diverse engagement. Thus the project aims to enhance co-benefits by increasing Indigenous and local leadership in MPA networks; facilitating seascape-level conservation through collaboration; and identifying and sharing best practices for climate change adaptation and mitigation, habitat restoration, and blue carbon and other critical habitat work.

By providing a platform to learn from Indigenous and community-led conservation and for practitioners to identify opportunities for adaptation, mitigation, conservation and restoration in their MPAs, within shared seascapes, and across the marine ecoregions of North America, the project will support the development of an ecologically and socially inclusive MPA network across North America, for the benefit of coastal and marine ecosystems, coastal communities, and a more resilient North America.

4. Select the strategic pillar(s) from the 2021-2025 Strategic Plan that the project addresses:

- Clean Air, Land and Water
- Preventing and Reducing Pollution in the Marine Environment
- Circular Economy and Sustainable Materials Management
- Shared Ecosystems and Species
- Resilient Economies and Communities
- Effective Enforcement of Environmental Laws

5. Describe how the project uses strategic cross-cutting approaches in its implementation: Innovative and Effective Solutions and/or Diverse and Inclusive Stakeholder Engagement and Public Participation (including gender and diversity effects and opportunities, and youth):

The project promotes adaptively managed coastal and marine protected areas as nature-based solutions for climate adaptation and mitigation, with many socio-economic benefits to fisheries, tourism, and other sectors. Recognizing the critical role of Indigenous and local communities in the management and conservation of coastal and marine areas, the project will engage with the communities to learn from their approaches to coastal and marine conservation through knowledge sharing sessions and workshops. Elevating and sharing experiences from Indigenous-led and community-led conservation will further highlight Innovative and Effective Solutions, while contributing to Diverse and Inclusive Stakeholder Engagement.

6. Explain how the project can achieve more impact through trilateral cooperation:

The marine environment is inherently connected, and threats to biodiversity conservation are experienced at the local, regional and global scale since species distributions and migrations are transboundary in nature. Additionally, climate change impacts have increased the need for collaboration, as they are affecting the distribution and movement of species and causing habitat shifts. As a result, there is an urgent need to compile, create and disseminate knowledge among practitioners, and weave scientific and Indigenous knowledge systems to effectively manage our changing MPAs as elements of larger marine and coastal systems, and minimize negative impacts on communities. The CEC is a unique channel for this seascape- and marine ecoregion-level work, as it provides the framework to gather and share knowledge concerning MPA adaptation strategies and strengthen capacity across the network of North American MPAs, building on previous projects and collaborations.

7. Describe how the project complements, or avoids duplication with, other national or international work:

This builds on previous work by the CEC, published in *Scientific Guidelines for Designing Resilient Marine Protected Area Networks in a Changing Climate* (CEC 2012), the Rapid Vulnerability Assessment Tool (CEC 2017), the Climate Adaptation Toolkit (2019, updated in 2021) and accompanying training module (2021), and the Blue Carbon work (2013–2021). Together, this body of work provided new tools, knowledge and data developed with and for MPA practitioners in the three countries. The current project provides a unique opportunity to broaden the impact and scope of this work by delving deeper into best practices for MPA adaptation, blue carbon, habitat restoration and understanding ecological connectivity. The CEC has a strong track record of effectively sharing MPA project results and best practices through MPA networks, conferences, and partnerships. This project leverages the opportunities for collaboration offered by the International MPA Congress (IMPAC5) and other events to increase the leadership of Indigenous and local representatives in regional and international MPA networks. It will result in a more ecologically and socially inclusive NAMPAN.

8. Describe how the project engages traditional ecological knowledge (TEK) experts or Tribal/First Nations/Indigenous communities, if applicable:

Indigenous peoples have inhabited coastal areas of North America for thousands of years and have a long history of stewarding the marine and coastal environment and adapting to changes. This project will build on existing Indigenous engagement structures and processes (where applicable) and ongoing and upcoming opportunities to learn from Indigenous and local knowledge and conservation approaches, and to elevate and increase their engagement and participation in MPAs and MPA networks. It will also provide an opportunity for the inclusion of Indigenous and local community perspectives, and for collaboration and networking among Indigenous peoples involved in coastal and marine management and adaptation across the three countries.

9. Describe how the project engages new audiences or partners, if applicable:

The project includes activities specifically focused on the intentional engagement of under-represented Indigenous and local communities at the 5th International MPA Congress ([IMPAC5](#)) and follow-up events. It is expected to reach other new audiences through participation at IMPAC5 and continued engagement with NAMPAN.

10. Identify the designated partner agencies or organizations committed to implementing this project, as well as other organizations that could be involved, or benefit from it, including through outreach efforts, collaborations or partnerships (e.g., federal agencies, other levels of government, academia, NGOs, the private sector, civil society, and youth):

Lead agencies or organizations	Country
Federal: Parks Canada	Canada
Federal: Conanp	Mexico
Federal: NOAA	United States
Other organizations/individuals (if applicable)	Country
North American Marine Protected Areas Network (NAMPAN)	Canada, Mexico, United States
UN Environment – North America Region	International
IMPAC5 Steering Committee	International
IUCN World Commission on Protected Areas (Marine)	International
REDPARQUES	Latin America and the Caribbean
MPA networks and partnerships, particularly those adjacent to North America	International
Stakeholder groups engaged in the previous projects (e.g., MPA advisory councils, Indigenous governments and organizations, universities and NGOs)	Canada, Mexico, United States

11. In the following table, describe: the project objective(s) and the activities and subtasks planned to achieve the objective(s), the corresponding outputs, expected results and how they will be measured (performance measures), baselines (if known), and targets by end of the project, and the timeline and budget:

OBJECTIVE 1	Strengthen capacity to share and understand climate adaptation, blue carbon and other critical habitat conservation and restoration solutions, including those informed by Indigenous and local knowledge, for effective, resilient MPAs.	
Activity 1 Budget C\$165,000	Identify and share best practices for coastal/marine climate change adaptation, and conservation and restoration of blue carbon and other critical habitats.	
Output(s)	<ul style="list-style-type: none"> - Workshop report on climate change adaptation gaps and opportunities for shared seascapes, inclusive of various knowledge sources - New reference tools on good practices, lessons learned and case studies for the conservation and restoration of blue carbon and other critical habitats in a changing climate 	
Expected results, performance measures	<ul style="list-style-type: none"> - New tools and capacity-building to support the conservation and restoration of blue carbon and other critical habitats in a changing climate - Regional communities of practice—inclusive of a diverse group of practitioners—are strengthened 	
Baseline (current status), if known	- CEC blue carbon guidelines published in 2012, Climate Adaptation Toolkit (2019, updated in 2021) and accompanying training module (2021)	
Target (by project end)	- New reference tools—inclusive of diverse knowledge sources—communicating good practices and examples of climate change adaptation and mitigation, blue carbon, and other critical habitat conservation and restoration are made available. Communications material is disseminated to relevant audiences in the three countries.	
Subtask 1.1	Hold online scoping workshop for the Steering Committee (SC) to design workplan for workshops under Activity 1	early 2022
Subtask 1.2	Hold regional workshops (2) on lessons learned, case studies, and opportunities for climate change adaptation, conservation and restoration of blue carbon and other critical habitats for MPAs	mid 2022 – mid 2023

Subtask 1.3	Develop tools to communicate and share good practices and case studies regarding climate change adaptation in MPAs, and the conservation and restoration of blue carbon and other critical habitats, inclusive of various knowledge sources.	early 2023 - mid 2024
OBJECTIVE 2	Increase and support Indigenous and community leadership in marine conservation	
Activity 2 Budget C\$ 160,000	Build on existing approaches and ongoing and upcoming opportunities for Indigenous and community leadership and engagement	
Output(s)	<ul style="list-style-type: none"> - Indigenous-led and community-led knowledge exchange session on Indigenous and community coastal and marine stewardship at IMPAC5 - Participation of Indigenous and local representatives from underrepresented areas at IMPAC5 and parallel events - Capacity building workshop/material (based on needs identified by knowledge exchange session participants) 	
Expected results, performance measures	Indigenous and local representatives have strengthened networks; are newly engaged in MPA practitioner networks; and have self-identified needs for capacity building.	
Baseline (current status), if known	Indigenous and local community representatives in the three countries are actively engaged in marine conservation, but there is no knowledge community of practice established to weave and disseminate knowledge and knowledge systems across Canada, Mexico and the United States.	
Target (by project end)	Under-represented Indigenous and local communities join and participate in the knowledge community of practice for coastal and marine conservation in North America: <ul style="list-style-type: none"> - At least 6 new Indigenous or local community members in NAMPAN - One training (either via a workshop or other material) is delivered to address Indigenous and local community self-identified capacity building needs 	
Subtask 2.1	Trinational knowledge and perspectives exchange on Indigenous-led conservation experiences (held at IMPAC5)	September 2022

Subtask 2.2	Support for the participation of Indigenous and local representatives at IMPAC5 and parallel events (focus on new engagement/ underserved areas such as Atlantic, Great Lakes and/or Arctic)	September 2022 –2024
Subtask 2.3	Capacity building (to be designed in cooperation with Indigenous or community representatives, according to self-identified needs, informed by workshop at IMPAC5)	Early 2023 – mid 2024
OBJECTIVE 3	Strengthen seascape-level conservation in MPAs by increasing socio-ecological connectivity	
Activity 3 Budget C\$265,000	Develop tools and facilitate connections to inform linking and managing adaptive, connected, and representative MPA networks.	
Output(s)	<ul style="list-style-type: none"> - Tools resulting from a participatory process for inclusive knowledge sharing, each focused on a shared seascape, outlining locations and scope of adaptation efforts, ecologically and culturally important features and services, blue carbon initiatives, Indigenous and community organizations and researchers engaged on MPAs, and potential linkages to inform gaps and help guide next steps following the workshop - Communications materials and tools to support the use of workshop results 	
Expected results, performance measures	MPA practitioners have information and tools to work together to implement guidance on ecological inclusivity and strengthen seascape-level collaborations.	
Baseline (current status), if known	Marine conservation practitioners from the three countries have participated in foundational discussions on connectivity, but seascape-level collaboration and guidance on connectivity in North American marine conservation networks is limited.	
Target (by project end)	Marine conservation practitioners have access to information and networks to continue to improve seascape-level collaboration with knowledge of the components of MPA networks (e.g. MPAs, other effective conservation measures, Indigenous conserved and protected areas) and their functional contributions, as well as ecologically important features and services in shared seascapes	

Subtask 3.1	Hold workshop on components of MPA networks and their functional contributions	late 2022
Subtask 3.2	Hold shared seascape workshops (in 2 pilot seascapes) to identify ecologically important features and services, using participatory tools for inclusive knowledge sharing	early to mid 2023
Subtask 3.3	Develop materials and tools to communicate good practices and case studies to support the use of workshop results by practitioners	mid 2023-mid 2024
Subtask 3.4	Facilitate inclusive and diverse engagement and leadership in North American marine and coastal conservation networks	2022-2024

12. Describe expected impacts post-project:

Expected impact (by when: month, year)	SMART performance measure(s)
By December 2025, MPA practitioners have tools to incorporate blue carbon and other critical habitats conservation and restoration into their management plans/activities.	Evidence of blue carbon and other critical habitat conservation and restoration integration in newly developed adaptation strategies of MPAs.
By December 2025, an informal network of Indigenous and local community representatives working on coastal/marine stewardship.	Evidence of Indigenous and local leadership and engagement in marine conservation networks, and integration of Indigenous knowledge and perspectives in marine management plans.
By December 2025, tools for MPA practitioners to link and manage area-based measures.	Evidence of increased seascape-level collaboration in the three countries.

EcoInnovation Network – Transition

1. Project duration: 24 months

2. Budget (C\$)

Year 1: C\$150,000

Year 2: C\$75,000

3. Short statement of the issue(s) under this topic, need/gap identified; the project objective(s) and activities to address the issue; and expected outcomes and benefits/beneficiaries:

The CEC launched the EcoInnovation Network (EIN) at its Annual Council Session in 2019. The Network's mission is to encourage the creation of innovation centers at academic institutions across North America and link them to enhance education and provide tools for students and communities relative to entrepreneurship, innovation, and sustainable design for green growth. One of the initial objectives of this project was for the network to be self-sustaining after 2020. The CEC's 2019–2020 EcoInnovation Network project was successful in establishing the Network's core membership, developing foundational and strategic documents, and coordinating activities that built rapport among the members and young entrepreneurs and informed the development of useful resources and tools.

The COVID-19 pandemic, however, prevented the project from reaching its full potential and achieving self-sustainability. The academic institutions, forced to focus on short-term survival, turned their attention away from the Network: in-person activities to develop new services and resources did not take place and the recruitment of new members could not begin. As a last activity of the 2019–2020 project, a transition plan was developed to create a path for moving the Network to a new host institution. As a result of these discussions, the University of Waterloo (Ontario, Canada) came forward in March 2021 with a proposal to pay for a 2/3's full-time equivalent (FTE) employee to serve as a Manager at the University of Waterloo, and to make additional financial and in-kind contributions. With financial support from the CEC to continue Network operations during the transition period, this new Manager will manage the operations, develop the Network's services and resources, establish new Network governance, and look for funding for long-term self-sustainability.

Within this context, this follow-up project aims to create a financially independent and sustainable EIN by 30 June 2023, transferring the financial, operational and governance responsibilities of the Network from the CEC to the EIN members, partners and the managing institution, and by building the necessary operation and financial capacity to continue its efforts in the future. CEC funds will be combined with financial contributions from other sources, including membership fees, project funding from other organizations, and corporate contributions from private sector sponsors and partners.

4. Select the strategic pillar(s) from the 2021–2025 Strategic Plan that the project addresses:

- Clean Air, Land and Water
- Preventing and Reducing Pollution in the Marine Environment
- Circular Economy and Sustainable Materials Management
- Shared Ecosystems and Species
- Resilient Economies and Communities
- Effective Enforcement of Environmental Laws

5. Describe how the project uses strategic cross-cutting approaches in its implementation: Innovative and Effective Solutions and/or Diverse and Inclusive Stakeholder Engagement and Public Participation (including gender and diversity effects and opportunities, and youth):

Innovation centers can play a key role in sustainable economic development and job creation within the communities they serve, and beyond. A key feature of such centers is to provide inclusive and equal access to students and the public to capitalize on training, tools and resources for innovation, sustainable design, entrepreneurship, and business development and sustainable innovation for students and communities in North America. Additionally, the network facilitates a platform to create and share the diverse and inclusive learning experiences offered by innovation centers from academic institutions throughout North America. Through this transition, youth engagement with the Youth Ambassador programme of the EcoInnovation Network will be strengthened. For this purpose, youth are considered both target audiences (students and young entrepreneurs) and key partners in the successful implementation of stated activities (Youth Ambassadors). In addition, Youth Ambassadors from member organizations will be engaged in a consistent and formal manner as advocates for youth needs to be addressed by the broader network.

6. Explain how the project can achieve more impact through trinational cooperation:

The trinational characteristic of the network of innovation centers from academic institutions from Canada, Mexico and the United States will increase the quality and impact of this project by: 1) leveraging the best expertise in entrepreneurship, innovation and sustainability from all three countries to create or enhance centers on innovation and entrepreneurship for green growth; 2) making these centers and their services available and useful to youth, students, experts and communities in all three countries; 3) increasing the network's overall reach and opportunities for new and culturally diverse partnerships, collaborations and memberships to support project objectives; and 4) offering a neutral, trilingual platform for the exchange of publications, research, knowledge, and best practices between innovation centers from academic institutions in North America.

7. Describe how the project complements, or avoids duplication with, other national or international work:

The EIN fills the heretofore lack of youth entrepreneurship organisations that could link sustainability, green economics and environmental entrepreneurship, by working with academic institutions to develop and share successful models that will help build their capacity to support the incubation, growth, and commercialization of environmental entrepreneurship. Currently, no similar North American model exists that focuses on advancing youth innovation, entrepreneurship and sustainability led by innovation centers in each country. The Network creates a unique combination of international, national and local expertise, dedicated to bringing state-of-the-art models and tools that will support and accelerate the transition toward eco-responsible innovation and entrepreneurship, connected by academic institutions for the benefit of communities across North America.

8. Describe how the project engages traditional ecological knowledge (TEK) experts or Tribal/First Nations/Indigenous communities, if applicable:

The transition of the EcoInnovation Network will benefit from the Indigenous Initiatives Office at the University of Waterloo and allow for an inclusion of Indigenous entrepreneurs in EIN activities. In addition EIN implementation creates opportunities where Indigenous students and the public are welcome to participate and gain knowledge through student exchanges and collaborations with local communities. Additionally, the network can be informed by programs focused on Indigenous/local community entrepreneurship currently being delivered in academic institutions in North America.

9. Describe how the project engages new audiences or partners, if applicable:

During this transition the EIN will continue work with the current members and seek the recruitment of new ones with the additional intent of increasing diversity among member institutions and/or building capacity among institutions that serve culturally diverse communities – particularly focused on youth. These efforts will be supported by a cross-unit strategy for encouraging engagement through recruitment to the Youth Ambassadors programme for students and entrepreneurs associated with the member institutions of the network. Through outreach efforts and finding partnership opportunities in collaboration with CEC's Outreach and Partnerships Unit, this project will also engage new audiences aiming at increasing the visibility of the Network.

At the end of this transition, the EIN will continue to provide a line of communication for the CEC to hear the voices of academic institutions, experts, and youth representatives directly engaged in sustainable, environmental, and social innovation, and draw from concrete examples of entrepreneurship on topics of interest to the CEC, including resilient communities, environmental equity, Indigenous perspectives, clean technologies, circular economies, and resource efficiency.

10. Identify the designated partner agencies or organizations committed to implementing this project, as well as other organizations that could be involved, or benefit from it, including through outreach efforts, collaborations or partnerships (e.g., federal agencies, other levels of government, academia, NGOs, the private sector, civil society, and youth):

Name of Project Steering Committee Member	Affiliation (Country)
Sarah Lubick Robert Woodbury Halil Erhan	Business of Design, Simon Fraser University, Vancouver, British Columbia, Canada
Anna Ehrhardt Carmela Cucuzzella	District 3, Concordia University, Montréal, Québec, Canada
Daniel Forget	Université Laval, Quebec city, Québec, Canada
Jean Andrey Brock Dickinson	Economic Development Program, University of Waterloo, Waterloo, Ontario, Canada
Tom Wavering Brandt Smith Daniel Moses	Tom Love Innovation Hub, University of Oklahoma, Norman, Oklahoma, USA
Jeff Moore Cassandra Rigsby Haley Rader	Ronnie K. Irani Center for the Creation of Economic Growth (I-CCEW), Norman, Oklahoma, USA
Klaudia Manuela Sánchez Espíndola Miguel Ángel Santinelli Ramos	Facultad de Responsabilidad Social, Universidad Anáhuac, Mexico City, Mexico
Omar Chávez Alegría Adriana Gomez Castañeda	Facultad de Ingeniería, Universidad Autónoma de Querétaro, Queretaro, Queretaro State, Mexico
Germarilis Ruiz Gallosa	Neeuko, Centro de Innovación Colaborativa, Sagrado Corazón University, San Juan, Puerto Rico

11. In the following table, describe the project objective(s) and the activities and subtasks planned to achieve the objective(s); the corresponding outputs, expected results and how they will be measured (performance measures); baselines (if known) and targets by end of the project; and the timeline and budget.

OBJECTIVE 1	Transit the governance of the EcoInnovation Network from the CEC to a Network Manager at the University of Waterloo
Activity 1 Budget \$175,000	Support and ensure the proper transition of the Network’s financial, operational and governance responsibilities from the Commission to the University of Waterloo.
Output(s)	<ul style="list-style-type: none"> - A CEC-independent EcoInnovation Network, with renewed and strengthened membership, that has a sound framework and strategy and that operates within a governance scheme led by the University of Waterloo during its initial period of self-sustainability - A CEC/EIN partnership that keeps the CEC linked to the Network and that contributes to strengthening each other’s mandate, particularly with respect to supporting different youth initiatives and addressing sustainability, entrepreneurship and innovation topics
Expected results, performance measures	<ul style="list-style-type: none"> - Proper documentation to support the full and formal transition of EIN governance from the CEC to the University of Waterloo - Proper legal and administrative documentation regarding this transition has been developed, agreed upon and instrumented, as applicable. These instruments should include the formal definition of the roles that the CEC and the University of Waterloo would play on the transition and thereafter. - Membership strategy and agreements (developed and implemented) to confirm participation of founding members and expansion of membership to new institutions (including EcoInnovation Youth Ambassadors). These should also include the formalization and establishment of roles, responsibilities and commitments for all members (including EcoInnovation Youth Ambassadors) - Action plan (developed and implemented) that builds on the Transition Management Plan and that includes key activities and timeline for transition and establishes a formal action path to expand network and develop operation guidelines - Implementation of financial guidelines to operate and sustain the Network (considering the existing EIN funding strategy and including the development of a membership fee structure and fundraising effort) - Development of performance metrics for the Network measurement, completion of first review of impacts
Baseline (current status), if known	<ul style="list-style-type: none"> - EcoInnovation Network Charter (2019) - Partnership and Funding Strategy (2020) - Transition Management plan (2021)

Target (by project end)	A self-sustained EcoInnovation Network managed by the University of Waterloo	
Subtask 1.1	Define, develop and implement, as applicable, the proper legal, financial, operational and administrative documentation and actions to formalize the transition of the governance of EIN from CEC to the University of Waterloo.	When: First quarter, year 1
Subtask 1.2	Update membership and establish management roles (including announcement of new members, Youth Ambassadors, and website updates).	When: First and second quarter of year 1
Subtask 1.3	Develop formal written agreements between members and/or partners to establish roles and degree of participation, including formalized role and responsibilities Youth Ambassadors.	When: First quarter of year 1
Subtask 1.4	Support the development of a formal workplan for the transition and to deliver programming and support to network members. The workplan should include clear performance metrics to monitor and report progress and impact.	When: Second quarter of year 1
Subtask 1.5	Support the implementation of initial membership recruitment activities, in partnership with the University of Waterloo, to expand the network.	When: Third and fourth quarter of year 1
Subtask 1.6	Support the development and execution of financial guidelines for a self-sustained network including activities to engage with private sector, government agencies, charitable foundations and other relevant parties.	When: Third quarter to End of the project
Subtask 1.7	Review the transition and verification by members and partners of financial and operational self-sufficiency, and commitment to continued operations.	When: Fourth quarter of year 2
Subtask 1.8	Review second year performance and impacts, and conclusion of transition process to a standalone organization.	When: Fourth quarter, year 2
OBJECTIVE 2	Support of the EcoInnovation Network's purpose and operation during the two-year transition period.	
Activity 2 Budget \$50,000	<ul style="list-style-type: none"> - Support the operations of the EcoInnovation Network during the two-year transition period to further promote the creation and interconnection of innovation centers at academic institutions across North America and provide tools for youth and communities relative to entrepreneurship, innovation and sustainable design for green growth. - Support dissemination of EIN activities to increase visibility of the network and promote activities. 	

Output(s)	<ul style="list-style-type: none"> - Support for the implementation of the EIN workplan and activities, which includes: <ul style="list-style-type: none"> - delivering original green innovation and entrepreneurship programming designed to demonstrate the EIN’s value and provide EIN members with services and initiatives they will perceive to be of value; - increasing the capacity of individual innovation centers to support new entrepreneurial ventures in the environmental space; - enhancing outreach opportunities for improving and expanding education, and partnerships in the field of green entrepreneurship education and training; - communicating best practices in green entrepreneurship support across jurisdictional, cultural and linguistic lines; - first EcoInnovation Network Conference and other EIN related events and activities; - collaboration and engagement with independent activities carried out by the Youth Ambassadors of the EIN. - Increased dissemination and visibility of the EIN and its activities through outreach efforts and in partnership with other organizations. 	
Expected results, performance measures	<ul style="list-style-type: none"> - Report on the specific support provided by CEC to different activities of the EIN workplan - Active participation of CEC staff on EIN conferences and events - Report of CEC outreach and dissemination activities to increase visibility of the EIN - Report of CEC youth initiatives that were implemented in collaboration with the EIN 	
Baseline (current status), if known	<p>EIN past achievements to enhance education and provide tools for students and communities relative to entrepreneurship, innovation and sustainable design for green growth. These include the trilingual delivery of green entrepreneurship training (including the Green entrepreneurship series in partnership with the University of Waterloo), the facilitation of youth exchanges between CEC member countries, the sharing of valuable studies and resources, and active contributions to international discussions regarding sustainable and environmental innovation.</p>	
Target (by project end)	<ul style="list-style-type: none"> - CEC has supported the EIN workplan and activities during the transition period and has established a partnership with the Network for future collaboration. 	
Subtask 2.1	Provide support to the EIN to carry out different activities included in its workplan.	When: Third quarter year 1 to fourth quarter year 2
Subtask 2.2	Support the development and execution of events and educational activities for green entrepreneurs within academic institution.	When: Third quarter year 1 to fourth quarter year 2
Subtask 2.3	Support collaborative and partnership efforts to increase the dissemination of the EIN activities.	When: Third quarter year 1 to fourth quarter year 2

Subtask 2.4	Support, in partnership with the Outreach Unit, initiatives and activities to engage with youth interested in green entrepreneurship and sustainability.	When: Third quarter year 1 to fourth quarter year 2
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12. Describe expected impacts post-project:

Expected impact (by when: month, year)	SMART performance measure(s)
By December 2025, the financial, operational and governance responsibilities of the EIN will have been transferred from the CEC to the institution chairing the EIN.	<ul style="list-style-type: none"> - The proper legal, financial, operational and administrative documentation and actions to formalize the transfer of the EIN from the CEC to the institution chairing the Network exist. - The Network will have fully developed and adopted its own governance scheme.
By the end of the project, the support provided by CEC for the EIN operation will have resulted in increased network exchanges among academic institutions and/or resources to promote Green Entrepreneurship and innovation.	<ul style="list-style-type: none"> -Number of workshops/activities of the EIN supported by the CEC -Number of co-hosted events by network members -Number of EIN resources (tools, publications, etc.) supported by the CEC
By December 2025, the CEC will be collaborating with the EIN according with the model of partnership adopted.	<ul style="list-style-type: none"> -The proper documentation regarding the model of partnership between the CEC and EIN has been developed.

Preventing and Reducing Food Loss and Waste – Continued Outreach, Enhancement and Promotion of CEC-related Products and Stakeholder Engagement

1. Project duration: 18 months

2. Budget (C\$): 160,000

Year 1: C\$80,000

Year 2: C\$80,000

3. Short statement of the issue(s) under this topic, need/gap identified; the project objective(s) and activities to address the issue; and expected outcomes and benefits/beneficiaries:

Food loss and waste (FLW) is an increasingly important issue in Canada, Mexico and the United States, where close to 170 million tonnes of food produced for human consumption are lost and wasted each year—across the food supply chain, including in pre-harvest and consumer sectors.⁷ Disposal of food waste in landfills produces methane, a powerful greenhouse gas many times more potent than carbon dioxide. FLW also has environmental and socio-economic impacts, including the inefficient use of natural resources, economic loss, biodiversity loss, and public health issues. Therefore, preventing food from becoming waste in the first place is one of the most impactful approaches Canada, Mexico and the United States can take to reducing the environmental harm associated with FLW.

Outcomes of the CEC’s OP 2017–2018 project, “Measuring and Mitigating Food Loss and Waste,” the CEC’s OP 2019–2020 “Preventing and reducing food loss and waste” and earlier CEC projects to address food waste have assisted the Parties by establishing foundational documents, identifying relevant North American experts and stakeholder organizations in the field, and developing tools to motivate youth to take action to reduce FLW and assist businesses to measure FLW. At this stage a key opportunity exists to continue outreach and communication activities that promote the CEC-hosted content related to food loss and waste on its two main components: (1) *Education* (the “Let’s Shrink Food Waste Mountain” youth awareness campaign and the [Food Matters Action Kit](#)), and (2) *Measurement* (the [Why and How to Measure Food Loss and Waste: A Practical Guide](#) version 2.0 and its accompanying material). The main goal of this project is to build upon the momentum achieved during these projects through ongoing promotion and awareness-raising of the existing CEC products related to FLW prevention and reduction.

⁷ Source: CEC Foundational Report [Characterization and management of Food Loss and Waste in North America, 2017](#).

4. Select the strategic pillar(s) from the 2021–2025 Strategic Plan that the project addresses:

- Clean Air, Land and Water
- Preventing and Reducing Pollution in the Marine Environment
- Circular Economy and Sustainable Materials Management
- Shared Ecosystems and Species
- Resilient Economies and Communities
- Effective Enforcement of Environmental Laws

5. Describe how the project uses strategic cross-cutting approaches in its implementation: Innovative and Effective Solutions and/or Diverse and Inclusive Stakeholder Engagement and Public Participation (including gender and diversity effects and opportunities, and youth):

Building on the previous food loss and waste-related CEC projects and the materials developed (ranging from a toolkit for educators and a practical guide for businesses and organizations, to educational videos and topic-focused microsites), this project will underpin the stakeholder involvement and public participation engaged through the awareness campaign and the webinars held in 2019 and 2020.

6. Explain how the project can achieve more impact through trilateral cooperation:

Trilateral cooperation in this area elevates the visibility of the challenge of preventing, recovering, recycling, and reducing food loss and waste. This enhances the ability to enlist key North American and other international public/private sector partners and experts, which provides added value to the Parties. Since uneaten food represents social, environmental and economic costs, but also a large opportunity, taking action to prevent and reduce food loss and waste offers a rare “triple win” for businesses, institutions or other organizations, as it can lower economic costs by addressing operational inefficiencies, supporting efforts to combat food insecurity in communities, and reducing environmental impacts of the waste, including its carbon footprint. Thus, such cooperation helps in leveraging resources, creating broader potential market opportunities for technology solutions, and expanding the audience and value of outcomes and resources—allowing companies in North America to have consistent and effective methods for measuring food loss and waste, and youth to have shared awareness of how food waste reduction can benefit them and their communities.

7. Describe how the project complements, or avoids duplication with, other national or international work:

The CEC Measurement and Educational tools have been developed with input from national and international experts to define synergies and avoid duplication. The current project builds on these materials and aims to strengthen the outreach and communication efforts carried out under the previous project.

8. Describe how the project engages traditional ecological knowledge (TEK) experts or Tribal/First Nations/Indigenous communities, if applicable:

The CEC engaged youth representatives from Indigenous communities in the development of the *Food Matters Action Kit*. This project will further promote the CEC products that reflect the knowledge and commitment of these groups to the prevention and reduction of FLW as well as facilitate their access to this material.

9. Describe how the project engages new audiences or partners, if applicable:

The CEC Secretariat, along with the project Steering Committee members and stakeholders, will continue outreach activities and involvement in the organization of webinars and capacity building workshops in the three countries.

10. Identify the designated partner agencies or organizations committed to implementing this project, as well as other organizations that could be involved, or benefit from it, including through outreach efforts, collaborations or partnerships (e.g., federal agencies, other levels of government, academia, NGOs, the private sector, civil society, and youth):

Lead agencies or organizations	Expert	Country
Environment and Climate Change Canada (ECCC)	Michael Vanderpol	Canada
Environment and Climate Change Canada (ECCC)	Holly Van Boxmeer	Canada
Environmental Protection Agency (USEPA)	Elle Chang	United States
<i>Secretaría de Medio Ambiente y Recursos Naturales (Semarnat), Dirección General del Sector Primario y Recursos Naturales Renovables (DGSPRNR), Dirección de Regulación Forestal</i>	Lydia Meade	Mexico

<i>Secretaría de Medio Ambiente y Recursos Naturales (Semarnat), Dirección General del Sector Primario y Recursos Naturales Renovables (DGSPRNR), Dirección de Regulación Forestal</i>	Claudia Sánchez	Mexico
<i>Secretaría de Medio Ambiente y Recursos Naturales (Semarnat), Dirección General de Fomento Ambiental Urbano y Turístico, Dirección de Gestión Integral de Residuos</i>	Itzel González	Mexico

Other organizations/individuals (if applicable)	Country
Consultant/s (as needed)	

11. In the following table, describe the project objective(s) and the activities and subtasks planned to achieve the objective(s); the corresponding outputs, expected results and how they will be measured (performance measures); baselines (if known) and targets by end of the project; and the timeline and budget.

OBJECTIVE 1	Continued outreach, promotion and awareness raising of existing CEC products related to food loss and waste prevention and reduction
Activity 1 Budget year 1 and year 2: C\$80,000	Ongoing promotion, awareness raising and CEC content dissemination of the “Food Matters Action Kit” Budget year 1: C\$40,000; year 2: C\$40,000
Output(s)	Increase the dissemination of the CEC FLW content and ensure CEC presence in relevant webinars and conferences for educators and youth.
Expected results, performance measures	Enhance the awareness of the food loss and waste problem in North America and facilitate the dissemination of the CEC existing available material beyond the OP2019-2020 project pilot regions.
Baseline (current status), if known	Promotion and outreach have been carried out in three pilot regions (previous CEC OP2019-2020 project): Mérida (Mexico), Montreal (Canada) and Olympic Peninsula (US).

Target (by project end)	Increase the use of the Kit, consolidate existing partners/stakeholders and reach out to new ones.	
Subtask 1.1	Hosting/organizing CEC webinars and/or workshops along with the participation to webinars hosted by other organizations or institutions	When: year 1 and year 2
Subtask 1.2	Developing a factsheet or similar to support educators, communities and young leaders to use the CEC FMAK	When: year 1 and year 2
Subtask 1.3	Updating and carrying out the stakeholder/dissemination strategy aiming to increase the material use beyond the pilot regions	When: year 1 and year 2
Subtask 1.4	Using social media as platform for dissemination	When: year 1 and year 2
Subtask 1.5	Development of graphic material, translation of material and simultaneous interpretation services offered when required	When: year 1 and year 2
Subtask 1.6	Mailing and printing of CEC material upon request: hard copies of the FMAK, postcards and other tools	When: year 1 and year 2
Activity 2 Budget year 1 and year 2: C\$80,000	Ongoing promotion, awareness raising and CEC content dissemination of the “Practical Guide 2.0: Why and how to measure food loss and waste” Budget year 1: C\$40,000; year 2: C\$40,000	
Output(s)	Increase the dissemination of the CEC FLW content and ensure CEC presence in relevant webinars and conferences for businesses, institutions, organizations and municipalities and state governments.	
Expected results, performance measures	Enhance the awareness of the food loss and waste challenge in the various sectors of the food supply chain and promote CEC-related existing available material.	
Baseline (current status), if known	Promote CEC-revised material on FLW measurement and outreach carried out under the previous CEC OP2019-2020 project.	
Target (by project end)	Increase the use of the practical guide, consolidate existing partners/stakeholders and reach out to new ones.	
Subtask 2.1	Hosting/organizing CEC webinars and/or workshops along with the participation to webinars hosted by other organizations or institutions	When: year 1 and year 2
Subtask 2.2	Development of a factsheet or similar, to support the food supply actors to use the CEC Practical Guide	When: year 1 and year 2
Subtask 2.3	Updating and carrying out a dissemination strategy aiming to increase the uptake of the material	When: year 1 and year 2

Subtask 2.4	Use of social media as platform for dissemination	When: year 1 and year 2
Subtask 2.5	Development of graphic material, translation of material and simultaneous interpretation services offered when required	When: year 1 and year 2

12. Describe expected impacts post-project:

Expected impact (by when: month, year)	SMART performance measure(s)
By the end of the project the CEC will have hosted and participated in a series of webinars and workshops to further promote the FLW related products.	The CEC has hosted (at least one per component) and/or participated at a series of webinars.
By the end of the project a substantial base of users of the Food Matters Action Kit and the Practical guide and accompanying documents is secured.	Distribution of the material (hard copies or digital) has been secured and traffic to the FLW microsites is maintained.
By the end of the project the network of existing FLW partners/stakeholders is consolidated, and new ones have been contacted.	Partnerships have been secured and joint action has been undertaken.



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2021 Operational Plan Appendix II



Appendix II: CEC activities and budgets for 2021

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North American Pollutant Release and Transfer Register (NAPRTR) Initiative

The North American Pollutant Release and Transfer Register (NAPRTR) Initiative enhances stakeholder understanding of data on the sources, amounts and management of industrial pollutants across the region, with the objective of informing decisions relative to pollution prevention and reductions. The CEC, in collaboration with the national PRTR Programs and representatives of industry, NGOs, academia and civil society, work to improve access to and the completeness, comparability and quality of North American PRTR data and promote their use to support industrial sustainability initiatives.

To this end, North American PRTR data are harmonized, integrated, analyzed and disseminated via the *Taking Stock* report series and the Taking Stock Online website and searchable database. These efforts add value to the national PRTR data by enhancing stakeholder understanding through analyses and additional contextual information relating to the nature of certain industrial activities, pollutant releases in border areas and their potential impacts on shared ecosystems, and transfers of pollutants across national borders, where integrated data and information provide support for improved reporting compliance and environmental management.

This unique tri-national collaboration, which involves specific activities aimed at engaging a wide variety of stakeholders in the analysis and discussion of PRTR data and information for approximately 30,000 facilities, has resulted in marked improvements in data access, quality, coverage, and comparability for the region. The Taking Stock Online website tools are instrumental in improving public access to and understanding of North American PRTR data, industrial activities, and the potential risks associated with the substances they use and generate, as well as factors affecting changes in reporting. The data and information are used by researchers and NGOs to support their related efforts, and by industry sectors and governments to assess facility reporting and the effectiveness of pollution prevention measures.

In 2021, activities include:

- a) coordination among national PRTR programs to enhance NAPRTR data quality, comparability and accessibility;
- b) the integration into Taking Stock Online of the most recent PRTR data available for all three countries and the development and publication of Volume 16 of the Taking Stock report, featuring a special analysis of off-site pollutant disposals; and
- c) stakeholder engagement activities and the development of a voluntary industry pollution prevention “Challenge” initiative.

Objectives and activities	Budget (\$C)
<p>Objective 1. Enhance the access, quality, completeness, and comparability of North American PRTR data, and increase access to information about the sources and nature of industrial releases, in order to support decision making relative to pollution prevention and reductions.</p>	
<p>Activity 1. Coordination and communication with the national PRTR programs and other stakeholders relative to enhancing NAPRTR data quality, comparability and accessibility</p> <ul style="list-style-type: none"> a. Collaborate and exchange with government PRTR officials and other pertinent stakeholders relative to enhancing comparability among the North American PRTRs – e.g.: assessing changes at the national level and their impacts on NAPRTR comparability. b. Work with the PRTR Officials and stakeholders to address PRTR data quality and accessibility issues and implement recommendations in the updated Action Plan to Enhance the Comparability of PRTRs in North America (“Action Plan”) c. Share information about national efforts involving the use of PRTR data to promote reductions in pollution releases, the establishment of pollution prevention programs, and improved chemicals management. 	10,000
<p>Activity 2. Collection, integration, analysis and dissemination of North American pollutant release and transfer data</p> <ul style="list-style-type: none"> a. Integrate 2019-2021 data from the three PRTR programs and where pertinent, other sources of information, for the Taking Stock Online searchable database; provide the data in a format suitable for use in web and mapping applications (in accordance with CEC guidelines); develop the information management infrastructure and explore innovative ways to improve the process of gathering, storing, and accessing NAPRTR data in order to increase their usefulness in existing or future applications (e.g., Atlas mapping, and other CEC initiatives). 	125,000
<p>Activity 3. Stakeholder engagement</p> <ul style="list-style-type: none"> a. Organize consultations and promote engagement of stakeholders, including governments, NGOs, industry, media and the public, relative to the NAPRTR Initiative and the Taking Stock report. Some of these consultations are conducted in coordination with national PRTR program outreach activities. b. Increase outreach via enhanced access to the Taking Stock Online website and tools, workshops, outreach videos and/or webinars with stakeholders and potential users of the information (e.g., media, NGOs, industry), and participation in national and international PRTR efforts. c. Develop a voluntary industry pollution prevention “P2 Challenge” 	50,000
Total	185,000

Partner organizations: National PRTR programs (Canada’s NPRI; Mexico’s RETC; U.S. TRI) Industry associations, Green Chemistry organizations and industry sustainability initiatives, academic institutions, NGOs.

North American Environmental Atlas and North American Land Change Monitoring System (NALCMS)

The North American Environmental Atlas (the Atlas) is an online mapping resource that supports research, analyses and management of environmental information in Canada, Mexico and the United States. It assembles over sixty seamless and accurate cartographic data and maps, documentation, and interactive map layers at a scale of 1:10,000,000 or greater. Thematic map layers allow for the visualization of various environmental topics, such as impacts on ecosystems and communities of a variety of economic activities. Activities in 2021 will focus on individual map layer updates, including (but not limited to) Blue Carbon, Terrestrial Ecoregions, North American Forests, and Reporting Industrial Facilities. Additional activities and resources will also be dedicated to improving the visibility and dissemination of this work; including migrating all datasets to ArcGIS Online, in order to increase dissemination and use of our unique North American mapping products.

The North American Land Change Monitoring System (NALCMS) involves ongoing collaboration among the remote sensing, mapping, natural resource and conservation agencies in our three countries to monitor and document land cover and its change over time. The NALCMS depicts information about land cover and land cover change in a seamless, consistent and automated way across North America. It provides valuable indicators to help the three countries better understand the dynamics of land cover and its change over time, and can be used in analyses for decision making with regard to issues such as ecosystem management and conservation, climate change mitigation and adaptation, and urban sprawl.

Activities in 2021 will focus on integrating and publishing the North American land cover 2020 dataset.

Objectives and activities	Budget (\$C)
Objective 1. Produce improved and updated land cover map products and data sets	
Activity 1. Produce continental 2020 land cover map product at 30-m	10,000
Objective 2. Strengthen and facilitate collaboration among partner agencies on an ongoing basis, to produce harmonized North American data for decision-makers and researchers	
Activity 1. Presentations at relevant events to promote NALCMS products	5,000
Objective 3. Produce and update thematic map layers to show environmental information at the continental scale, including information stemming from CEC projects	
Activity 1. Updating and adding datasets to the Atlas (Blue Carbon, North American Forests, Protected Areas, PRTR Reporting Industrial Facilities,	25,000
Activity 2. Mapping support for other CEC projects and activities (SEM, NAPECA, Monarchs, Blue Carbon, others as needed)	5,000
Activity 3. Mapping software licensing	3,000
Objective 4. Dissemination activities and outreach strategies to engage additional users	
Activity 1. Migrate all NA Atlas and NALCMS products to ArcGISOnline	5,000

Activity 2. Creation of ArcGIS StoryMaps and other promotional material to reach and engage stakeholders.	15,000
Activity 3. Assess the needs of CEC data platform users to inform the development of CEC data and information	30,000
Total Budget	98,000

Partner Organizations: NRCan (CCMEO), USGS, Conabio, Conafor and INEGI

Submission on Enforcement Matters (SEM)

Objectives and activities	Budget (\$C)
Objective 1. Strengthen public awareness on the SEM process	
Activity 1. Develop a SEM Outreach Plan considering challenges and opportunities for public participation in Canada, Mexico and the US.	2,000
Activity 2. Carry out outreach and engagement activities with relevant stakeholders in North America and, through our network of partners, implement the SEM Outreach Plan in the region. Include activities such as workshops on the SEM process under the USMCA, the filing process and requirements, and the way in which the process supports transparency and public participation in environmental law enforcement.	65,000
Objective 2. Maintain rigorous, transparent, timely, and efficient SEM efforts	
Activity 1. Implement the SEM process following principles of transparency and timeliness, ensuring an efficient and rigorous processing of submissions and development of factual records.	195,000
Activity 2. Revise the current procedures to make the filing of submissions simple, straightforward, and consistent with the USMCA	18,000
Total	280,000

Joint Public Advisory Committee (JPAC)

Objectives and activities	Budget (\$C)
Objective 1. Support effective trilateral cooperation	
Activity 1. Organize JPAC activities (e.g., meetings, consultations and webinars) to provide advice to the Council on matters within the scope of the ECA based on strong stakeholder engagement	250,000
Activity 2. Facilitate the participation of JPAC members in CEC projects, based on their respective expertise	20,000
Objective 2. Increase JPAC stakeholder engagement	
Activity 1. Liaise with JPAC to inform, support and enhance CEC engagement activities	30,000
Total	300,000

Traditional Ecological Knowledge Expert Group (TEKEG)

Objectives and activities	Budget (\$C)
Objective 1. Increase TEKEG stakeholder engagement	
Activity 1. Liaise with TEKEG to inform, support and enhance CEC engagement activities	10,000
Objective 2. Ensure optimal organizational capacity to support the Parties	
Activity 1. Identify and implement TEK, indigenous perspectives and stewardship practices to the CEC operations and policy recommendations	90,000
Total	100,000

Outreach and Partnerships (Engagement)

Objectives and activities	Budget (\$C)
Objective 1. Expand CEC stakeholder network	
Activity 1. Develop and perform survey with CEC's stakeholders (from past 10 years) to inform engagement strategies	20,000
Activity 2. Integrate and maintain user-friendly software to compile & manage stakeholder information	5,000
Activity 3. Develop assessment to implement innovative engagement tools and communication channels by target sectors	5,000
Objective 2. Increase engagement with existing and potential stakeholders through improved internal CEC practices	
Activity 1. Perform qualitative and quantitative processes to inform engagement efforts in CEC activities (e.g. strategic and targeted surveys)	10,000
Activity 2. Optimize CVENT tool for best practices in stakeholder engagement and follow up to facilitate communications with stakeholders	2,000
Activity 3. Complement stakeholder engagement efforts (e.g., e-blasts, campaigns, reminders) across all CEC activities	10,000
Objective 3. Increase youth engagement in all CEC activities	
Activity 1. Develop and implement youth engagement strategy	5,000
Activity 2. Research to implement innovative youth engagement tools	5,000
Activity 3. Organize youth and indigenous led event to facilitate collaborations with youth organizations	10,000
Activity 4. Support CEC's Youth Innovation Challenge	5,000
Objective 4. Increase JPAC & TEKEG stakeholder engagement	
Activity 1. Assess stakeholder engagement in JPAC activities to support future efforts	2,000
Activity 2. Research indigenous led efforts, networks and groups to inform engagement	6,000
Activity 3. Create and disseminate corporate video on JPAC and TEKEG and outreach strategy	5,000
Activity 4. Create and host webinars with JPAC and TEKEG members to inform stakeholders on their roles and activities	5,000
Activity 5. Support coordination of online consultations, public meetings, digital platforms.	5,000
Objective 5. Enhance dialogue with the stakeholder during the Annual Council Session	
Activity 1. Support Council to engage stakeholders through 1) direct outreach to key stakeholders at the location of the Council session and across the three countries (including coordination of hubs); and 2) engagement campaign strategies	6,000
Activity 2. Gather feedback from stakeholders and analyze results (surveys and reports)	4,000

Objective 6. Maximize resources and impact through partnerships linkages and channels	
Activity 1. Organize joint-events with international organizations on topics of common interest	25,000
Activity 2. Attend international events to identify potential partners	5,000
Activity 3. Promote partnerships work through social media and blog articles	5,000
Activity 4. Develop and maintain a partners' webpage on the CEC website to raise partners visibility	5,000
Total	150,000

Outreach and Partnerships (visibility)

Objectives and activities	Budget (\$C)
Objective 1. Increase regional and international presence and recognition of the CEC as a key player for environmental cooperation in North America	
Activity 1. Present CEC work at national, regional and international events	5,000
Activity 2. Organize public online webinars to highlight CEC work	5,000
Activity 3. Collaborate in efforts led by international organizations	10,000
Activity 4. Develop best practices and resources to support outreach, partnership building and communication across all CEC activities	10,000
Objective 2. Increase collaborations across all CEC activities at an organizational level	
Activity 1. Perform organization scan on CEC priorities to identify collaborations and partnership opportunities	10,000
Activity 2. Refine outreach and partnerships performance measurement practices to be responsive to analytics	10,000
Activity 3. Promote collaborative efforts through social media campaigns and identify lessons learnt through metric analytics	5,000
Total	55,000

Communications

Objectives and activities	Budget (\$C)
Objective 1. Increase overall audience engagement with CEC content by refining target audiences and messaging according to geographic, subject-matter or language considerations	
Activity 1. Refine internal communications performance measurement practices to be responsive to analytics	10,000
Activity 2. Use paid digital media strategies to target specific audiences	20,000
Activity 3. Improve the CEC's email marketing practices by providing tailored content to subscribers according to preferences	10,000
Objective 2. Communicate the CEC's role and opportunities to engage using compelling stories and visuals across a variety of platforms	
Activity 1. Implement CEC visual rebrand across all assets	35,000
Activity 2. Create compelling social media post copy and high quality digital graphic images that are consistent with new brand	56,000
Activity 3. Tell stories about CEC work using high quality photography, videography and infographics	31,500
Objective 3. Increase awareness of the CEC among the general public as well as relevant regional/international stakeholders as a key player for environmental cooperation in North America	

Activity 1. Gain ‘earned media’ coverage from reputable media sources and influencers about outcomes of CEC work to build awareness and trust among the general public	87,500
Activity 2. Capitalize on the CEC’s annual Council Session as an opportunity to drive awareness and build engagement with the organization	60,000
Total	310,000

Council

Objectives and activities	Budget (\$C)
Objective: Support effective trilateral cooperation	
Activity 1. Support collaboration on Council deliverables that are bold and ambitious	10,000
Activity 2. Enhance cooperation on ensuring results-oriented and productive Council and Alt Reps meetings	55,000
Activity 3. Facilitate an engaging exchange between the Council and the public, and among CEC constituents	205,000
Total	270,000

Performance Measurement

Objectives and activities	Budget (\$C)
Objective: Evaluate CEC activities, demonstrate progress, and share relevant accomplishments	
Activity 1. Implement enhanced performance measurement (PM) framework, including organizational and project-level performance measures and software acquisition	25,000
Activity 2. Report to the Parties on a regular basis, including the 2019-2020 OP and SP2015-2020 performance reports, 2020 Annual Report and 2021 Executive Director Report to Council.	60,000
Activity 3. Engage and coordinate with Parties’ experts and other stakeholders to monitor, assess, and report on the long-term impact and contribution of initiatives in Canada, the United States, and Mexico, particularly on projects that may lead to changes in capacity, conditions and policies	70,000
Total	155,000